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An Indicator Model for Measuring the Innovative Potential of an Urban Community



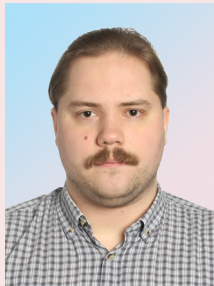
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Abstract. The article presents the results of a study aimed at developing and testing tools for quantifying the innovation potential of urban communities. The relevance of the work is determined by the need to move from abstract concepts of innovation potential to measurable parameters that allow making informed management decisions. The scientific task solved within the framework of this study was to develop and substantiate a methodology for quantifying and evaluating the innovation potential of a territorial community. The authors proposed a theoretical justification for the indicator model, described in detail the process of its construction and presented the experience of its practical application through the calculation of the integral index of innovation, which made it possible to operationalize this socio-cultural phenomenon. Empirical testing of the methodology was carried out on the data of two large cities of the Vologda Region – Vologda and Cherepovets. The results confirmed the diagnostic capabilities of the toolkit for detecting inter-urban differences. It was found that the population of Cherepovets demonstrates

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a higher willingness to technological changes, whereas Vologda is characterized by the predominance of respondents with medium and low values of the innovation index, which correlates with conservative attitudes and employment structure. It is concluded that the proposed model can serve as a basis for monitoring the dynamics of innovation attitudes, evaluating the effectiveness of development strategies and timely adjustment of management impacts. The toolkit allows authorities to move to targeted work with various segments of the population: to support innovation leaders, involve pragmatists, and reduce anxiety among conservative groups through differentiated communication strategies. The possibility of scaling the methodology for the analysis of professional and youth communities, as well as for the typologization of municipalities, is substantiated. The study proves that measuring innovation potential is an effective tool for managing territorial development, allowing combining technological modernization with reliance on the social capital of local communities.

Key words: innovation, innovativeness index, indicator model, measurement methodology, bearer groups, social capital, urban community.

Introduction

Innovativeness is emerging as a contemporary paradigm of social development, and this is fueling a growing research interest in the field. Innovation processes, having first made their mark very visibly in the economy and industry, have reshaped institutional arrangements, given impetus to the development of science and education, and affected the infrastructure of society and its social structure, giving rise to new professional and educational strata.

It has also become clear that innovation-driven transformations depend heavily on the sociocultural characteristics of a community: existing values and behavioral norms determine the degree to which a population is ready for change, and the successful introduction of innovations hinges not only on how well thought-out and timely they are, but also on the readiness of the individual worker or of the population at large to embrace them (Rogers, 2023). Research on innovation, therefore, cannot be confined to purely technological or economic boundaries, which mainly address the material side of innovation processes, whether a product or a service (Patrakov et al., 2022). It is becoming essential to study the social dimensions of innovation in the broadest sense of the term.

In this respect, the sociological approach emerges as a priority line of research, since it is society's readiness to embrace change that ultimately determines whether innovations take root.

This raises the question of how to measure quantitatively the innovative potential of an urban community while taking into account its socio-cultural nature – readiness for change, attitudes toward the new, paternalism, cooperation, and trust – given that existing approaches either remain abstract or focus largely on technological and economic indicators, ignoring the human factor.

Drawing on this understanding, there emerged a hypothesis that a city community's innovative potential is a measurable parameter that can be operationalized through a composite index, which opens up the possibility of assessing a population's level of innovativeness and reveals a community's development potential. Proceeding from this, we formulate the aim of our study, which is to develop a comprehensive methodological framework for identifying and analyzing the innovativeness of a territorial community, understood as readiness to introduce innovations and measured through concrete practices and attitudes. The first necessary step in this direction is a theoretical analysis, which

will make it possible to construct a cognitive model that serves as the basis for an indicator model. On the basis of this indicator model, a composite innovation index will be built, and this index will, in turn, make it possible to describe the innovative potential of a territorial community.

Theoretical foundations of the analysis

The formation and development of the category of “innovation” has drawn on neoclassical, institutional, evolutionary, and systems approaches, modern management theory, and a number of other strands. It is generally accepted that the foundations of contemporary innovation research were laid by Joseph Schumpeter (Schumpeter, 1939) and Nikolai Kondratiev (Kondratiev, 2002). The link they identified between socio-economic progress and innovation became a powerful stimulus for the study of this social phenomenon.

Understanding innovation as a complex process made it possible to break it down into stages, from the initial phase – most often triggered by fundamental scientific research – to successful implementation in the sphere of consumption (Korostyshevskaya et al., 2018). Another outcome of this research was the introduction into academic parlance of such concepts as “innovation activity”, “innovation process”, “innovation cycle”, and the like (Barneva, 2007). Attention should also be drawn to the sheer diversity of innovations, which has allowed scholars to construct classifications based on a whole range of criteria. This was an important step forward in their study and opened up new research opportunities (Goldyakova, 2006).

Beginning in the second half of the twentieth century, the work of economists increasingly tended to treat innovation as a social phenomenon rather than a purely economic one. These ideas appear in the writings of P. Drucker, C. Freeman, G. Mensch, A. Kleinknecht, and a number of other scholars, who began to explicitly identify connections between innovation and the progress of society in all its spheres. Developing these ideas

further, contemporary authors raise the issues of responsible innovation directed toward the public good (Zhou et al., 2026), examine the role of innovation in a post-growth society (Isacson et al., 2026), and consider the part played by invasive rapid innovations in the everyday life of modern society (Lasarov, Hoffmann, 2026).

Proceeding from a sociological perspective on innovation, one must take into account the existing conceptual approaches to interpreting it, the most fundamental of which can be regarded as structuralist analysis, structural-functional analysis, and sociocultural analysis. Drawing on these approaches makes it possible to treat innovation as a form of social action invested with specific social meanings. At the same time, the realization of such action is shaped by cultural norms and attitudes, which, in turn, can serve not only as drivers of novelty but also as obstacles to it.

Viewed through the lens of systems analysis, within the framework of the structural-functional approach developed by T. Parsons (Parsons, 1997), institutions and the institutional environment can be seen as a factor that determines both the feasibility and the success of innovations. In the Parsonian tradition, institutions are understood as stable complexes of norms, values, and behavioral patterns, making them regulators of social action. For an innovation to be successfully adopted, therefore, it must be taken up by the existing institutional system – that is, it must either fit into the established normative structures or set in motion their gradual adaptation. It is precisely through the process of institutionalization – when an innovation becomes embedded in the formal and informal rules, standards, and role expectations that are shared by members of society and that ensure the reproduction of the social system – that it becomes socially significant (Parsons, 2002). Extending this tradition, P. Sztompka, in his analysis of social change, stressed that institutions act not only as a stabilizing factor but also as a structural opportunity

for the creative activity of individuals, who can redefine and transform institutional frameworks in the course of introducing novelties (Sztompka, 1993).

Contemporary research fleshes out this theoretical insight along two lines. First, at the macro level, “readiness for innovation activity” is linked to the quality of the institutional environment, operationalized through such parameters as the stability of regulatory policy and the effectiveness of public administration – an approach reflected in the methodology of the Global Innovation Index¹. Second, empirical studies focusing on high-tech sectors (notably the artificial intelligence industry) show that the institutional environment acts as a significant moderator of innovative activity: government subsidies and intellectual property protection regimes can either amplify or redistribute the effect of networking among innovators (Yang et al., 2025).

Contemporary Russian research confirms and extends this idea. Thus, V.S. Mikhailov and G.R. Islakaeva show that informal institutions specific to Russia (rent-seeking behavior, conservatism, and an aversion to change) continue to exert a negative influence on entrepreneurial conduct and innovation readiness, despite active government measures to strengthen formal institutions (Mikhailov, Islakaeva, 2025). M.G. Allabyan conceptualizes barriers to innovation readiness as phobias, procrastination, hedonic adaptation, and innovation nihilism, which evolve into threats to technological sovereignty – threats that can only be overcome by building an “antifragile national innovation system,” which is inconceivable without a comprehensive, institutionally grounded approach (Allabyan, 2025). In turn, L.N. Drobyshevskaya and K.M. Isakov demonstrate that proactive enterprises capable of institutional adaptation face a 36%

lower risk of liquidation and achieve significantly higher profits (Drobyshevskaya, Isakov, 2024). Contemporary researchers also devote particular attention to the role of innovativeness in sustainable development. Scholars are refining the methodology for designing innovation roadmaps (Mukha, 2024), examining the part played by innovation in fostering sustainable regional development (Khamidova, Babaeva, 2024), and proposing solutions for introducing innovations that aim to meet the Sustainable Development Goals (Ragulina, 2024).

Moving beyond institutional analysis in the interpretation of innovative practices is made possible by the sociocultural approach, the foundations of which were laid by P.A. Sorokin. This approach draws attention to extra-institutional factors that shape attitudes toward innovation, such as culture and tradition. Possessing considerable heuristic potential, the sociocultural approach offers a key to understanding the paradoxical situation in which some innovations become seamlessly woven into the social fabric, while others encounter resistance even under the most favorable institutional conditions. The explanation for this phenomenon lies in a fundamental tenet of Sorokin’s theory: any changes at the level of practices, everyday life, tools, or social organization become possible only insofar as they are preceded by a transformation of the human being’s “inner world”. As Sorokin stressed, “a change in practices, everyday life... occurs only after a corresponding change in the psyche, in ideas, knowledge, and beliefs, and without a prior mental change it cannot occur” (Sorokin, 1992). In other words, culture, as a system of meanings, acts as a filter that either allows an innovation to enter everyday life or blocks it.

In the Western scholarly tradition, the line of sociocultural analysis of innovation has been most consistently developed by G. Hofstede, whose model of cultural dimensions made it possible to verify empirically the influence of value orientations

¹ Available at: <https://www.wipo.int/web-publications/global-innovation-index-2025/en/appendix-iii-sources-and-definitions.html>

on innovative activity (Hofstede, 2001; Hofstede et al., 2010). Hofstede demonstrated that such dimensions of national culture as power distance, uncertainty avoidance, and long-term orientation correlate directly with a society's capacity to generate and adopt novelties: low uncertainty avoidance fosters greater tolerance for risk and experimentation, while a high long-term orientation creates a favorable environment for the introduction of gradual but sustainable innovations (Hofstede, 2001). Advancing this research vector within the framework of post-industrial value-shift theory, R. Inglehart showed that the transition from survival values to self-expression values creates a fundamentally different sociocultural environment, one in which innovativeness becomes not a departure from the norm but a mass behavioral practice (Inglehart, 1997; Inglehart, Welzel, 2005). In turn, Sh. Schwartz, drawing on large-scale cross-cultural studies, established that value priorities of "openness to change" (self-direction, stimulation) directly predispose individuals and groups toward innovative activity, whereas the dominance of "conservation" values (security, conformity, tradition) creates a cultural barrier to novelties (Schwartz, 2006; Schwartz, 2014).

In the context of studying innovation, P. Bourdieu's structuralist perspective is valuable because it makes it possible to move beyond a simplified understanding of the process of introducing novelties. On the one hand, as Bourdieu himself stressed, innovations can act as objective social structures that set the framework and determine the behavior of actors (Bourdieu, 2007). On the other hand, these external structures must be "appropriated" by the subject – that is, translated to the level of internal dispositions. This occurs through the formation of specific attitudes, or *habitus*. It is *habitus*, as internalized social experience, that generates the practices and behavioral strategies – acceptance or rejection – through which people respond to novelty. *Habitus*

thus serves as a conceptual tool that allows one to investigate the process of "habitualization": it reveals the mechanism by which an innovation is transformed from something alien into a natural component of the everyday world (Rostova, Zhelnina, 2016).

In the international research tradition, the perspective grounded in Bourdieu's approach has been fruitfully developed in studies analyzing innovation processes. For instance, B. Frère, examining the limitations of *habitus* theory, has proposed ways of conceptually expanding it to account for the creative activity and radical innovations exhibited by actors in new social movements (Frère, 2011). Frère demonstrates that *habitus* can function not merely as an inertial structure but also as a generator of practices that transform the social field from within. Innovation thus appears not as an external intrusion into the social fabric but as the product of a specific configuration of dispositions – shaped by prior experience and activated in response to the challenges of the current situation.

Among Russian approaches, the one advanced by N.I. Lapin merits particular attention. His interpretation of innovation represents one of the most profound and systematic in the Russian sociological tradition, making it possible to move beyond a narrowly economic or technological understanding of the phenomenon. For Lapin, innovation is not simply a novelty or the final product of implementation. It is a rather complex, multidimensional, and dynamic sociocultural process that encompasses not only the creation, diffusion, and use of a new practical tool but also the potential changes this brings about in the surrounding environment². In Lapin's view, innovation contains not only all the tendencies of a culture's present but also certain orientations

² Lapin N.I. (2008). People in innovation. In: Theory and Practice of Innovation: A Textbook. Moscow: Universitetskaya kniga, Logos.

toward the future; temporal duality is thus the most essential characteristic of an innovation³. This ambivalence makes innovation a powerful driver of sociocultural dynamics, simultaneously a product of its time and its potential transformer (Lapin, 2011). The distinctiveness of Lapin's approach lies in the way it fuses two aspects – the environmental and the processual – making it indispensable for a comprehensive analysis of innovations.

This understanding opens up broad prospects for integrating the ideas of various theoretical schools. The processual character of innovation makes it possible to examine its institutional embeddedness, which is close to Parsons's ideas: any novelty inevitably passes through the filters of existing rules and norms, either adapting to them or setting their transformation in motion. The dependence of an innovation's success and trajectory on cultural codes and value structures chimes with Sorokin's tradition: an innovation must resonate with the fundamental values of a society in order to be accepted and become widespread. Finally, Lapin's approach accentuates the role of innovation agents, whose dispositions, habits, and practices (*habitus*, in Bourdieu's terms) play a decisive part in the acceptance or rejection of the new. In this context, innovation appears not as an abstract process but as a field of tense interaction between the bearers of different *habitus*, institutional rules, and cultural meanings. In other words, innovation is situated at the intersection of institutional rules, cultural meanings, and the everyday practices of social agents. Lapin emphasizes that innovation processes are not always exclusively positive. They can also generate dysfunctional consequences, come into conflict with the established system of interests, and become a source of social conflicts. Recognizing this risk is an integral part of his systemic approach, which demands taking into account not only the development potential but also the possible negative

effects of novelties. Thus, Lapin's interpretation of innovation creates a solid theoretical foundation for understanding this phenomenon in all its sociocultural complexity.

One further aspect should be added to set the stage for the presentation of our own model. A productive point of reference here is the work of a number of international researchers who have proposed frameworks for measuring innovative potential. Notable among these is the concept developed by B. Asheim and A. Isaksen (Asheim, Isaksen, 2002), which focuses on the innovative capacity of a territory, grounded in the existing configuration of institutions, knowledge, and network interactions. This makes it possible to take both formal and informal practices into account.

Before advancing our own approach, it is necessary to examine the models that already exist. Such models are indeed available, at a variety of levels. The first and best-known level of measurement is the macro level. Global innovation indices are hierarchical indicator models that aggregate dozens of indicators into a single composite index. They make it possible to rank countries, identify the strengths and weaknesses of national innovation systems, track trends over time, and conduct cross-country comparisons. Two major players dominate this space. The Global Innovation Index (GII), published by the World Intellectual Property Organization, covers more than 140 countries and identifies the world's 100 best innovation clusters (among them Moscow)⁴. The second model is the European Innovation Scoreboard (EIS), a tool developed by the European Commission and focused on the member states of the European Union. The EIS is built on a different logic, adapted to the European context⁵. On the

³ Ibidem.

⁴ Global Innovation Index. Available at: <https://www.wipo.int/en/web/global-innovation-index> (accessed: 02.02.2026).

⁵ European innovation scoreboard. Available at: https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en (accessed: 02.02.2026).

basis of its composite index, all countries are divided into four groups: Innovation Leaders, Strong Innovators, Moderate Innovators, and Emerging Innovators. It should be noted that both approaches have similar limitations: statistical lags, problems of cross-country data comparability, and, above all, the fact that the human factor, that is, sociocultural specificities, is left entirely out of the picture.

At the meso level, several models geared toward regions and clusters can be identified (*Tab. 1*). The Regional Innovation Systems (RIS) model emphasizes the inclusion of informal practices (trust, paternalism, readiness for change) as the foundation of innovative capacity. The cluster model focuses attention on cooperation and network interactions, capturing them through a cooperation and trust index. The Triple Helix model assesses institutional trust in government, business, and civil society organizations. The Smart Specialisation (S3) concept is built on the principle of place-specificity: understanding the distinctive features of a territory in order to enable targeted governance.

Our interest in the innovative potential of territorial communities made it necessary to assess what the meso-level models can offer. Doing so brought their specificities and orientations into relief. The analysis revealed that there is room for yet another meso-level model – one that shares certain features with the models discussed above but also possesses substantial differences that make it an original contribution. For instance, what our proposed model has in common with the RIS approach is that it takes informal practices (trust, paternalism, readiness for change) into account as a bedrock of innovative capabilities. With the cluster model, it shares an attention to cooperation and network interactions (captured through an index of cooperation and trust). With the Triple Helix, it shares an assessment of institutional trust in government, business, and public organizations. And with Smart Specialisation, it shares the principle of place-specificity: understanding the

unique character of a territory in order to govern it in a targeted manner. The key differences, however, lie in the object of measurement, the methods used, the types of data obtained, and the practical orientation. The object our model measures is the population of a territorial community which is the bearer of innovative potential. By contrast, RIS, the cluster model, and S3 focus on institutions and structures. Our model collects data through mass surveys that capture individuals' subjective attitudes, which sets it apart from statistical data. This, in turn, yields a different type of data. Instead of “number of patents” or “volume of investment”, what comes to light is the sociocultural code: readiness for change, locus of control, levels of trust and cooperation, and a number of other indicators. Analyzing these data makes it possible to formulate practical recommendations that serve as tools for targeted governance: understanding the attitudes with which people live in a city allows policymakers to develop measures that work with the grain of the local context, rather than against it. Thus, if one compares the three approaches, the macro level (GII, EIS) measures institutions and infrastructure on the basis of statistics, the micro level (e.g., the Balanced Scorecard) measures finances and processes on the basis of reporting data, while the author's meso-level model measures the sociocultural code and attitudes on the basis of mass surveys. Each level addresses its own set of tasks, and only together can they provide a complete picture.

The authors' meso-level model is grounded in an indicator model, which serves as the methodological basis for translating abstract theoretical constructs into specific, measurable indicators, thereby providing an objective picture of a territory's innovative development.

Materials and methods

In measuring and assessing the innovativeness of a territorial community, we drew on our earlier work on constructing an indicator model of social

capital⁶. An indicator model provides the methodological foundation for translating abstract theoretical constructs into concrete, measurable indicators, making it possible to obtain an objective picture of a territory's innovative development (Guzhavina et al., 2022). Using an indicator model to measure innovativeness offers a number of methodological advantages, including the ability to quantify a range of characteristics: tracking the dynamics of innovative development, identifying problem areas and development potential, conducting comparative analysis across different territorial communities, capturing existing innovative practices of the population, and revealing cultural codes and value structures, among others.

An indicator model is "...a set of indicators constructed on a specific conceptual foundation and capable of yielding systematized information about a phenomenon or process and of revealing the interrelationships among its constituent elements" (Afanas'ev, 2016). Building an indicator model requires following a certain algorithm. In our study of innovativeness, this algorithm comprises the following steps: 1) identifying an umbrella concept that unites a set of operational concepts; 2) specifying these concepts; 3) selecting the requisite number of indicators on the basis of the research hypothesis.

Proceeding from the theoretical interpretation of the category of innovation, we treat it as an action that is sociocultural in its essence and social in its character. The operational concepts that characterize innovativeness are readiness for change, attitudes toward the new, paternalism, cooperation, and trust. These concepts are then translated into index-based indicators, which are built into the research instrument. This makes it possible to

incorporate into the model's structure groups of indicators that represent its constituent elements. The approach is embodied in the development of a *cognitive model* of the object under study. Let us examine the elements that comprise it in greater detail.

Readiness for change is not merely openness to the new but also the ability to adapt to new conditions, the willingness to undertake something to bring about transformations, and active engagement in change. Readiness for change acts precisely as the antithesis of opportunism and passivity, being an integral attitude that synthesizes awareness, a positive disposition, and active involvement. A number of studies define readiness for organizational change through the beliefs, attitudes, and intentions of an organization's members and emphasize that it is these cognitive and affective preconditions that precede active support for change and distinguish readiness from passive resistance (Naumtseva, 2016; Armenakis et al., 1993).

Another variable in the innovativeness index is *attitude toward the new*. An integral psychological characteristic, attitude toward the new captures an individual's capacity to perceive, evaluate, and respond to new ideas, technologies, processes, and objects. This indicator serves as a major predictor of innovative behavior. A positive attitude toward the new acts as an internal catalyst of innovative activity (Ponukalin, 2010), whereas a negative attitude blocks innovation at the individual or group level (Kudrin, Khabarov, 2025). In the international research tradition, this concept is operationalized through closely related constructs (Gavin, 1984).

The connection between *paternalism* and an orientation toward innovation is not unambiguous. On the one hand, paternalism acts as a barrier, constraining creativity and demanding obedience. In closed communities, it can give rise to a mindset incapable of adapting to change, a sign of sociocultural inertia. On the other hand, under certain conditions paternalism can become a

⁶ The methodology for constructing the indicator model was tested within the framework of the grants "Project No. 16-03-00188-OGN 'Regional Social Capital under Crisis Conditions'" and "Project No. 20-011-00326 A 'Collective Action and Social Capital in Russian Society'." The research findings have been published in monographs and articles.

genuine catalyst of innovation. This is characteristic of cultures with high power distance (Baranova, 2018). This duality is corroborated by contemporary studies of paternalistic leadership (Lu et al., 2022).

For Russian practice, the more pertinent scenario is one in which state paternalism serves as a trigger mechanism for developing strategic directions. In this case, the state assumes the risks of the initial stage, acting as a co-financier or co-founder of a project. The crucial point here is that, during the period of support, horizontal ties between actors should take shape (Vasyukov, 2025) – ties that must be preserved for the subsequent implementation of the innovative project. It is precisely this interpretation of paternalism that is closest to our model.

Cooperation and trust can be seen as the fundamental mechanism on which the success of innovations in many spheres of life rests (Yusupova, 2021). This is especially important for social innovations, which arise above all within networks of interaction among diverse actors. Cooperation in the innovation sphere is a form of joint activity among heterogeneous participants aimed at creating new knowledge, products, or relationships. Cooperation creates a space for the reproduction of trust, and trust, in turn, makes collaboration possible. This is connected with the fact that trust, as a set of socially grounded and socially confirmed expectations that actors hold toward one another, constitutes the fundamental content of social life and sustains the stability and integration of society (Guzhavina, 2014). Trust reduces the risk of opportunistic behavior and broadens the basis for cooperation within the framework of collective action. Cooperation and trust are dialectically linked: trust is the foundation of any cooperation, and successful cooperation strengthens trust.

The cognitive model serves as the foundation for constructing the indicator model proper, which consists of a set of basic indices. In our case, these are the following indices.

The readiness for change index brings together indicators that measure a respondent's practical and psychological disposition to embrace concrete novelties in everyday and professional life. The questions cover attitudes toward digital services and technologies (online services, smart devices, telemedicine), new formats of employment and leisure, and ecological practices. The index also separately records the respondent's assessment of the impact of technological changes on the professional sphere, an inclination toward creative and inventive activity, and the dominant strategy of work behavior (materialistic, innovative, adaptive, or family-oriented).

The attitude toward the new index incorporates questions aimed at uncovering the respondent's value-motivational stance toward socio-economic change, novelty, and freedom. The indicators capture the extent to which an individual perceives change as an opportunity for growth and improved well-being, or as a threat requiring the abandonment of a familiar way of life. In addition, the index assesses the importance of freedom, meaningful work, initiative, and enterprise in the respondent's life, along with the place of tradition and stability in his or her value system.

The paternalism index is based on indicator questions that diagnose locus of control and the degree of personal responsibility the respondent assumes versus that which he or she assigns to external agencies. The indicators reveal the extent to which individuals link their material situation, career, and quality of life to their own efforts rather than to the actions of managers or authorities at various levels. The index additionally captures attitudes toward the idea of active state care for citizens' welfare and the demand for external guidance and support in difficult situations. High scores on this sub-index (rejection of paternalism) are interpreted as an orientation toward self-reliance and self-determination, both necessary for innovative behavior.

The cooperation and trust index is designed to assess the level of interpersonal and institutional trust – from the respondent's immediate circle to state and civic structures. It also captures the individual's readiness to join with others for collective action, whether in solving everyday problems, defending rights, participating in self-governance, or engaging in environmental initiatives and creative projects. Actual involvement in the activities of public organizations is additionally taken into account.

Based on the selection of indicators, a variable model of innovativeness was constructed as a multidimensional phenomenon whose quantitative assessment is carried out using the following formula:

$$I_{\text{innov}} = (I_{\text{read}} + I_{\text{pat}} + I_{\text{coop}} + I_{\text{new}}) / 4,$$

where:

I_{innov} – innovativeness index;

I_{read} – readiness for change sub-index;

I_{pat} – paternalism sub-index;

I_{coop} – cooperation and trust sub-index;

I_{new} – attitude toward the new sub-index.

To measure the level of innovativeness, a sociological survey of the population was employed, with respondents' answers serving as the indicators. The research instrument included indicator questions designed to assess the population's level of innovativeness, as well as questions that make it possible to characterize the actors of innovative behavior and to identify the conditions under which such behavior is formed and realized.

The data analysis employed the index method, which aggregates indicators into partial indices corresponding to the identified structural components of innovativeness. Calculating an index for each block prevents the overall index from becoming blurred, and the equal weighting of the sub-indices follows from the interpretation of innovativeness as a multidimensional sociocultural

phenomenon that emerges at the intersection of four dimensions: readiness for change, attitude toward the new, paternalism (as an inverse indicator of self-reliance), and cooperation with trust. According to the synthesis of institutional, sociocultural, and structuralist approaches, none of these components dominates the others. This approach is fairly widespread and is used both by international researchers – for example, in the United Nations' calculation of the Human Development Index⁷ – and by Russian scholars, for instance, in measuring the level of social capital (Guzhavina et al., 2022). Each variable within a block was standardized to a five-point scale to make the calculations possible. In interpreting the results, it is not so much the numerical value of the index itself that matters as its fluctuations and changes over time. The index method makes it possible both to take a point-in-time measurement of a property of a social object and to monitor its condition. The methodology demonstrated a high level of internal consistency for the resulting index. The consistency and reliability of the selected variables in the model are evidenced by a Cronbach's alpha of 0.7, meeting the threshold value of 0.7.

The additive indicator model for measuring innovativeness, constructed on the basis of the authors' general theoretical framework and the index method, opens up the possibility of measuring the innovativeness level of each respondent. The composite innovation activity index is calculated for every surveyed individual. All respondents were divided into five groups, making it possible to construct a balanced scale (very low – below average – average – above average – high). This ensures a sufficient degree of differentiation while preserving the clarity of the conclusions. Dividing the respondents into fewer groups would lead to excessive aggregation, whereas a larger number of groups would generate needless detail.

⁷ Available at: <https://hdr.undp.org/data-center/documentation-and-downloads>

The first group comprised respondents with the lowest innovativeness index, conditionally designated as possessing a minimal innovativeness index (provisionally, Type 1). In answering the indicator questions, members of this group predominantly chose responses such as “I cannot adjust to changes”, “the future does not depend on me”, “I do not trust”, “I am not ready to join with others”, “I do not belong”, “I do not participate”, “traditions should be observed”, and “the problems of individuals should be solved by the state”. They generally take a negative view of innovations and are characterized by attitudes of distrust and rejection of the new. An orientation toward state paternalism predominates. These are *steadfast conservatives*.

The second group included respondents with a higher index, designated as having a low innovativeness index (provisionally, Type 2). Members of this group are wary of the new. Their attitudes are more conservative and closer to those of the first type, but their stance is less categorical. A potential for adaptation is already discernible. These can be described as *paternalist traditionalists*.

The third group brought together respondents with a medium-level innovativeness index (provisionally, Type 3), who made up a substantial share of those surveyed. These individuals accept the new and are ready for it if they see personal benefit, which allows them to be characterized as pragmatists. This group enables the diffusion of innovations in society. They understand the utility and convenience of adopting innovations in their lives but may also resist imposition, opposing external pressure to one degree or another. These are *pragmatists*.

The fourth group consists of those with a relatively high innovativeness index (provisionally, Type 4). In essence, the fourth group represents *social activists*. They adapt to change easily, have like-minded people around them, are the first to embrace a novelty, see change as a resource, and perceive it positively. In many respects, they block oppositional behavior on the part of their colleagues.

Respondents with a high-level innovativeness index were assigned to the fifth group (provisionally, Type 5). In answering the indicator questions, its members were more likely than others to choose responses such as “changes bring opportunities”, “my future is in my own hands”, “I am ready to trust and join with others”, “I belong and participate”, “problems should be solved independently”, and the like. The fifth group encompasses *innovator-leaders*. Those in this group actively construct the future; they are the main conduits and initiators of change and perceive the future as a field of opportunity. These are individuals with a high level of social capital who are capable of taking responsibility upon themselves. The distribution of respondents across the groups reveals their attitudes toward innovations in the most diverse spheres of life.

The empirical base for the study was provided by research conducted in 2025 on the territory of the Vologda Region as part of the projects “Genius Loci and the Spirit of the Times” (Leontief Center for Social and Economic Research) and “Sociocultural Development and Sociodynamics of Public–State Relations in Russian Regions” (VolRC RAS, state assignment No. FMGZ-2025-0015). The project was carried out within the paradigm of quantitative research. The methodology rests on a mass survey of the population of large cities of the Vologda Region. The sample consisted of 800 people aged 18 and over. The sample was a two-stage quota sample with territorial control, with districts selected within the region’s large cities and covering different types of residential development. At the second stage, interviewers followed a random-walk procedure with a fixed sampling step.

Results and discussion

The surveys carried out in the large cities of the Vologda Region – Vologda and Cherepovets – yielded sufficient material for calculating the innovativeness index. The integration of conceptual perspectives creates a theoretical and methodological framework for constructing an index capable of capturing the characteristics of

a territorial community's innovativeness. This task requires turning to empirical methods of data collection and their analytical generalization, with the possibility of developing an innovativeness index for a territorial community that provides a quantitative assessment of the situation.

The analysis of the data identified groups of respondents who possess different innovativeness indices and who demonstrate marked differences in their attitudes toward innovations in various spheres of life; it also revealed the actual balance of polar attitudes and the specific features of the two cities' sociocultural landscape (*Tab. 1*).

Table 1. Urban residents' innovativeness level, %

City	Innovativeness level				
	1	2	3	4	5
Vologda	5	35	42	17	1
Cherepovets	4	20	50	20	7
Source: sociological survey data, April–May 2025, Vologda Region.					

A comparison of the low-innovativeness groups (Types 1 and 2) with the high-innovativeness groups (Types 4 and 5) in Vologda shows that the share of the population holding paternalistic-conservative attitudes exceeds the share of those who display innovative activity. The situation in Cherepovets is somewhat different: there, innovators (groups 4 and 5) enjoy a slight edge over conservatives (groups 1 and 2). In both cities, the most numerous group is that of the pragmatists (Type 3), which occupies an intermediate position and represents a potential resource for the diffusion of innovations, provided the innovations are perceived as practically useful. Thus, the sociocultural landscape of the urban population is characterized not so much by polarization as by a moderate predominance of low-innovativeness attitudes, together with a critical mass of a pragmatic majority.

Within the confines of an article, we have limited scope to demonstrate the application of the

index we have developed. Nevertheless, let us consider a few examples. We will focus on urban residents' attitudes in the professional sphere, since this is the domain in which opportunities for self-fulfillment and initiative are most likely to arise (*Tab. 2*). In this sphere, the differences between the two city communities are quite substantial along a number of parameters.

The level of innovativeness substantially differentiates work-related priorities. The shift from low to high values of the index is accompanied by a drift from the need for safety, stability, and hierarchical relations toward the need for autonomy, influence, creativity, and adequate material reward. At the same time, the profile of the “innovative worker” can take on particular local shades, pointing to the importance of such a factor as the city's sociocultural environment. Even so, the broad trends are clearly discernible: a movement from survival to development. For groups 1 and 2, where basic, essentially protective values predominate, the most important considerations are occupational safety, stability, and good relations with management; initiative and the ability to influence the enterprise carry virtually no weight (5–13%). This is a strategy of adaptation and holding on to one's job. The third group is something of a tipping-point zone: here, the highest values are attached to job stability and pay. There is already a readiness for the new, but the need for a solid foundation remains quite high. A high innovativeness index (groups 4 and 5) is associated with a drift toward autonomy and influence and toward the importance of job content. Maximum values are reached on the scales “ability to influence the enterprise,” “work independently,” and “show initiative.” The need for “safety” and “relations with the manager” drops sharply.

A rise in innovativeness invariably increases the demand for freedom and influence. Yet whereas in Vologda, the region's administrative center, the

Table 2. Distribution of answers to the question “Which of the following characteristics of your workplace are most important to you?” by innovativeness index, %

Response option	Innovativeness level				
	1	2	3	4	5
	Vologda				
Safety (minimal risk to life and health)*	29	22	39	39	20
Ability to influence the enterprise's operations**	5	6	18	30	40
Opportunity to benefit society	14	18	19	18	20
Opportunity to show initiative and creatively solve tasks	19	11	22	20	20
Opportunity to work independently	33	21	21	26	60
Opportunity to realize one's abilities, skills, and knowledge	33	21	26	39	20
High wages*	38	56	67	52	80
Reliability and stability of the workplace	43	56	51	41	40
Relations with managers	43	36	27	23	40
Relations with co-workers	24	42	31	26	60
Prospects for professional and career advancement**	0	12	27	14	40
Work leaves time for leisure and personal life	14	18	14	17	0
The job is respected in your social circle**	5	4	7	20	0
Job content (that the work is interesting)	14	11	11	15	20
	Cherepovets				
	1	2	3	4	5
	Cherepovets				
Safety (minimal risk to life and health)**	56	64	47	47	19
Ability to influence the enterprise's operations	13	9	6	9	22
Opportunity to benefit society**	6	6	6	17	22
Opportunity to show initiative and creatively solve tasks**	6	8	5	22	41
Opportunity to work independently*	19	27	29	46	44
Opportunity to realize one's abilities, skills, and knowledge**	19	18	35	57	30
High wages	50	60	69	72	56
Reliability and stability of the workplace**	25	63	73	58	33
Relations with managers**	56	42	17	19	22
Relations with co-workers**	50	51	31	22	48
Prospects for professional and career advancement	38	17	17	19	26
Work leaves time for leisure and personal life**	13	37	48	27	11
The job is respected in your social circle**	6	4	17	16	30
Job content (that the work is interesting)	38	18	27	24	26

* Variable significant at $P < 0.05$; Kruskal – Wallis test $\chi^2 > 10.9$, $df = 4$.
** Variable significant at $P < 0.01$; Kruskal – Wallis test $\chi^2 > 10.9$, $df = 4$.
Source: sociological survey data, April – May 2025, Vologda Region.

“innovator” tends to be an autonomous, career-minded professional who is ready to work for himself and for a higher salary, in Cherepovets, the industrial hub, what is more in demand are initiative-oriented team members for whom both the opportunity to be creative and the recognition of co-workers matter. This points to a more collectivist character of work, in which even innovative tasks are tackled in teams – likely project groups at large enterprises. The industrial context suggests the importance of horizontal prestige and of one's

reputation within the professional milieu, which is typical of long-established factory workforces with a strong presence of occupational dynasties and communities.

No less interesting are the findings we obtain when we examine the choices of alternatives in response to the question “What kind of work would you prefer today if you could choose?” (Tab. 3). The innovativeness index makes it possible to see the link between readiness for the new and attitudes toward stability, risk, income, and free time.

Table 3. Distribution of answers to the question “what kind of work would you prefer today if you could choose?” by innovativeness index, %

Response option	Innovativeness level				
	1	2	3	4	5
	Vologda*				
To have a modest but steady income and confidence in tomorrow	24	19	30	21	20
To have a small income but more free time and an easier job	33	42	14	18	20
To earn a lot, even without special guarantees for the future	14	24	25	29	20
To have one's own business and run it at one's own risk	29	7	9	13	0
To earn a lot by devoting oneself entirely to work	0	9	21	21	40
	Cherepovets**				
	1	2	3	4	5
To have a modest but steady income and confidence in tomorrow	44	40	26	4	7
To have a small income but more free time and an easier job	25	22	12	10	11
To earn a lot, even without special guarantees for the future	13	18	37	34	26
To have one's own business and run it at one's own risk	0	5	10	24	22
To earn a lot by devoting oneself entirely to work	19	14	16	28	33

* Variable significant at $P < 0.01$; Fisher's exact test = 52.275.
 ** Variable significant at $P < 0.01$; Fisher's exact test = 70.460.
 Fisher's exact test with Monte Carlo approximation (10,000 samples, 99% CI) was used to analyze the association because some cells in the table had an expected frequency of less than 5.
 Source: sociological survey data, April – May 2025, Vologda Region.

As the innovativeness index rises, a regular shift is observed from conservative employment models toward more active and entrepreneurial ones. When the index is low (groups 1–2), the demand for certainty predominates. People prefer a modest but steady income and confidence in tomorrow, or are prepared to sacrifice income for free time and an easier job. Risk and total dedication to work are alien to them.

The middle index (group 3) once again proved to be a tipping-point zone. The appeal of an “easy job” drops sharply, while interest in high earnings without guarantees grows. Individuals begin to bet on income, even if it entails instability. At a high index (groups 4–5), a demand for an intensive work model and independence takes shape. The highest values are reached for the strategy “to earn a lot by devoting oneself entirely to work”. At the same time, the share of those wishing to have their own business increases (especially in Cherepovets), whereas the need for guarantees and free time recedes into the background. It is entirely possible that such attitudes bring about tangible results. In Cherepovets, the

median salary is 60,000 rubles⁸, whereas in Vologda it is 50,000 rubles⁹.

The urban environment leaves a significant imprint on these preferences, which is reflected in the profile of the “innovative worker”. The groups of respondents identified on the basis of the index displayed clear differences in their work-related priorities, revealing substantial distinctions in the structure of the innovative potential of the two city communities. Residents of Cherepovets show a greater readiness for technological changes and novelties, which is expressed in a larger share of groups with a high or relatively high innovativeness index. In Vologda, by contrast, respondents with medium and low scores predominate, a pattern that may be linked to conservative attitudes and the specific features of the city's occupational structure. The proposed toolkit not only captures the current

⁸ GorodRabot.ru. Available at: <https://cherepovets.gorodrabot.ru/salaries#salary-statistics-chart-item-3> (accessed: 26.04.2026).

⁹ GorodRabot.ru. Available at: <https://vologda.gorodrabot.ru/salaries#salary-statistics-chart-item-1> (accessed: 26.04.2026).

distribution of attitudes but also makes it possible to uncover the link between innovativeness and life strategies.

A curious finding of the study was the discovery of a high share of those wishing to start their own business among the least innovative group of Vologda residents. This appears to be a contradiction only at first glance. Among the respondents in this group there is a considerable share of self-employed individuals. This category has no desire to change its stance in life (conservatism), and its members really are prepared to run their own business at their own risk. What matters here is that this information can serve as a basis for formulating specific managerial decisions targeted at this particular category.

Conclusion

The indicator model developed in the course of this study and the innovativeness index calculated on its basis represent an attempt not only to operationalize the complex sociocultural phenomenon of innovativeness but also to translate it into the realm of quantitative measurement. Testing the methodology on data from large cities of the Vologda Region has confirmed the diagnostic capacity of the model. The index makes it possible to identify the main features of a respondent's "innovativeness profile", which is a particular configuration of sociocultural attitudes and behavioral dispositions that characterizes readiness for change and attitudes toward the new. The group with a low index value – Type 1 (*inertial-paternalistic profile*) – exhibits an extremely low capacity to adapt to changes, often perceiving them as a threat to the established order. Its members are characterized by an external locus of control, generalized distrust, a low level of readiness to join with others and cooperate, and an absence of involvement in collective action. Their value focus is oriented toward the preservation of tradition and stability.

Type 2 (*wary-conservative profile*) displays a restrained, guarded attitude toward novelties, though without rejecting them outright; yet there

is no initiative either. The conservative attitudes are tempered by an adaptation potential that has not yet been activated. Paternalistic expectations are less categorical than in the first type. The profile is characterized by a situational readiness to accept the new, provided that there is external reinforcement and a demonstration of clear advantages. Type 3 (*pragmatic-adaptive profile*) accepts the new not on value grounds but on utilitarian ones. When changes bring practical benefit, convenience, or advantage, this type acts as an active user of innovations, ensuring their diffusion in everyday and professional practices. This type is emotionally neutral toward novelty or moderately positive. Readiness to cooperate is instrumental in nature. This profile acts as the main conduit of innovations in society, not generating them but effectively assimilating them.

Type 4 (*social-activist profile*) perceives change as a resource and a source of opportunities for growth. This makes the type adaptive, capable of finding like-minded people and building cooperative networks. It is the first to embrace novelties and can act as an agent of their promotion; it is characterized by an internal locus of control and a readiness to take responsibility for itself and those around it. This, in turn, enables it, to a certain extent, to neutralize oppositional and inertial attitudes within a collective. The high index value distinctive of Type 5 (*innovation-leader profile*) reveals it as an initiator and conduit of change, highlighting its capacity to generate new knowledge, make decisions, and assume responsibility under conditions of uncertainty. This profile sets the vectors of innovative development, acting as a driver of sociocultural and technological transformations, and is capable of actively constructing its own future, perceiving it as a field of personal opportunity.

The practical significance of the developed approach can be seen on several levels. First, the indicator model opens up possibilities for

monitoring the dynamics of innovative potential. Regular measurements make it possible to assess the effectiveness of the strategies being implemented, to track shifts in the population's value orientations, and to adjust managerial decisions in a timely manner. This takes on particular value in the context of large-scale infrastructure or technological projects, where the success of implementation directly depends on a community's readiness for change.

Second, the proposed toolkit enables authorities and development institutions to move from "blind" stimulation of innovation to targeted work with specific population groups. Understanding which segments of a community are the bearers of innovative attitudes and which adopt a conservative stance makes it possible to design differentiated communication strategies: creating spaces for self-fulfillment and horizontal ties for the "innovator-leaders"; demonstrating the concrete benefits of novelties to the "pragmatists"; and helping to lower anxiety among the "traditionalists" through social protection mechanisms and their gradual involvement in the orbit of change.

Third, the methodology can be scaled to other levels and objects. Its application appears promising for analyzing the innovativeness of professional and sectoral communities, youth cohorts, as well as for comparative studies of small towns and rural areas. The patterns identified can serve as the basis for a typology of municipalities by the character of their innovative potential, which would lay the groundwork for a more finely tuned regional policy.

Thus, the study has confirmed the hypothesis that innovative potential is a measurable parameter that can be effectively used in the practice of managing territorial development and shaping an innovation environment.

Further research in this direction is capable not only of deepening the theoretical understanding of the mechanisms of social development but also of offering practical solutions aimed at the harmonious combination of technological modernization with the preservation and strengthening of a community's social fabric. Innovations stripped of their human dimension remain mere technique; innovations that draw on living social capital become a genuine driver of development.

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