Development of a Value-Based Method for Identifying Priorities of City Development Programs

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Abstract. The proposed study describes an innovative method for ranking budget allocations and the effectiveness of urban development programs based on the analysis of residents' value orientations. The central premise of the method is the idea that taking into account the value priorities of the population contributes to increasing social responsibility and expediency of public spending. The methodology includes several key stages: collecting primary data on the values of residents through sociological surveys, analyzing the information obtained using quantitative and qualitative analysis tools, including factor and cluster analyses, creating a scalable model for allocating budget funds, as well as forming a feedback mechanism for course correction and adaptation of the development program in order to an adequate reflection of the changing values of the citizens.

The results of preliminary testing of the method on the example of several municipalities showed a significant increase in residents' satisfaction with the dynamics of urban development and transparency of budget spending. The study provides tools for strategic planning, which can be integrated into the management practice of city administrations to optimize costs and implement the most significant initiatives for citizens. The results obtained are planned to be used in the role model of the ecosystem of urban digital services.

Keywords: Values · value-based approach · social networks · modeling · parsing · sustainable development · urbanism · smart city

1 Introduction

In modern conditions, sustainable urban development is becoming an increasingly urgent task. However, in order to achieve this goal, it is necessary that urban development programs of the city be based on the real needs of its residents. Unfortunately, nowadays it is often possible to observe that such programs do not take into account the actual interests and values of residents, but are based only on statistical calculations.

This approach hinders the achievement of sustainable development of the city, as it creates a gap between what is considered important for the city as a whole and what is really a priority for its residents. This gap can lead to discontent and distrust on the

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part of residents, as well as to the inefficient use of resources and funds allocated for the development of the city.

This article proposes a new approach to the development of urban development programs based on taking into account the values of residents. It is proposed to include the opinions and preferences of residents in the process of developing city development programs, which will allow creating more relevant and effective programs.

To implement this approach, it is proposed to use a method based on the definition and analysis of the values of residents. By conducting surveys and interviewing city residents, it is possible to identify their preferences, values and priorities in relation to various aspects of the city's development. This data can then be used to form urban development programs that will meet the real needs and interests of residents. However, this is a very expensive and slow method. In this paper, it is proposed to use social networks as a source of information about values and interpret them as needs.

The concept proposed in this article has the potential to lead to more sustainable urban development, since it allows you to take into account the opinions and preferences of the most important participants in the urban environment - its residents, practically online, using social networks. The proposed approach can be used by city authorities, planners and other stakeholders to develop more effective and relevant urban development programs. The results obtained are planned to be used in the role model of the ecosystem of urban digital services.

1.1 Subject of Study

Currently, more than 50% of the world's population lives in cities, and this number is expected to increase to ~70% by 2050. Urban sustainability is an urgent issue caused by the growing challenges of urbanization. Factors such as population growth, urban sprawl, land-use changes, unemployment and environmental degradation have a negative impact on the quality of life of urban residents. Therefore, drawing the attention of administrators, urban planners and academia to urban sustainability and its measurement is becoming increasingly important in terms of improving urban development and the well-being of the population.

In general, urban sustainability and its measurement are important aspects for achieving improved urban development and ensuring the well-being of urban residents. The balanced development of the urban economy, society and the environment is key to achieving this sustainability. Further research and development in this area is essential to ensure a sustainable and prosperous future for cities around the world.

The analysis of the regulatory framework has shown that in the current urban management, a list of administrative-territorial units and residential buildings located on their territory with estimates of the availability of all types of urban services is used to allocate the budget and rank the priority of development programs [1, 2]. This is the main metric that is used to determine development priorities, without taking into account the real needs of residents in this area, since surveys are not conducted, demand is not studied by other methods. And efficiency is assessed using outdated formulas that calculate the achievement of budgeting indicators and a planned approach, and again, without taking into account the real needs of the population and their satisfaction. This work is aimed at

assessing the well-being of the population in terms of their real needs. The assessment and prioritization of the city's development is based on a needs model.

New approaches in urban development management focus on the formation of a high level of urban environment, which contributes to a better quality of life for residents and visitors of the city, as well as supports the long-term sustainability of the development of urbanized territories.

The article suggests adapting the principles of digital humanism for the management of modern urban agglomerations. In this concept, the main focus is on the value principles of managing changes in the structure of cities.

The main goal of such urban governance is to achieve sustainable development, improve the living conditions of citizens and their social well-being. The values that are the long-term stable guidelines for the life of individuals become fundamental in this management. These values serve as a kind of universal plan for the organization of human life, they take into account the cost of innovation and risks, and contribute to the harmonization of individual activity and social conditions for its implementation. They also guide both individual and group behavior, giving rise to the desire to act in certain circumstances, point the course towards selected goals and help make decisions in conditions of uncertainty. In addition, values can serve as the basis for a responsible decision between several alternatives.

It follows from this that it is possible to create a value-based management model for cities, which will be based on combining individual values into a single life structure of the city. We will rely on the basic concept of Schwartz's values. Values are not independent concepts, but interrelated, context-determined, culturally diverse and related to how we see ourselves and how we perceive the environment [3].

Sustainable urban development requires the integration of different values in order to achieve multifunctional goals. Blue-green infrastructure (BGI) projects can be considered as pioneers in the integration of values [4, 5].

An outstanding figure in the field of public administration, Mark H. Moore presents the results of his fifteen years of research, observations and teaching on what public sector managers should do to improve the efficiency of state-owned enterprises [6, 7]. Moore's answers reflect the well-understood difficulties of managing state-owned enterprises in modern society, recommending specific changes in the practice of individual state managers, namely, using the ideas of a value-based approach.

The role of values in urban governance is highly relevant, as such an idea is reflected in the world literature and requires further research and development. Value-oriented management systems for a large city are being formed [8], modern classifications of large cities and theoretical issues of strategic management are being revealed. The article highlights in detail the stages of the implementation of the balanced scorecard system in the municipalities of large cities, analyzes the concept of social values for strategic management in cities.

Value orientations are used in strategic city management in the provision of local public goods and services [9] the evolution of urban management theories and the possibility of adapting the ideas of value-oriented management in city management in the provision of local public goods and services are considered.

Special attention is paid to values and the smart city, so in the work [10, 11] the value-oriented management in a smart city is considered, the role of values in city management in the context of the development of smart technologies is explored. The authors consider the influence of values on decision-making in a smart city and propose approaches to taking values into account in the management process.

Value-oriented modeling of economic decision-making in the conditions of non-stationary environment is carried out [12] where the possibility of taking into account values in modeling decision-making in the conditions of environmental change is considered. The internal processes of an agent before making a decision are studied and the factors limiting rationality and risk assessment in the context of behavioral economics are analyzed.

Scientists define and classify the concept of city value in terms of subject utility, including three factors of high homogeneity and six factors of low homogeneity [13]. In ideal conditions, the increase in the value of the city occurs spontaneously. However, in reality, the process of increasing requires the active intervention of various marketing actors and the adjustment of the dynamic model. Adjustments such as defining customer requirements, developing an urban marketing strategy, linking value with integration, and improving the goal are described. The analysis of the situation in Paris confirms the dynamic model of increasing value in the course of urban marketing.

The paper [14] analyzes 12 sustainable Development Goals related to ensuring sustainable patterns of consumption and production. The authors identify two main points of view: one focuses on improving the efficiency of production and consumption, and the other emphasizes the need to take into account consumption volumes, distributional issues and related social and institutional changes. The role of social networks [15], in particular Twitter, in obtaining information about the values of the city is being investigated. The authors analyze tweets related to the city of Amsterdam and identify the basic values and preferences of residents expressed on social networks. As a result of the study, the authors come to the conclusion about the possibility of using social networks as a new source of information about the values of the city [16–18].

Our early papers [19] present the results of a pilot study of the possibility of using a value-based approach to managing urban development programs using social media data. It is proposed to determine the values of residents through social media profiles and user comments, which can be used to manage urban development programs.

However, the area remains insufficiently studied, which raises the question of what will happen if the city's development programs do not correspond to the interests and values of residents for a long time. In this paper, the hypothesis is put forward that in this case there may be a process called "social contradiction". In [20], group conflict is considered as a social contradiction. If the processes of social contradiction are not controlled, such negative processes for the city as an outflow of population, a decrease in the level of education, an increase in crime and other negative consequences can occur.

The article focuses on a common problem of modern urban development programs: they often ignore the true values and needs of residents, which jeopardizes their practicality and limits the sustainable development of urban areas. The authors insist on the importance of ranking urban programs based on the values and priorities of citizens to ensure that they respond to the most important demands of society and do not prove

useless against the background of changing social needs. The initial approach, when the same program tries to cover many incompatible needs, should give way to a more finely tuned consideration of the values of citizens to ensure long-term well-being and development of the urban environment.

Ignoring the real values of residents in the urban development program can negatively affect the sustainability of development. Firstly, it can lead to the creation of projects and services that do not meet the needs and expectations of the population. Such programs often face insufficient levels of engagement and support from the public, which can reduce their effectiveness and longevity. When citizens' interests and preferences are ignored, there may be a mismatch between the resources invested in urban planning and the actual impact of these efforts. Development programs that are not based on the values of residents can end up being unsuccessful, wasting budgets and resources and failing to achieve development goals.

Also, ignoring values leads to a decrease in the loyalty of citizens, since they may feel that their needs and opinions are not taken into account in decision-making processes. This weakens social capital and trust in city authorities. In addition, programs that do not correspond to the values of residents can lead to social alienation and an increase in inequality, which is incompatible with the principles of sustainable development, including social justice and inclusivity.

Ultimately, ignoring the values of residents in the process of city development complicates the achievement of harmonious and sustainable development, which should be based on a balance of economic, social and environmental interests of the urban community.

In this paper, it is proposed to rank city development programs by taking into account values and needs so that they can primarily address the most important needs of citizens, in order of priority and thus meet the interests of citizens, taking into account the fact that one program can solve several needs.

2 Research Methodology

City development programs are strategic documents that define the directions and priorities for the development of the urban environment. They are developed by authorities at various levels with the participation of experts, local residents and stakeholders. City development programs include goals, objectives and specific actions to improve infrastructure, social development, environmental protection, economic development and other aspects of urban life.

As part of the city's development programs, projects can be implemented for the construction and reconstruction of roads, parks, residential complexes, social facilities, the development of education, healthcare, culture, sports and other areas. The goal of city development programs is to create a comfortable and sustainable urban environment that meets the needs and interests of residents, attracts investment, promotes economic growth and improves the quality of life.

This research work, aimed at introducing a value-based approach to the management of urban development programs, was implemented on the basis of one of the districts of St. Petersburg in 2021 and covered 18 different programs. List of programs:

- Health care development
- Development of education
- Social support for citizens
- Development of physical culture and sports
- Development of the transport system
- Ensuring the rule of law, law and order and security
- Integrated development of municipal infrastructure, energy and energy supply systems
- Development of the cultural sphere
- Providing affordable housing and housing and communal services to residents
- Landscaping and environmental protection
- The knowledge Economy
- Development of industry, innovation and agro-industrial complex
- Promotion of employment
- Development of entrepreneurship and the consumer market
- Improving the efficiency of public administration
- Economic and social development of territories
- Creating conditions for ensuring public consent
- Development of the tourism sector

The main task was to develop such a system for assessing the priorities of these programs so that it could meet the numerous needs of citizens as effectively as possible, while it is noticeable that one project can be aimed at solving not one, but several tasks.

The difficulty in implementing this approach is the fact that the regulations in force in the city evaluate programs mainly in terms of their infrastructural contribution, without delving into the study of the real needs of the population. The created method aims to eliminate this imbalance by offering a new way of analysis - using data from social networks. This makes it possible to abandon traditional, time-consuming and resource-intensive surveys, replacing them with innovative methods of analyzing large amounts of information reflecting real values and the needs of residents.

Within the framework of the presented work, a fundamentally new approach is proposed in the management of urban development programs, which consists in taking into account the values of residents and their transformation into specific needs. For this purpose, a unique model has been developed that allows, based on the analysis of data from social networks, to identify the values of citizens.

Using this model, it is possible to determine which aspects of life in the city are valued by residents the most, and then transform these value preferences into practical needs. This becomes the basis for the creation of adapted and effective development programs that will more accurately respond to the needs of the urban population and contribute to improving the quality of life.

This approach provides a more accurate and in-depth understanding of what is really important for citizens, and allows the city administration to implement measures that can actually improve the urban environment. This represents a departure from standard methodologies, when the development and evaluation of the effectiveness of programs is often carried out without taking into account the opinions of citizens themselves.

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2.1 The Value Model

In previous work [6], reliably significant relationships were established between the components of a social network profile and the real values of users. In the work, regression analysis was applied to find relationships and, based on the results of the work, a model was developed to identify the values and needs of users based on data from social networks. The central idea of the model is to predict the user's value orientations based on the analysis of his social profile data. For this purpose, regression analysis is used, which allows us to identify the relationship between various characteristics of a user's profile on social networks and his value orientations, identified using the Schwartz technique.

The following steps are used to create a predictive model:

- Data loading: First, the model loads a preprocessed dataset with value orientations and user profile information.
- Data preprocessing: Includes data purification, normalization of numerical features, and conversion of categorical data into a format suitable for machine learning, for example, through coding.
- Feature identification: Identification and selection of relevant features to be used for model training.
- Dataset separation: The data is divided into training and test samples to ensure that the model can be evaluated.
- Model Training: At this stage, the selected regression model is trained based on the training sample.
- Model evaluation: Analysis of the accuracy of the model using a test sample and appropriate metrics such as standard error (MSE) or coefficient of determination (R2).
- Value prediction: Finally, a trained model is used to predict the values of new users based on their data from social networks.

Figure 1 shows the general scheme of data collection and processing to determine the values of citizens.

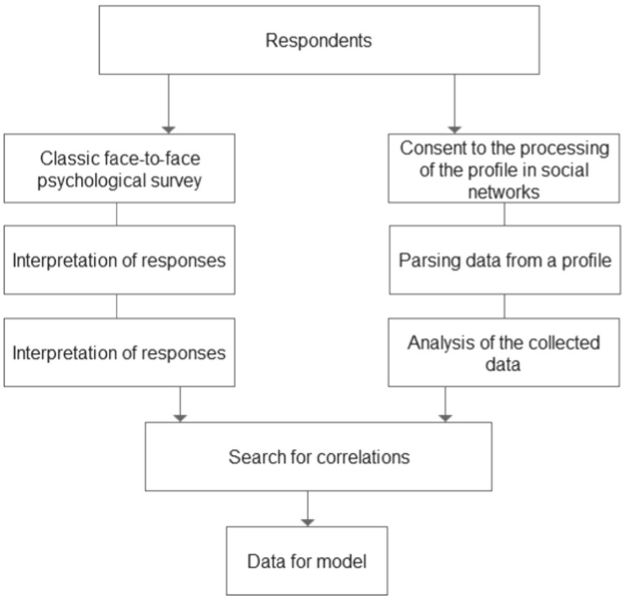

Fig. 1. General scheme of data collection and processing to identify values and needs

Such a model can be extremely useful in determining the needs and preferences of users in marketing and social research. It is this model that is used in this work to calculate values.

In this paper, the process of modeling urban processes over time is considered, in which 2 scenarios for managing city development programs will be considered - taking into account values and without taking into account.

2.2 A Model of Urban Infrastructure Development Needs

As noted earlier, a toolkit has been developed for conducting research, which allows determining the user's needs based on information in a social network profile. With the help of this model, having received an array of user profiles of an individual city, it is possible to calculate the needs of residents of the entire city. To conduct such a study, 980 urban and neighborhood communities were collected using the example of St. Petersburg, each community had an open list of subscribers and an accurate link to the city. The name and descriptions of the communities accurately linked them to the city and a specific area, which allowed us to conclude that the audience of these communities consists precisely of residents. By uploading subscribers of such communities, you can get a digital profile of residents of a particular city. Next, using the value model, identify the needs of each profile and summarize them for the entire audience.

To calculate the total assessment of each need for all residents of the district, we can use the following formula (Fig. 2):

$$C_i = \frac{\sum_{k=1}^{X} S_{ik}}{X} \times A_j$$

Fig. 2. The formula for calculating a separate need for all residents.

Where:

- (C_i) is the total indicator of the i-th need for the entire district, normalized from 0 to 10,
- (X)—the number of users in the area whose i-th need has been measured,
- (S_{ik})—assessment of the ith need of the kth user,
- (A_j)—coefficient of adaptation of the ith need to the total number of residents of the area (Y), (A_j = frac{Y}{X}) (if (X) is equal to (Y), then ($A_j = 1$)).

Explanation:

- The average value of each need is calculated for all users.
- The resulting average is multiplied by the adaptation coefficient to take into account the difference in the total number of residents of the area compared to the number of users.

2.3 Risks of Social Contradiction

As noted earlier, in a situation where city development programs do not take into account the real needs of residents, a process of social contradiction may develop. To analyze and identify such a risk, modeling was carried out on retrospective data reflecting the needs of citizens for 3 years in order to identify what would happen if the distribution of funding between programs was not adjusted and the old ranking methodology was used.

Using the ARIMA method to forecast needs for the next 3 years, we have identified the need that is expected to grow the most. ARIMA is an AutoRegressive Integrated Moving Average (AutoRegressive Integrated Moving Average), a statistical model used to analyze and predict time series. This model is capable of covering various types of time series data and is one of the most widely used forecasting methods.

Based on this analysis, a graph of historical data was constructed along with forecast values for this very need. It is determined that if the budget allocation is not adjusted, individual needs may increase, causing a social contradiction. Description of the model's work:

1. For input, the model receives a time series of each of the nine needs over the past five years.
2. For each need, an ARIMA model is built, which tries to describe time series using a combination of conditional autoregression and a moving average, taking into account the previous values of the series (to determine the trend), and integration to stabilize the series if it is non-stationary.

3. The model is trained on historical data and makes forecasts for the next three years.
4. A table is created containing the projected values of each requirement for the next three years.
5. An analysis of the projected data is being conducted to determine the three needs that are expected to increase the most.
6. A graph is being drawn to visually display the growth rates of these three needs.

In order to prevent an uncontrolled increase in infrastructure development needs, it is necessary to develop a model that will take into account the values and rank city development programs in such a way as to reduce critical needs and align the overall demand for city development, thereby achieving the goal of sustainable development (Fig. 3).

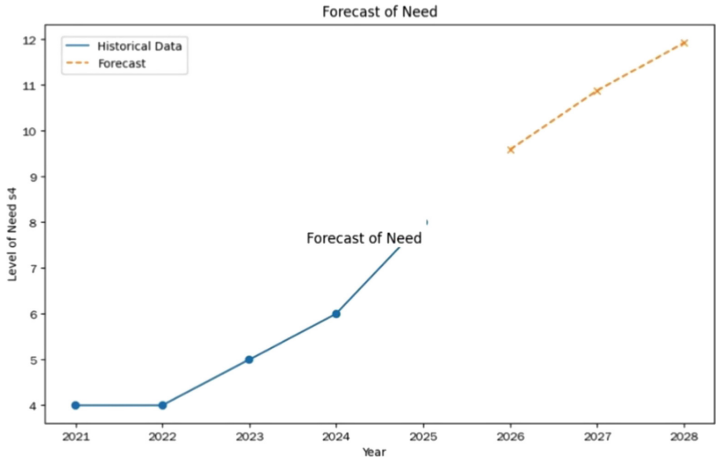

Fig. 3. Example forecasting needs

Now it is necessary to solve the problem of ranking urban programs so that funding is allocated to the highest priority programs in the first place and then in descending order. It is important to note that one program can solve several needs, which is why calculation is required.

To rank city development programs by importance, depending on the needs of residents, we can use the following formula (Fig. 4):

$$\text{Rank}(prog_i) = \sum_{s_j \in prog_i} w(s_j)$$

Fig. 4. A formula for ranking programs, taking into account that one program can solve several needs

Where:

– (prog_i)—i-th city development program,

– (sj)—the jth need that the program (progi) solves,
– (w(sj))—the weight of the need (sj), equal to its value on a scale from 1 to 10. The higher the value, the higher the weight.

This formula allows you to get a list of programs in the order of their importance, based on the total importance of the needs they solve. Greater importance means that the program addresses the more urgent needs of residents. Calculation algorithm:

1. Definition of weights: We assign a weight to each need based on its value.
2. Summation of weights: For each program, we calculate the total weight of all the needs that it solves.
3. Ranking: Programs are ranked in descending order of their total weight.

Table 1 shows an example of calculating the rating of programs for ranking the budget and optimal budget planning of city development programs for the coming year, based on the developed methodology.

Table 1. Distribution of city development programs

№	The name of the program	Rating
1	Healthcare	8,41
2	Transport accessibility	7,52
3	Environmental sustainability	7,23
4	Educational resources	6,32
5	Security	6,03
6	Work and employment	5,55
7	Housing conditions	4,32
8	Social inclusion	4,30
9	Access to digital services	3,71
10	Tourism	3,62

2.4 A General Model for Ranking Programs

As a conclusion of this study, an algorithm for prioritizing urban development projects is proposed, integrating data from social networks to assess the needs and value indicators of residents, which will then form the basis for the distribution of priority directions for the development of the urban environment. The structural visualization of this algorithm is shown in Fig. 5.

Thus, with the help of a scientific approach integrating both quantitative and qualitative data obtained from open sources, it is possible to increase the efficiency of decision-making in the field of urban planning and development of urban agglomerations.

The results of preliminary testing of the methodology on the example of several municipalities showed a significant increase in residents' satisfaction with the dynamics

of urban development and transparency of budget expenditures. The study provides strategic planning tools that can be integrated into the practice of city administration management to optimize costs and implement the most significant initiatives for citizens.

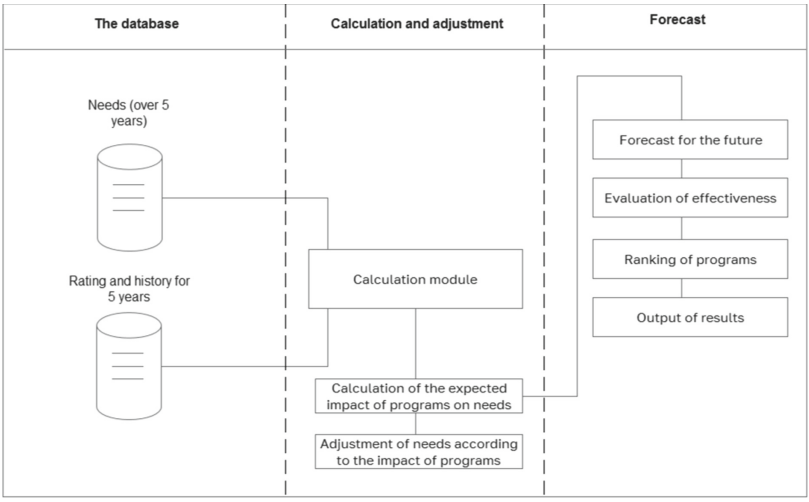

Fig. 5. General data processing scheme

2.5 Evaluating the Effectiveness of a Value-Based Approach

In the context of the proposed value-based approach to the management of urban development programs, the key change is the method of evaluating effectiveness. Instead of standardized performance indicators, such as compliance with planned budget expenditures or an increase in the number of infrastructure facilities, the emphasis is on a more practical and significant criterion: the degree of reduction of unmet needs of the population over time.

This means that the main measure of the success of development programs will not be the amount of money spent or facilities built, but a real improvement in the living conditions of citizens. This approach assumes that if, after the implementation of a particular urban development program, the needs of residents in some area decrease or are fully satisfied within a specified period, the program can be recognized as effective.

Thus, the value-based approach shifts the focus of evaluating the effectiveness of programs from formal, often abstract figures, to concrete changes in the life of the city and its residents. This helps to ensure that the development results are not just impressive figures in the reports, but have a real and tangible impact on the daily life of society.

In order to quantify the effectiveness of urban programs within the framework of a value-based approach, it is possible to introduce a formula that will measure the change in satisfaction of citizens' needs. Let's take the following metric as a basis (Fig. 6):

where:

$$E = \frac{P_b - P_a}{P_b} \times 100\%$$

Fig. 6. The formula for calculating efficiency

– E - the effectiveness of the program,
– Pb - general needs assessment before the implementation of the program,
– Pa - general needs assessment after the implementation of the program.

In this metric, Pb corresponds to the sum of the needs indices for all relevant categories before the start of the programs. Pa also represents a similar sum of needs indices after. These indexes can be calculated based on the analysis of data from social networks, surveys, statistics and other sources.

The percentage of reduced needs reflects the effectiveness of the program. If the E value is positive and high, this indicates a significant decrease in needs. If the value of E is zero or negative, this may indicate stagnation or deterioration of the situation, which, in turn, is an indicator of the inefficiency of the program.

For a more comprehensive approach, it is possible to introduce weight coefficients for each category of needs, depending on their priority, based on the values of citizens. So, the formula will take the following form (Fig. 7):

$$E = \frac{\sum(P_{b_i} \times W_i) - \sum(P_{a_i} \times W_i)}{\sum(P_{b_i} \times W_i)} \times 100\%$$

Fig. 7. The formula for calculating efficiency

where:

– Σ denotes the summation of all categories i,
– Wi is the weight coefficient of category i.

Thus, it is possible not only to quantify the effectiveness, but also to take into account the importance of various aspects of city life for its residents.

2.6 Personal Data

Within the framework of this study, special attention is paid to issues of confidentiality and ethical standards regarding the use of personal data. It should be emphasized that in the process of data collection and analysis, all necessary steps have been taken to ensure their anonymity and security.

First of all, we used methods of depersonalization of information, during which all personal data capable of identifying an individual user was deleted or changed to a stage at which any communication with specific persons became impossible. In particular, the accounts used in the study have been replaced with unique identification numbers (IDs), which eliminates the possibility of restoring the identity of the participants.

To collect and analyze data, we used statistical methods based on the aggregation of information and the derivation of general patterns. This approach allows us to extract

meaningful information about people's behavioral patterns and preferences, while at the same time completely preserving their anonymity.

In addition to the aforementioned privacy measures, the language model involved has the functionality to automatically delete any data that identifies the user before such data is further analyzed. This level of processing provides additional protection for personal information and is an integral part of our project's data protection system.

To summarize, we would like to emphasize that the confidentiality of personal data is a priority for us. Our approach to data research and analysis strictly complies with all modern information security requirements and standards of research ethics.

3 Conclusion

In the course of this work, a model of values has been developed, which is of significant importance for the sustainable development of the city. With this model, we can not only identify the needs of residents, but also rank development programs based on their importance in order to solve primary tasks first. The originality of this study lies in the fact that the work combines classical methods of sociology and psychology with modern methods of machine learning and automated methods of information collection, opening up new prospects for the use of open data for urban management.

This decision is important in the context of the sustainable development of the city for the following reasons:

1. Meeting the needs of residents: The value model allows you to identify and understand the needs and preferences of city residents. This provides an opportunity for administrators and urban planners to prioritize various development programs and pay special attention to the most important aspects for residents. This approach provides a more accurate reflection of real needs and allows you to create a more satisfactory and favorable environment for living and working.
2. Efficient use of resources: Ranking city development programs allows you to determine which tasks should be solved first in order to achieve the greatest positive impact on sustainable development. This allows you to effectively allocate resources, both financial and human, and focus them on solving the most significant problems and challenges. This approach ensures optimal use of resources and increases the effectiveness of city development programs.
3. Strengthening sustainability: The development and implementation of value-based development programs contribute to strengthening the sustainability of the city. Programs that take into account the needs of residents and focus on solving problems of paramount importance can create a harmonious combination of economic development, social justice and environmental protection. This contributes to the creation of a city that is able to adapt to changing conditions, overcome challenges and ensure a sustainable and prosperous future for its residents.

The identification of the value system of the urban population is a fundamental element for the development of role models in the context of the Ecosystem of Urban Services "Digital Petersburg" (EUS). Empirical data on the value orientations of residents can serve as determinants for ranking the priority of urban services. Thus, such data

obtained through sociological surveys, comments on social media or appeals to municipal services make a significant contribution to qualitative research and understanding of the motivations and preferences of the city's population.

The development of a role model of the EUS based on the identified values makes it possible to form a typology of users taking into account their individual, group and cultural characteristics. This contributes to the creation of a flexible and adaptive infrastructure that can best meet the needs of various segments of the urban population. For example, if the priority value is education, educational institutions, then the development of these services and infrastructure will be a priority.

The role model based on value analysis will provide urban planners and analysts with the opportunity to predict the needs of the population and influence their formation through targeted social policy and marketing communications. This will become the basis for the formation of a sustainable and functionally saturated urban space, where each service is aimed at maximum compliance with the expectations and requests of its users.

Thus, our value model plays an important role in ensuring the sustainable development of the city. It allows you to identify the needs of residents, rank development programs and focus resources on solving priority tasks. This approach contributes to the creation of a harmonious and sustainable urban space that meets the needs and values of its inhabitants and is able to adapt to changing conditions.

The importance of this solution for the sustainable development of the city is that it helps to establish a strong link between urban development programs and the real needs of residents. With this connection, urban programs become more effective and adaptive, and the development of the city is focused on the satisfaction of residents.

Further development of this research may include the following areas:

1. Expanding the Value model: Researchers can continue to develop and refine the value model to cover different contexts and aspects of urban development. This may include a detailed study of specific categories of values, such as sustainable mobility, accessibility of services, and even socio-cultural aspects.
2. Integration of collaborative research: Further development can be advanced by integrating collective research involving scientists, urban planners, administrators and residents of the city. This will help to link academic research with practical application, ensuring the practical relevance and effectiveness of the developed models.
3. Accounting for dynamism and variability: Cities are constantly changing and developing, and therefore the study should take into account the dynamism and variability of the values of residents. Researchers can conduct periodic updates and analyses to track changes in values and adapt urban development programs accordingly.
4. Extension of the methodology: Researchers can explore additional methods such as the use of modern data analysis and modeling technologies, as well as the integration of geographic information systems. This can help to analyze data more accurately and predict the needs of residents, taking into account spatial and temporal aspects.
5. Collaboration with city authorities and stakeholders: To better implement the developed models and recommendations, researchers can collaborate with city authorities and stakeholders. This will allow us to take into account practical limitations and

implementation factors, as well as make the research more practically oriented and applicable in the real world.

Overall, the development of this research is critically important for promoting sustainable urban development. This can help administrators, urban planners, and academia more accurately address the needs and values of residents in developing urban programs, which contributes to creating a sustainable and prosperous future for cities.

However, despite the promise of a value-based approach to evaluating the effectiveness of urban development programs, it has a number of limitations that do not allow it to completely replace traditional management methods. This approach serves as an additional tool supporting the decision-making process rather than a substitute for it.

One of the main drawbacks is the problem of data relevance, since information extracted from social networks can quickly become outdated. In a dynamically changing world, user preferences and values can easily change, making data less relevant to the current moment. The method needs to be improved in terms of online analysis and the ability to respond quickly to changes.

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