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Comfortable living environment as a priority for regional development

In recent years, the number of urban population in the total population of the Russian Federation, as well as in the whole world, has been increasing, together with the global trend of population aging, this determines the formation of a comfortable living environment as a priority for the development of regions and individual territories of the Russian Federation. To complete the study, attention is paid to the experience of taking into account the needs of low-mobility groups of the population in international practice, using the example of different countries. The study identified factors, trends and key trends that have a direct or indirect impact on the formation of a request for a comfortable living environment in the modern realities of the Russian Federation, taking into account the needs of low-mobility groups of the population, including the elderly. The research is based on the principle of consistency, which involves considering the object of research as a complex system consisting of many interrelated elements. The object of the study is a comfortable living environment in the cities of the Russian Federation, and the subject is the tools for creating a comfortable living environment in the cities of the Russian Federation. The methodological basis of the research consists of various methods of scientific cognition, such as content analysis, factor analysis, statistical data analysis, methods of systematization, grouping, generalization, as well as graphical data visualization techniques. The paper decomposes the process of forming a comfortable living environment, taking into account the needs of low-mobility groups of the population through the tools of graphical notation. The analysis of the decomposition of the process made it possible to identify the shortcomings of the process of forming a comfortable living environment in its existing form and determine the directions of further research in order to develop it.

Keywords: *comfortable living environment, trends, low-mobility population groups, context diagram, graphical notation IDEFO*

INTRODUCTION

The approved strategic documents of the Russian Federation directly or indirectly define the directions of economic development and social production, an important aspect of which is to improve the quality of life of the population. According to the Decree of the President of the Russian Federation "The national development goals of the Russian Federation for the period up to 2030 and for the future up to 2036"¹ improving the quality of life is designated as the national development goal of the country, which is essentially impossible without creating a comfortable living environment. Therefore, the importance of creating comfortable and safe living conditions for the population is especially emphasized, which is relevant in a situation when both the total urban population in the country and the population over working age, which is more sensitive to the level of comfort of the living environment, is increasing (Fig. 1).

The problems of modern society, including those caused by the aging of the population, are reflected in the documents of world organizations (WHO, UN), as well as in the strategic development documents of many countries². For example, the Strategy of Scientific and Technological Development of the Russian Federation (Decree of the President of

the Russian Federation)³ presents major challenges at the current stage of the country's development, including those caused by demographic changes, increased life expectancy and changes in people's lifestyle, which leads to an aging population. This creates a number of social problems in modern post-industrial society. Solving these problems requires an integrated approach, including social, economic and urban planning spheres, i.e. creating conditions that make life in the urban environment comfortable, safe and convenient for all its inhabitants, including with the aim of integrating the elderly population into society, which, together with the increasing level of urbanization in the Russian Federation, determines the desire to create a comfortable living environment as a priority for the development of the regions. The need to develop strategic directions for the formation of a comfortable living environment, taking into account the needs of elderly people, was considered earlier in [1]. At the same time, the process of forming a request for a comfortable living environment, and the very system of forming a comfortable living environment in modern Russian cities, is of interest for the current study.

RESEARCH METHODS AND PRINCIPLES

The research is based on the principle of consistency, based on the consideration of the object of

¹ On the National Development Goals of the Russian Federation for the period up to 2030 and for the future up to 2036 : Decree of the President of the Russian Federation dated 05.07.2024 No. 309. URL: <http://kremlin.ru/events/president/news/73986> (accessed: 05.10.2024).

² National programmes for age-friendly cities and communities : a guide. Geneva : World Health Organization, 2023. License: CC BY-NC-SA 3.0 IGO.

³ The Strategy of Scientific and Technological Development of the Russian Federation : Decree of the President of the Russian Federation dated 02.28.2024 No. 145. URL: <http://www.kremlin.ru/acts/bank/50358> (accessed: 05.02.2024).

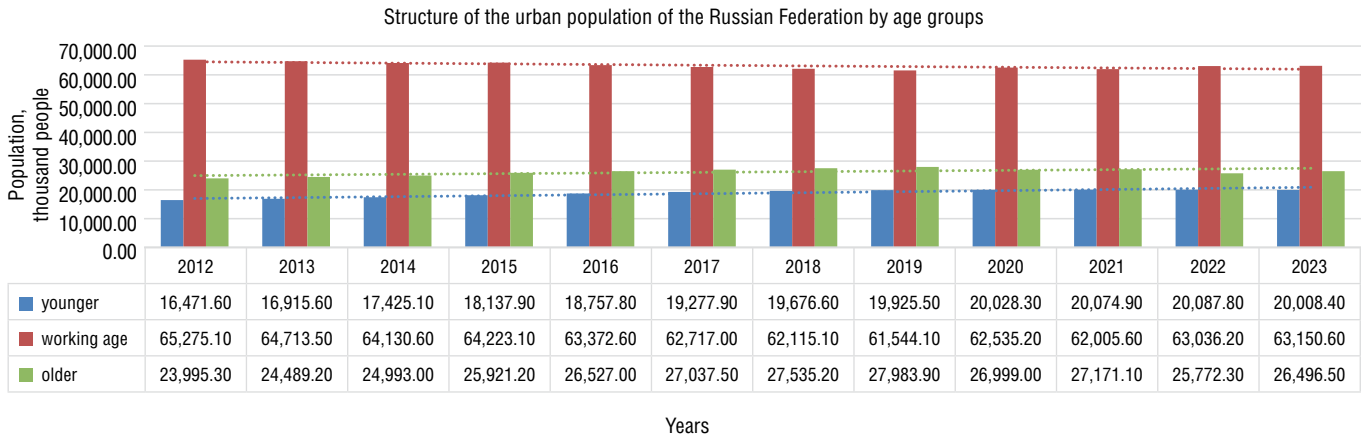


Fig. 1. Structure of the urban population group in the Russian Federation by age groups⁴

research in the form of a complex system, as a set of cause-effect and functional relationships. The methodological basis of the research is a set of methods of scientific cognition: content analysis, factor analysis, analysis of statistical data, methods of systematization, grouping, generalization, as well as graphical methods of data visualization. Data analysis allows you to mentally decompose the subject into its component parts, therefore, in order to study in more detail, the system of forming a comfortable living environment in the city, the tools of the Ishikawa causal diagram are actively used. In addition, the graphical notation of the IDEF0 family has been applied, which allows visualizing the formation of a comfortable living environment in the form of a process for its further analysis and determining the directions of further research in order to develop it.

The object of the study is a comfortable living environment in the cities of the Russian Federation.

The subject of the study is the tools for creating a comfortable living environment in the cities of the Russian Federation.

DISCUSSION

In Fig. 2 the key trends of modernity are highlighted, which, in our opinion, have an impact on the creation of a comfortable urban environment.

Trend No. 1. The formation of a comfortable living environment occurs primarily through the creation of comfortable living and working conditions, therefore, the increment of a high-quality fund of residential real estate in conjunction with the development of infrastructure has a direct impact on the level of comfort of the living environment.

The paper [2] analyzes the situation in the Netherlands, where the state strategy is aimed at maintaining elderly people in their usual place of residence, at separating places of residence and caring for them and replacing the institutional lifestyle with a non-institutional one.

Trend No. 2. The increase in the number of elderly people indicates an increase in the number of people with limited mobility (LMGP), because according to regulatory sources⁵, people with temporary disabilities, pregnant women, the elderly, people with strollers, etc., also belong to the category of people with limited mobility, in addition to the disabled. This means that a comfortable living environment should take into account the needs of the LMGP. The organization of living conditions for the elderly requires special attention, which affects the development of alternative forms of living environment that make it possible for them to integrate into the economy and socialization. This thesis is confirmed in the publication of Thai researchers [3]: the provision of public amenities and social services that promote healthy aging in an urban environment ensures that older people will feel comfortable aging in their homes, since a favorable living environment for older people should support their social activity. This study showed that landscaping, interest clubs for the elderly, medical and social care services, as well as social activity services played an important role in the social status and health status of elderly people, therefore, developers and authorities should take this into account when creating a comfortable urban living environment.

Trend No. 3. This trend is based on the principles of sustainable development, i.e. there is a desire to create environmentally

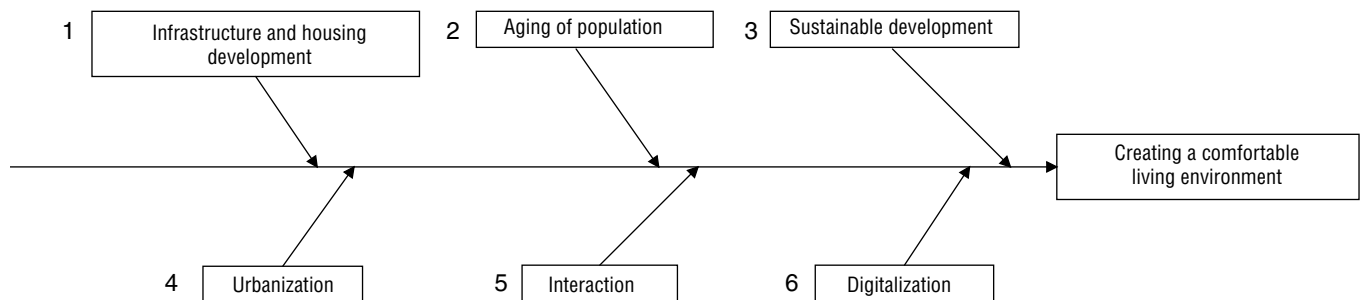


Fig. 2. Key trends affecting the formation of a comfortable living environment (made by the author)

⁴ The population of the Russian Federation by gender and age, Federal State Statistics Service. URL: <https://rosstat.gov.ru/compendium/document/13284> (accessed: 02.21.2024).

⁵ SP 59.13330.2020. SNIP 35-01-2001. Accessibility of buildings and structures for low-mobility groups of the population. URL: <https://minstroyrf.gov.ru/docs/117294/> (accessed: 05.02.2024).

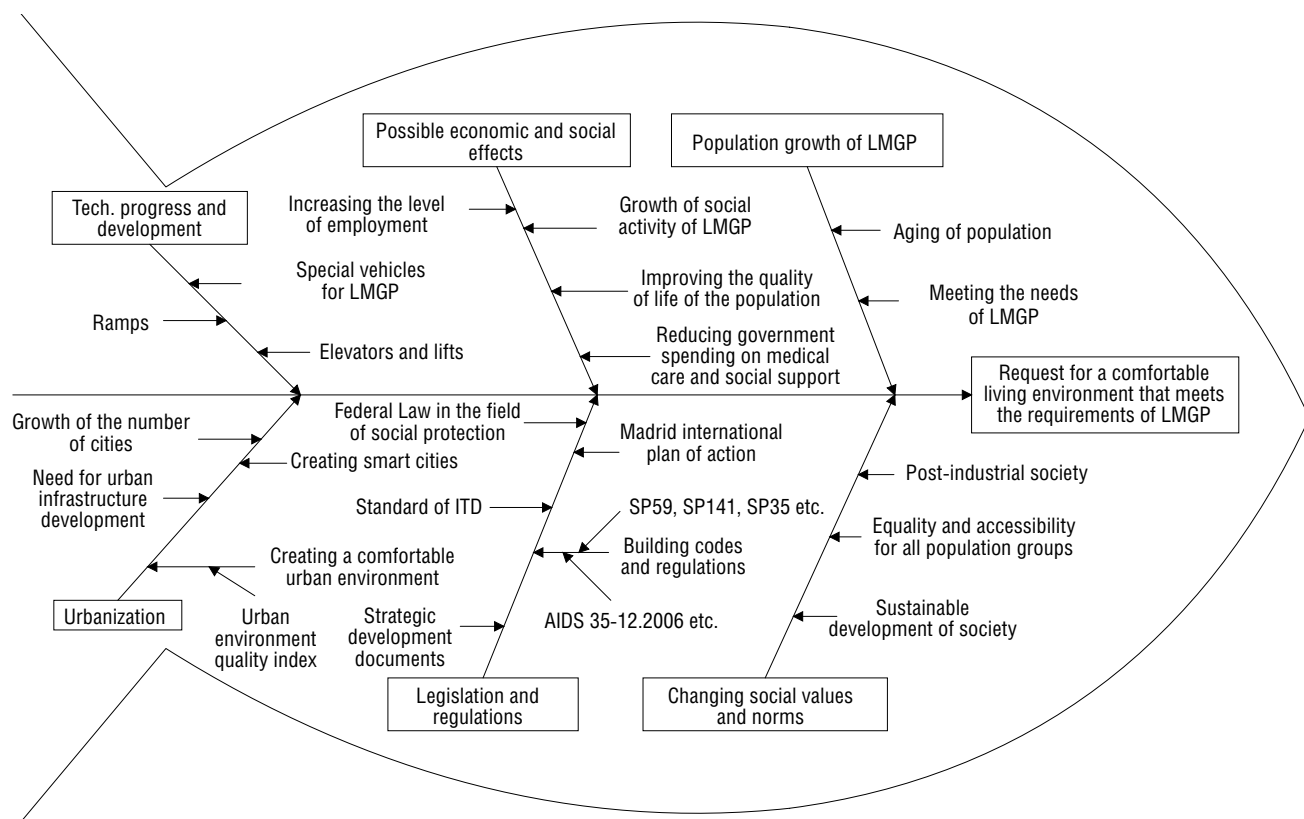


Fig. 3. Ishikawa diagram “Forming a request for a comfortable living environment that takes into account the needs of LMGP” (made by the author)

friendly urban spaces, reduce energy consumption and apply innovations to improve the quality of life of citizens.

Trend No. 4. In addition to the process of urbanization, i.e., the growth and development of cities, and, consequently, the growth of the urban population, the trend of “competition for people in modern cities” identified in an earlier study [4] should be attributed to influencing the development strategies of municipalities, since a direct relationship between the level of urban quality has been mathematically proven the environment and the population of the city.

Trend No. 5. Interaction of the population, executive authorities and business to create a comfortable living environment in cities, i.e. the development of partnership between participants in the system of creating a comfortable living environment. Similar prerequisites can be traced in the research of Japanese scientists, because the problem of population aging in Japan is very acute. The study [5] focuses on the importance of the active participation of all stakeholders and local enterprises and business structures in the urban planning process. The main task is to create conditions optimal for improving the well-being of elderly people, providing them with the opportunity to lead an active and safe life in society.

Trend No. 6. Digitalization of the economy contributes to the creation of modern so-called “smart” cities.

All of the above trends represent important aspects of the development of urban planning and the urban environment in the regions of the Russian Federation, aimed at creating modern, sustainable and convenient cities that improve the quality of life of

the population and the level of comfort of living for all categories of citizens, as well as contributing to the implementation of the state policy of people saving in the Russian Federation.

The development of the living environment, namely: the formation of a comfortable living environment occurs in accordance with the fundamental economic law of supply and demand. The demand formed by the population, i.e. the consumer of construction products, entails the development, and as a result, an increase in the level of comfort of the elements of the living environment.

The Ishikawa causal diagram⁶ presented in Fig. 3 reflects the factors that, in our opinion, influence the consumer's request for the formation of a comfortable living environment that takes into account the needs of LMGP. It includes such elements as possible economic and social effects from increasing the comfort level of the living environment, population growth, which belongs to the LMGP category, changes in social values and norms in the system of worldviews, legislative and regulatory acts in the field of urban planning and social protection of the population, as well as technological progress and urbanization.

The harmonious development of urban settlements takes into account both social, economic, environmental and cultural aspects. It is important to note the mechanism of integrated territorial development (ITD), which has been actively developing in recent years, which is designed to ensure the fulfillment of the law of supply and demand in the formation of a comfortable living environment⁷. The ITD of the city is an important and modern way to

6 Ishikawa Cause-and-Effect Diagram. URL: <https://up-pro.ru/encyclopedia/diagramma-isikavy/> (accessed: 04.17.2024).

7 The Russian Federation. Laws. Amendments to the Urban Planning Code of the Russian Federation and Certain Legislative Acts of the Russian Federation in order to ensure the integrated development of Territories : Federal Law No. 494-FL : adopted by the State Duma on 12.12.2020 : approved by the Federation Council on 12.25.2020. URL: <https://docs.cntd.ru/document/573249809> (date of application: 04.15.2024).

create a comfortable living environment for its residents, since modern citizens live outside their apartments, they tend to live in residential complexes whose services are able to meet the full range of their needs. Therefore, an important question remains how much the ITD takes into account the requests of both elderly people and other people with limited mobility. In view of this, the key element in the formation of a comfortable living environment, in our opinion, is to take into account the needs and wishes of local residents. This can be achieved through surveys, public hearings, the creation of public councils and the use of other feedback tools. The publication [6] defines the importance of sociological research in assessing the quality and development of the living environment, in this context it is interesting to consider the experience of a Hong Kong company specializing in real estate development. They conducted a survey among the elderly and those who care for them to find out their opinion about the services provided. The study was conducted by a specialized marketing company using questionnaires and subsequent focus groups, which allowed them to take into account the wishes of local residents in their further work [7].

Graphical notations of the IDEF (Integrated DEFINition) family are excellent for visualizing the process⁹. For functional modeling, the subtype of this family, IDEF0, is applicable, it will allow you to create a conceptual model of a system for creating a comfortable

living environment, since the constituent elements of this subtype of graphical notation correspond to the classical set of constituent elements of any system, i.e. there are inputs and outputs of the system.

At the first stage of creating a graphical notation of the IDEF0 family, the state is defined as a participant in the process, from whose point of view the entire process of creating a comfortable living environment is considered, taking into account the needs of LMGP.

The second stage defines the purpose of the diagram — an analysis of the process of forming a comfortable living environment, taking into account the needs of LMGP and determining possible directions for its development.

Fig. 4 shows a zero-level contextual diagram reflecting the system of creating a comfortable living environment taking into account the needs of LMGP.

In the centre there is a functional block (A0), which represents the system as a whole in a context diagram. Adjacent to the functional block are arrows reflecting “input”, “output”, “control” and “mechanisms”. The entry arrows reflect the source documents, conditions, and resources. The control arrows introduce various rules and restrictions into the system and have a controlling effect. The arrows of the mechanism reflect immutable resources, without

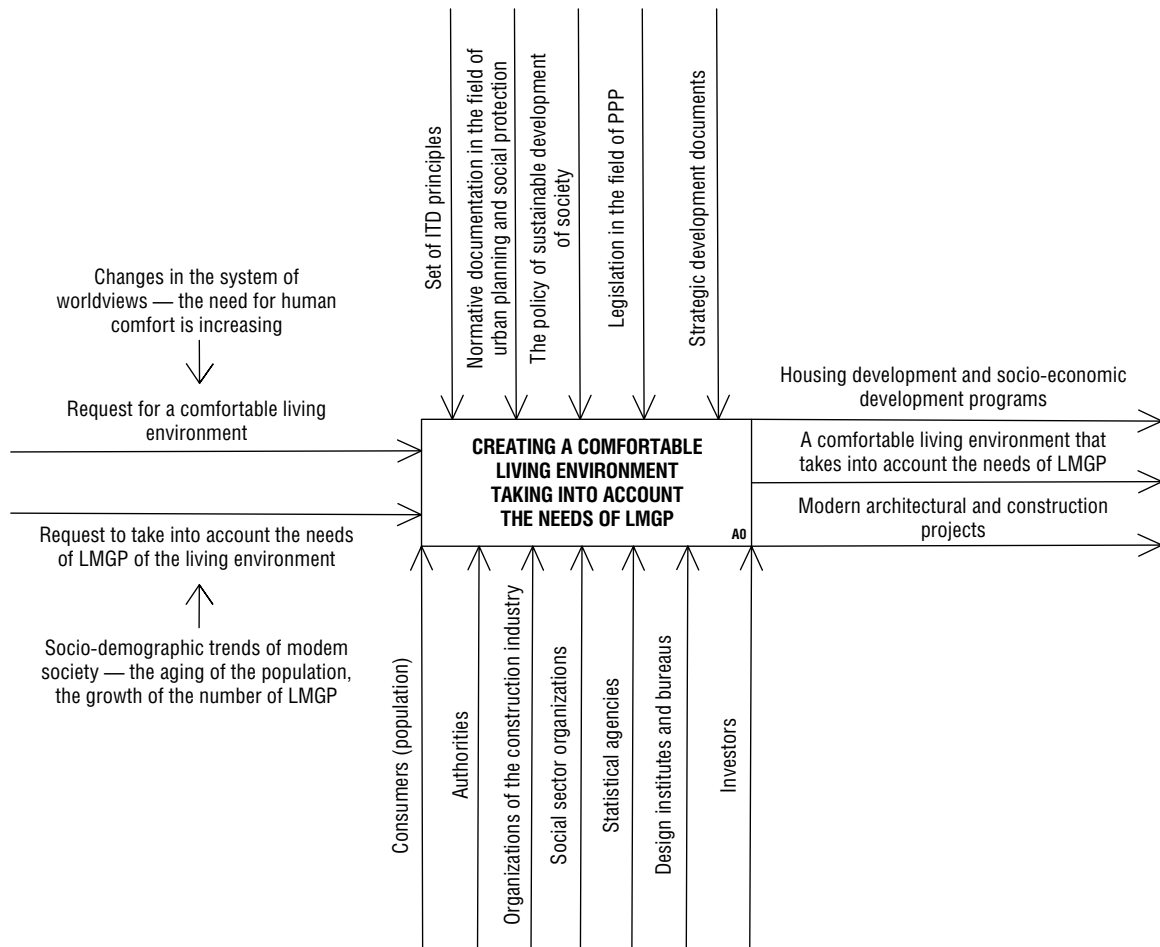


Fig. 4. Contextual diagram of the system for creating a comfortable living environment in the graphical notation of the IDEF0 family (made by the author)

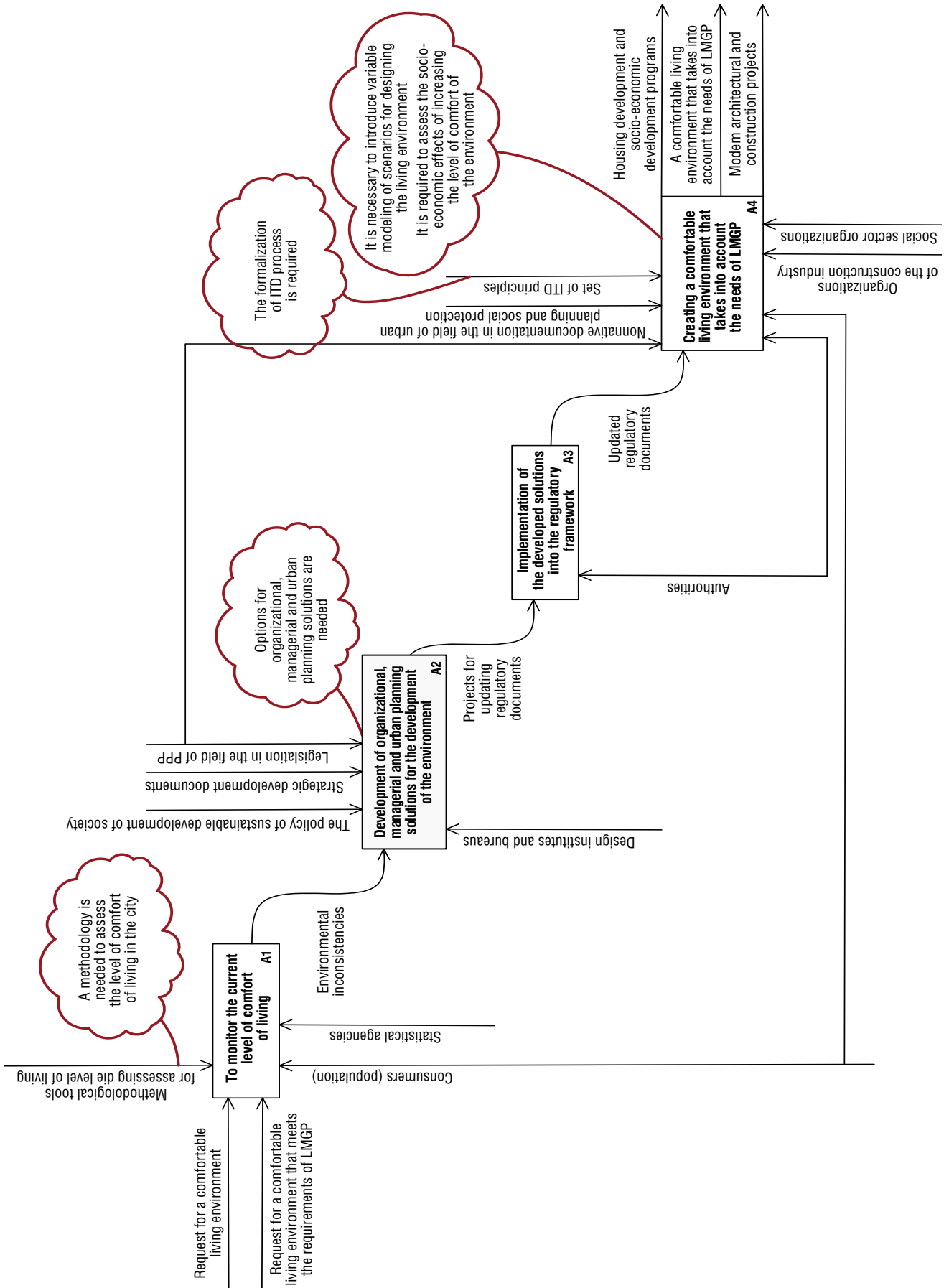


Fig. 5. Decomposition of the system for creating a comfortable living environment taking into account the needs of LMGP (made by the author)

which the process cannot be completed. The exit arrows essentially reflect the outcome of the process, outgoing documents, and resources. Thus, the system of forming a comfortable living environment was graphically visualized in a generalized format using the example of constructing a context diagram in the graphical notation of the IDEF0 family.

MAIN RESULTS

When drawing up graphical notations, the level of detail of the process can be increased. Fig. 5 shows the decomposition of the process shown in Fig. 4. The secondary or child diagram contains a number of functional blocks (A1, A2, A3, A4) that display the main subfunctions of the original functional block (A0) on the context diagram.

The analysis of the decomposition of the process made it possible to identify the shortcomings of the process of forming a comfortable living environment in its existing form and determine the directions of further research in order to develop it:

1. To monitor the current level of comfort of the living environment (A1), a methodology is needed to assess the level of comfort of the living environment in the city, taking into account the opinion of the population and the needs of the LMGP.

2. The analysis of functional block A2 revealed the need to develop options for organizational, managerial and urban planning solutions that allow developing alternative forms of living environment for the purpose of socialization and integration of LMGP and in particular elderly people into modern post-industrial society.

3. The analysis of the A4 functional block revealed the following areas of work:

- the formalization of the decision-making procedure and the implementation of the integrated development of the territory will allow the introduction of options for organizational, managerial and urban planning decisions at the legislative level;
- the introduction of the practice of variable modeling of the living environment, in particular, into the practice of integrated development of urban settlements territories, will allow choosing the best design solutions from the point of view of infrastructure balance, which allows taking into account the needs of LMGP;
- the activities of developers are aimed at making a profit from their activities, therefore, assessing the socio-economic effects of increasing the comfort level of the living environment is an integral part of the economic development of the regions and allows developers to engage in the implementation of investment and construction projects with an increased

level of comfort, taking into account the needs of LMGP in the region.

CONCLUSION

Creating comfortable living conditions in modern Russian cities is an urgent problem of regional development, requiring the collective work of all participants in this process from the population to public authorities. The areas of work identified with the help of graphical notation tools pose new challenges to the scientific community for further research in the field of creating a comfortable living environment in Russian cities, which will contribute to the collective response of modern society to the great challenge for the scientific and technological development of the country as a whole associated with demographic aging of the population. This is the only way to create comfortable living conditions in Russian cities that contribute to improving the quality of life and well-being for all citizens.

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Комфортная среда проживания как приоритет развития регионов

В последние годы численность городского населения в общей численности населения страны в Российской Федерации, как и в целом в мире, увеличивается. В совокупности с общемировой тенденцией старения населения это определяет формирование комфортной среды проживания как приоритет развития регионов и отдельных территорий Российской Федерации. Для полноты исследования уделяется внимание опыту учета потребностей маломобильных групп населения в международной практике, на примере разных

стран. В ходе проведенного исследования были выявлены факторы, тенденции и ключевые тренды, оказывающие непосредственное или косвенное влияние на формирование запроса на комфортную среду проживания в современных реалиях Российской Федерации с учетом потребностей маломобильных групп населения, включая людей пожилого возраста. Исследование опирается на принцип системности, который предполагает рассмотрение объекта исследования в виде сложной системы, состоящей из множества взаимосвязанных элементов. Объектом исследования выступает комфортная среда проживания в городах Российской Федерации, а предметом — инструменты формирования комфортной среды проживания в городах Российской Фе-

дерации. Методологическую основу исследования составляют различные методы научного познания, такие как контент-анализ, факторный анализ, анализ статистических данных, методы систематизации, группировки, обобщения, а также графические приемы визуализации данных. В статье выполнена декомпозиция процесса формирования комфортной среды проживания с учетом потребностей маломобильных групп населения посредством инструментария графической нотации. Анализ декомпозиции процесса позволил выявить недостатки процесса формирования комфортной среды проживания в существующем виде и определить направления дальнейших исследований в целях его развития.

Ключевые слова: комфортная среда проживания, тренды, маломобильные группы населения, контекстная диаграмма, графическая нотация IDEFO

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