

DOI: 10.46340/eujem.2020.6.3.8

Yevhen UdodORCID ID : <http://orcid.org/0000-0001-8300-0580>*Dnipropetrovsk Regional Institute of Public Administration of the National Academy of Public Administration under the President of Ukraine*

CONCEPTUAL BACKGROUND OF THE MONOCITY TRANSFORMATION IN A HARMONY-STRUCTURED ECONOMY: A CASE OF KRYVVI RIH CITY

Based on a comparative analysis of profile-like monocities in other countries that have undergone developmental stages within their own life cycle, either succeeded or degraded to default or complete elimination, it has been determined that the historically prioritized orientation of Kryvyi Rih to single-industry is a challenge for the existence of the city, the health, and population of the residents. The reasons for the threat to the city with a focus on the single-industry, which are due to external and internal factors, are presented in the scheme of causation. The need to implement the changes, based on a large number of stakeholders, led to the choice to transform the «expert strategy with elements of a negotiation strategy and a participation strategy». The context, design options, and stages of change based on the Six Steps model are analyzed.

Keywords: monocity, single-industry, local self-government, strategic priority, development, project, program.

Formulation of the problem. According to many researchers, monocities are a phenomenon that is inherent in the industrial stage of development of many countries, especially in its early stages. The process of emergence and creation of monocities is characteristic of economic development at the stage of industrialization, when cities arose around one large production or a group of similar industries. In modern Ukraine, almost every second small and medium-sized city and every fourth large city belong to the category of single-industry¹.

As part of a comprehensive research on «Formation of a regional support system for local development projects», which is carried out by the author since 2014 during the research work of the Department of Project Management and Management Dnipropetrovsk Regional Institute of Public Administration of the National Academy of Public Administration under the President of Ukraine «Development of a project approach in the field of public administration», «Innovative tools for strategic management of territorial development», «Problematic aspects of management of development and cooperation of united territorial communities», proposals were made on the possible composition of the elements of such a regional system, namely:

- developed association of local governments;
- network of resource centers;
- network of territorial project offices;
- subsystem of involvement of local self-government bodies and self-organization of the population in participation in competitions of projects of development of local self-government of various levels;
- stakeholder interaction management subsystem (stakeholders), which should include a set of agreements with donor organizations;
- subsystem of monitoring the implementation and evaluation of the success of projects and programs for the development of local self-government;
- subsystem of staffing of innovative development of the territory;

¹ Бабаніна, К. В., Радіонова, Л. О. (2018). Фактори детермінації життєдіяльності монопрофільних міст. *Перспективи розвитку територій: теорія і практика: матеріали всеукраїнської науково-практичної конференції (22-23 листопада 2018 р., м. Харків)*, 93-95.

– a specialized Internet resource with a platform for forming communities of practice^{1,2}.

Taking into account the acceleration of decentralization processes in Ukraine, on the one hand, and current challenges regarding the need to ensure innovative development of territories – on the other hand, we propose to supplement the list of previously defined elements of this complex with a subsystem for programming specific regions.

In our opinion, such a subsystem should be formed taking into account the unique features of each region. Thus, for many industrial regions such specific territories are monocities.

Scientific background. In recent decades, the problem of stimulating the development of monocities has been the subject of research and government programs in many countries. This topic has been studied in detail on the examples of monocities in Kazakhstan, Canada, Norway, USA, Sweden, Japan and other developed and developing countries. The main results of these investigations are presented in the papers of S. Brletich³, R. Bullock⁴, S. Commander⁵, O. J. Dinius and A. Vergara⁶, I. L. Grønlund⁷, B. Johannisson⁸, S. Kulay⁹, M. M. Mulrooney¹⁰, N. Nurlanova¹¹, M. Oborin, M. Sheresheva and S. Ivanova¹², F. Önerberg and L. Forsén¹³, M. Rama and K. Scott¹⁴, I. Turgel, L. Bogco and L. Suy¹⁵ etc.

The collective monograph «Urban Ukraine: at the epicenter of spatial change» emphasizes that single-industry determines the rigid dependence of opportunities, rates and directions of development of such settlements on the financial and economic condition of enterprises in one industry or even one enterprise¹⁶.

According to O. Kravtsova, the system «city-forming enterprise – a monocity» is more vulnerable to the threat of bankruptcy than the system in cities with adaptive multifunctional economy. She also believes that the introduction of public-private partnership programs, which will accept the implementation of such innovative mechanisms as «industrial diversification», «stable monocity», «managed compression», will

¹ Удод, Є. Г. (2015). Проектний підхід щодо підсилення спроможності територіальних громад в умовах децентралізації. *Аспекти публічного адміністрування*, 3 (4), 6-13. doi:<https://doi.org/10.15421/151527>.

² Udod, Y.G. (2017). Community-led local development approach principles implementation when forming a regional local development projects support system in Ukraine. *Public Administration Aspects*, 4 (11-12), 63-69. doi:<https://doi.org/10.15421/15201663>.

³ Brletich, S. (2015). Kazakhstan's Urban Development Struggles with Mono-cities. *ModernDiplomacy*. <<https://modernDiplomacy.eu/2015/10/26/kazakhstan-s-urban-development-struggles-with-mono-cities/>> (2020, April, 14).

⁴ Bullock, R. (2013). Mill town' identity crisis: reframing the culture of forest resource dependence in single industry towns. *Social transformation in rural Canada: new insights into community, cultures and collective action*. Toronto: UBS Press, 269-290.

⁵ Commander, S. (2018) One-company towns: Scale and consequences. *IZA World of Labor* 2018: 433. doi: <https://doi.org/10.15185/izawol.433>.

⁶ Dinius, O. J., Vergara, A. (eds.). (2011). *Company towns in the Americas: landscape, power, and working-class communities*. Athens: University of Georgia Press.

⁷ Grønlund, I. L. (1994). Restructuring One-Company Towns: The Norwegian Context and the Case of Moi Rana. *European Urban and Regional Studies*, 1, 2, 161-168.

⁸ Johannisson, B. (2015). Entrepreneurship in a corporatist state: the case of Sweden. *Entrepreneurship in Europe: The Social Processes*. New York : Routledge, 131-142.

⁹ Кулай, С. В. (2019). Зарубежный опыт модернизации и реструктуризации экономики моногородов. *Государственное управление*, 73, 224-248.

¹⁰ Mulrooney, M. M. (1991). A legacy of coal: the coal company towns of Southwestern Pennsylvania. *Perspectives in Vernacular Architecture*, 4, 130-137.

¹¹ Нурланова, Н. К. (2016). Города как точки роста экономического пространства Казахстана: тенденции и перспективы развития. *Проблемы развития территории*, 5 (85), 201-215.

¹² Оборин, М. С., Шерешева, М. Ю., Иванова, С. А. (2018). Анализ результатов государственной поддержки и тенденций развития моногородов РФ. *Государственное управление*, 68, 211-241.

¹³ Önerberg, F. (2015). Vulnerability in Small Single Industry Towns in Sweden: A Case Study of Hofors Municipality < <http://www.divaportal.org/smash/record.jsf?pid=diva2%3A821538&dswid=5365>>. (2020, April, 14).

¹⁴ Rama, M. (1999). Labor earnings in one-company towns: theory and evidence from Kazakhstan. *The World Bank Economic Review*, 13 (1), 185-209.

¹⁵ Тургель, И. Г., Божко, Л. Л., Суй, Л. (2016). Государственная поддержка моногородов России и Казахстана. *Вестник Финансового университета*, 1, 22-32.

¹⁶ Мезенцев, К., Олійник, Я., Мезенцева, Н. (ред.). (2017). *Урбаністична Україна: в епіцентрі просторових змін*. Київ: Фенікс.

promote self-development of settlements and their flexible adaptation to environmental change without constant recourse to resources of the state to improve the quality of life¹.

Thus, within the study of approaches to the formation of a regional system of support for local development projects, the need to solve such scientific problems as the development of typologies of transformation models based on the analysis of world-famous cases of transformation of monocities with further definition of criteria for selecting appropriate models as a basis and projects at the regional and local levels.

Setting paper objectives (aim). The purpose of this article is to propose a conceptual approach to the development of a program for the transformation of a monocity into a harmoniously structured economy on the example of the city of Kryvyi Rih.

Presentation of the main results and their substantiation. Given the profile of Kryvyi Rih as a single-industry, focused almost entirely on the mining and metallurgical industry of the city, similar cities of other countries were analyzed and the answer was given: to predict where Kryvyi Rih will be in 30 years you need to look at the experience of cities of Japan, America, Germany, Australia, which are at later stages of the life cycle. A comparative analysis of similar monocities in other countries, which have passed the stages of development within their own life cycle, and either, became successful or degraded to the stage of default or complete liquidation (Table 1).

Table 1

Models of adaptation of monocity to changes in the economic system and globalization

A. Adaptation to the environment	B. Innovative activity	C. Grants and subsidies	D. Resettlement	E. Service orientation
It is based on the formed branch specialization Modernization of existing productions Orientation of production to new market niches Identification of «growth points» Changing the organizational structure of enterprises towards a more flexible one	Development of fundamentally new high-tech industries Creation of diversified innovation clusters Development of research institutes Moving heavy industry to the suburbs Implementation of proactive environmental policy	Refusal to develop the production sphere Support for monocities through government subsidies and grants «Manual» management of the regional economy Creating a mechanism to control the spending of allocated budget funds	Liquidation of production Relocation of the population to more prosperous areas Assisting the population in finding new work places Providing severance pay to employees of closed enterprises	Changing the structure of the economy, emphasis on services, culture, education, tourism Clusters of post-industrial development Tourism is a quick way to stimulate the creation of a large number of urban spaces and change the structure of the economy
Ingolstadt (Germany), Essen (Germany), Sheffield (England)	Pittsburgh (USA), Baltimore (USA), Miyata (Japan)	Cleveland (USA), Detroit (USA), Yubari (Japan)	Woodcaters (Australia), Flint (USA), Hashima (Japan)	Lowell (USA), Ostrava (Czech Republic), Tomioka (Japan)

According to the analysis of the life cycle of similar cities, the cities of Pittsburgh (formerly a monocity with an emphasis on metallurgy) and Detroit (a monocity with an emphasis on engineering) were chosen, while the first was a successful example of survival, and the second – not. The success of cities is well illustrated in the diagram of population dynamics (Fig. 1).

¹ Кравцова, О. М. (2014). Інноваційні підходи до подолання загрози банкрутства мономіст. *Вісник Бердянського університету менеджменту і бізнесу*, 2 (26), 38-42.

The problem

Population dynamics of analogous cities and Kryvyi Rih

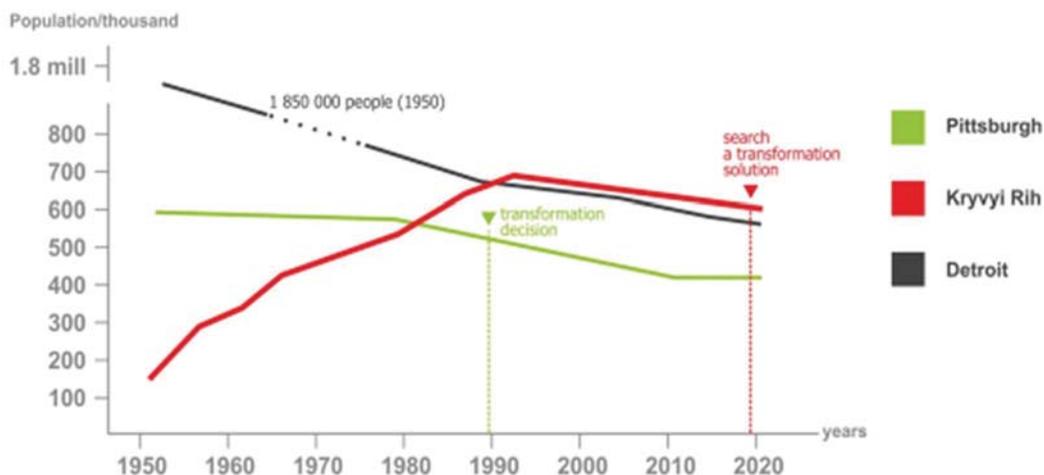


Fig. 1. Population dynamics of analogous monocities and the city of Kryvyi Rih

Detroit’s population has declined almost threefold, and Pittsburgh (due to some transformational changes) has reversed the declining population and reached a «plateau» in terms of population 20 years after the change began.

The dynamics of the number of work places in the city of Kryvyi Rih for the period from 1991 (collapse of the Soviet Union) to the current period is studied (Fig. 2).

The problem

Number of workplaces in Kryvyi Rih

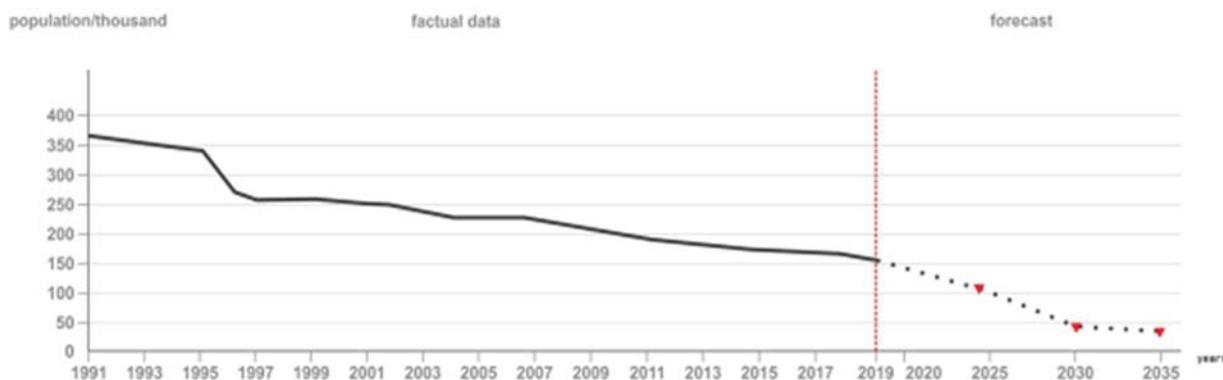


Fig. 2. Dynamics of the number of work places in the city of Kryvyi Rih

It is determined that the negative dynamics of the number of work places (from 360 thousand people in 1991 to 160 thousand people in 2020 – minus 200 thousand people) is ahead of the rate of decline in the number of city residents in 2 times (1991 – 750 thousand people, 2020 – 650 thousand people –

minus 100 thousand people). At the same time, if nothing is done, in 2035 the city may cease to exist. The structure of employment in Kryvyi Rih and Pittsburgh has been studied. In fig. 3 shows, that Pittsburgh's heavy industry sector employs only about 5 % of the population and Kryvyi Rih's – 38 %. At the same time in Pittsburgh, a large share of human resources is involved in innovative segments (science and medicine), and in Kryvyi Rih – an order of magnitude lower.

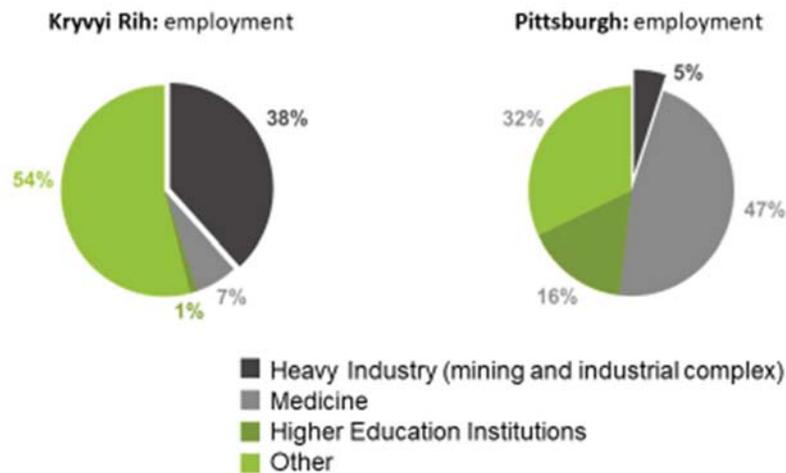


Fig. 3. Comparison of the employment structure in Kryvyi Rih and Pittsburgh

In our opinion, the existing problem can be formulated as follows: «Historically, the priority orientation of Kryvyi Rih to the single-industry is a challenge to the existence of the city, health and population». This problem is exacerbated by the deterioration of railway transport: the ability to export products of the mining and metallurgical complex (MMC) is limited by the wear of rolling stock and track. The study of the influence of external factors indicates that the city does not respond well to changes in the environment, there is a possibility of depopulation and labor migration due to the critical state of the three components of the socio-economic system of the city: ecology; infrastructure; salary.

The main priorities of the city development strategy were formulated in 2012: environmental safety; diversification of the economy; effective and open city management¹.

However, due to lack of flexibility, the stated goals within the priorities were not fully achieved. The available tools of city management are not able to provide: to the residents – a decent environment, infrastructure, salary; to the state – a consistently high contribution to the country's economy, due to the inability to change the economic system, prone to external crises. The urban supersystem is in a state of strategic drift, the external environment has changed significantly, the gap between these states is a threat to the city.

The results of the study indicate that different subsystems have their own strategies and priorities that are not synchronized with the strategy of development of the supersystem. If we can know about the strategies of city-forming business, the strategies of almost 30,000 small and medium-sized businesses (SMEs) are not known at all. In addition, there are some organizations, communities and groups whose strategies are not described, priorities and goals arise situationally.

The city, as a supersystem, takes into account in its strategy only the strategies of the city-forming business, which, in turn, is the most sensitive to crises in the mining and metallurgical complex. SMEs and science, as the least sensitive to fluctuations in the world MMC, are almost not considered. The existing hierarchical structures in the subsystems are not able to respond flexibly to the interaction with each other and to changes in the external environment. The structure of local government focuses mainly on interaction with the structure of city-forming business.

¹ Офіційний вебсайт Криворізької міської ради та її виконавчого комітету (2015). *Стратегічний план розвитку міста Кривого Рогу на період до 2025 року* <https://kr.gov.ua/ua/st/pg/100415583959267_s/> (2020, April, 14).

This allows to formulate a preliminary conclusion of the influence of internal factors: the city, as a supersystem, in its development relies primarily on sensitive to crisis fluctuations city-forming business. There is no synchronization of strategies, interaction at the level of structures and management systems between subsystems: local government, SMEs, science, communities.

The scheme of cause-and-effect relations of the problem is given in fig. 4.

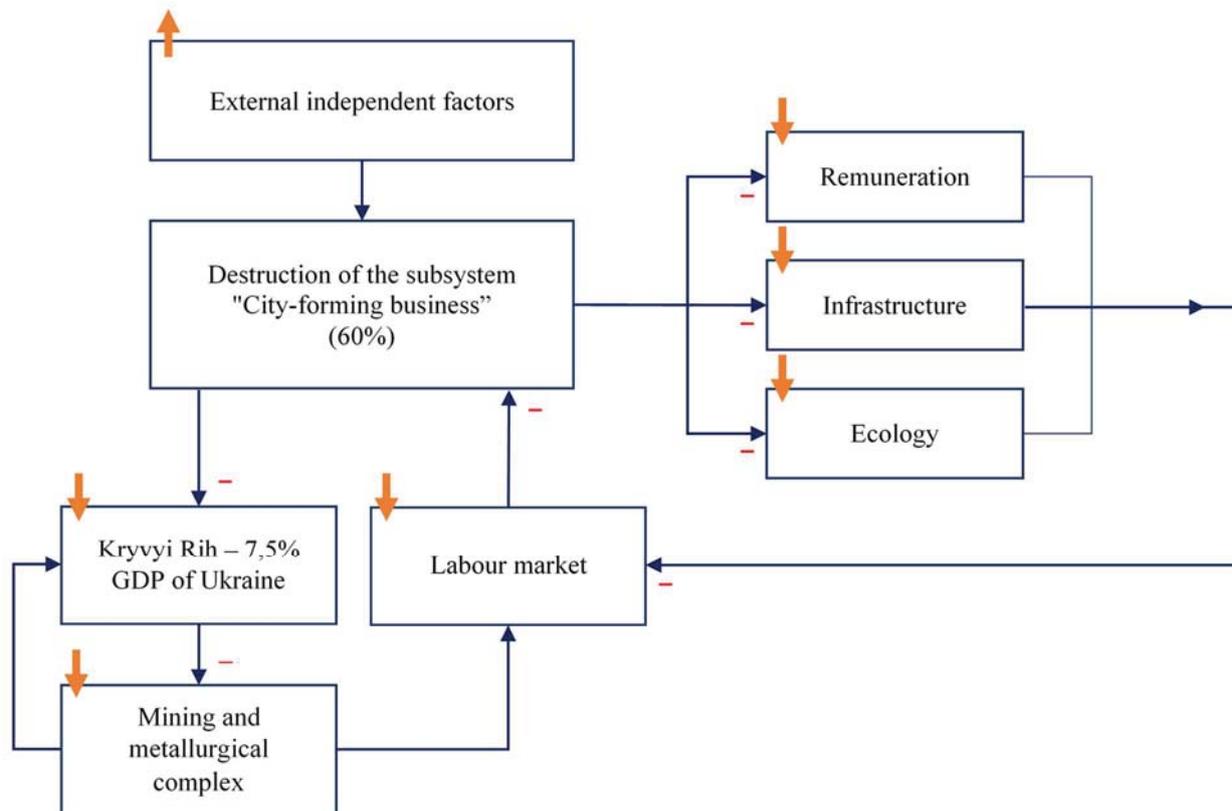


Fig. 4. The scheme of cause-effect relationships of the monocity of Kryvyi Rih development problem

Reasons for the threat to the city with a focus on the single-industry (interaction only with the subsystem «city-forming business»):

1. Impact on the single-industry (city-forming business) of external independent factors that cannot be controlled (example: the global crisis has led to falling prices for metals and iron ore).

2. A large share of the single-industry in the city budget (60%) means that even insignificant fluctuations immediately and significantly affect the city's economy.

3. The impact of the single-industry on the labor market in the city through the environment, infrastructure, wage level.

4. The labor market affects the subsystems «SME», «Science», «Others» (40 % of the city budget) by reducing the size of business segments, the outflow of population and reducing the solvency of the population.

5. In the event of a «fall» of the city-forming business, the entire supersystem of the city is destroyed.

Thus, the relevance of the problem «Historically priority orientation of Kryvyi Rih to the single-industry is a challenge to the existence of the city, health and population» due to external and internal factors and is explicitly presented in the cause-effect scheme.

In order to conceptualize the solution to the problem, the context was diagnosed and selected from several possible options, the one that best fits the current situation.

As the changes stem from a technical problem – «Orientation of Kryvyi Rih to the single-industry» – there is a need to implement changes based on a large number of stakeholders. This leads to the choice of an «expert strategy with elements of a negotiation strategy and a participation strategy».

The essence of the proposed changes can be formulated as follows: to ensure in Kryvyi Rih dynamic growth of production of goods and services that are not related to the single-industry, due to the transformation of the socio-economic system of the city from single-industry to harmoniously structured.

A rational vision of the future can be represented through the achievements of the prototype city – Pittsburgh, where the emphasis has been changed from the single-industry to the development of private medicine, innovative developments in science and technology. Metaphor of transformational change: «We create an ecosystem for the realization of ideas».

Strategic indicators of the success of the transformation program are presented in the diagram (fig. 5). The growth of the city’s GDP by 1.5 times in 10 years, provided the growth of the single-industry is not more than 1.5% per year and the growth of unrelated industries by 5 % per year, which will reduce the impact of the single-industry from 60 % to 40 % on the city budget.

The city program

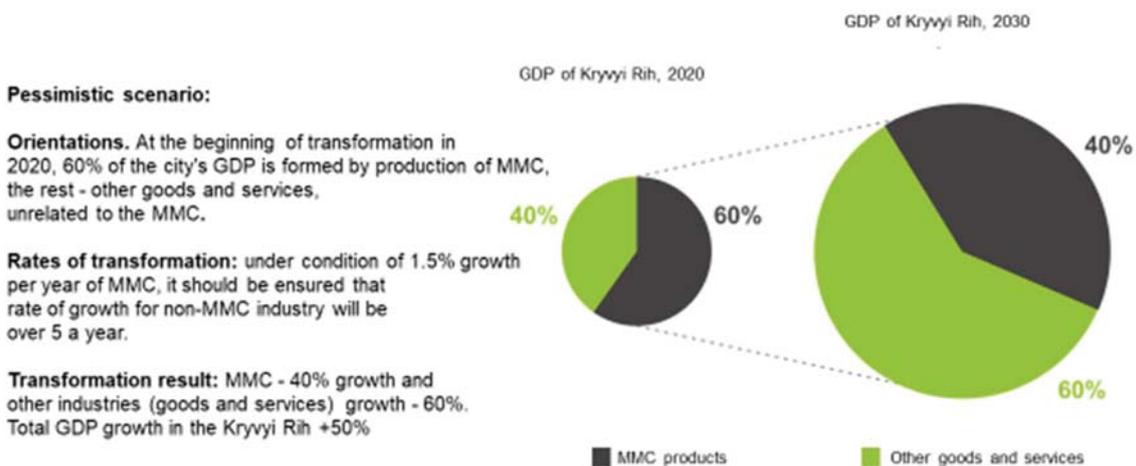


Fig. 5. Strategic indicators of success of the program of transformation of the single-industry socio-economic system of Kryvyi Rih

The concept of transformational change provides for the implementation of the model «Six Steps».

- Step 1. Forming awareness of the need for change.
- Step 2. Create a support team.
- Step 3. Formulating a vision of the future.
- Step 4. Actualization of values of local culture.
- Step 5. Transition management.
- Step 6. Keep pace.

The implementation of these steps is possible through the formation of the matrix structure of project management and transformation programs in the subsystem "Local Government", based on the existing stable hierarchical structure (Fig. 6).

Combined management structure

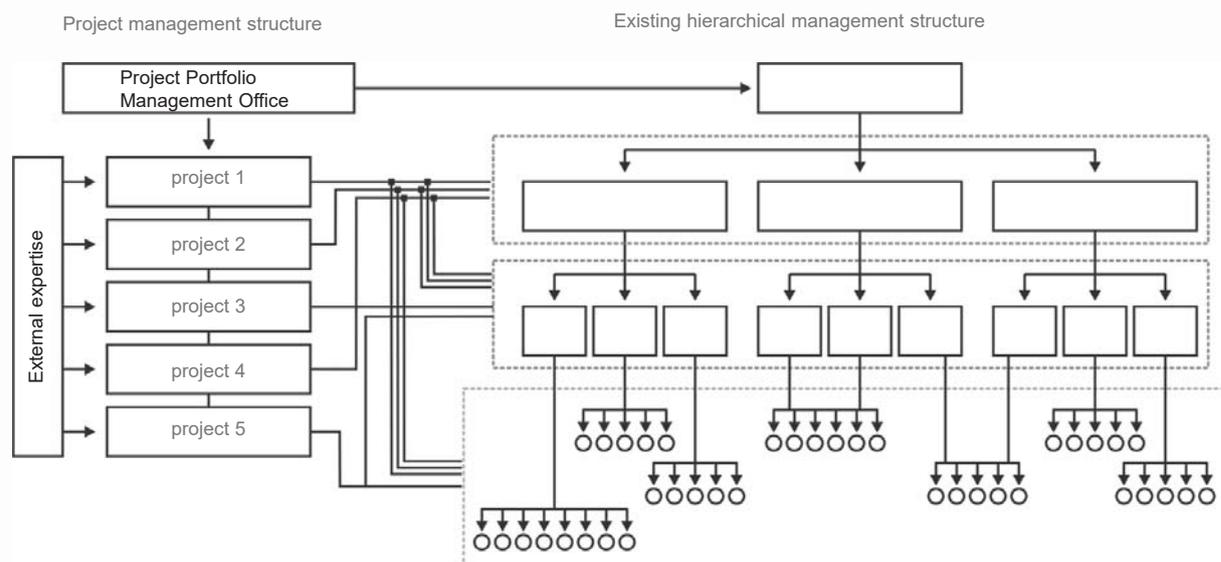


Fig. 6. Matrix structure of Kryvyi Rih single-industry socio-economic system transformation's projects and programs management

Conclusions and perspectives for further research. Based on a comparative analysis of similar monocities in other countries, which have passed stages of development within their own life cycle, have either become successful or degraded to the stage of default or complete liquidation, it is determined that the historically priority orientation of Kryvyi Rih to the monocity is a challenge the existence of the city, the health and population size. The reasons for the threat to the city with a focus on the single-industry, which are due to external and internal factors, are presented in the scheme of cause-effect relationship. The need to implement the changes, based on a large number of stakeholders, led to the choice to transform the «expert strategy with elements of a negotiation strategy and a participation strategy». The context, design options and stages of change based on the «Six Steps» model are analyzed.

Areas of further research include: elaboration of probable scenarios of transformational changes; identification of risks that may arise at the implementation stage, and development of a management system; development of a model of interaction of subsystems with a single decision-making center in the transformation period.

References:

1. Babanina, K. V., Radionova, L. O. (2018). Faktory determinatsiyi zhyttyediyalnosti monoprofilnykh mist [Factors for determining the viability of single-industry cities]. *Perspektyvy rozvytku terytoriy: teoriya i praktyka: materialy vseukrayins'koyi naukovo-praktychnoyi konferentsiyi (22-23 lystopada 2018 r., m. Kharkiv)* [Territorial Development Prospects: Theory and Practice: Proceedings of the All-Ukrainian Scientific and Practical Conference (November 22-23, 2018, Kharkiv)], 93-95. [in Ukrainian].
2. Brletich, S. (2015). Kazakhstan's Urban Development Struggles with Mono-cities. *Moderndiplomacy*. <<https://moderndiplomacy.eu/2015/10/26/kazakhstan-s-urban-development-struggles-with-mono-cities/>> (2020, April, 14). [in English].
3. Bullock, R. (2013). Mill town' identity crisis: reframing the culture of forest resource dependence in single industry towns. *Social transformation in rural Canada: new insights into community, cultures and collective action*. Toronto: UBS Press. [in English].
4. Commander, S. (2018) One-company towns: Scale and consequences. *IZA World of Labor 2018*, 433. doi: <https://doi.org/10.15185/izawol.433>. [in English].
5. Dinius, O. J., Vergara, A. (eds.). (2011). *Company towns in the Americas: landscape, power, and working-class communities*. Athens: University of Georgia Press. [in English].
6. Grønlund, I. L. (1994). Restructuring One-Company Towns: The Norwegian Context and the Case of Moi Rana. *European Urban and Regional Studies*, 1, 2, 161-168. [in English].

7. Johannisson, B. (2015). Entrepreneurship in a corporatist state: the case of Sweden. *Entrepreneurship in Europe: The Social Processes*. New York: Routledge. [in English].
8. Kravtsova, O. M. (2014). Innovatsiyni pidkhody do podolannya zahrozy bankrutstva monomist [Innovative approaches to overcoming the bankruptcy threat of monocities]. *Visnyk Berdyanskoho universytetu menedzhmentu i biznesu* [Bulletin of Berdyansk University of Management and Business], 2 (26), 38-42. [in Ukrainian].
9. Kulay, S. V. (2019). Zarubezhnyy opyt modernizatsii i restrukturyzatsii ekonomiki monogorodov [Foreign experience in the modernization and restructuring of the economy of monocities towns]. *Gosudarstvennoye upravleniye* [Public administration], 73, 224-248. [in Russian].
10. Mezentssev, K., Oliynik, Ya., Mezentsseva, N. (eds.). (2017). *Urbanistychna Ukrayina: v epitsentri prostorovykh zmin* [Urban Ukraine: At the Epicenter of Spatial Change]. Kiev: Feniks. [in Ukrainian].
11. Mulrooney, M. M. (1991). A legacy of coal: the coal company towns of Southwestern Pennsylvania. *Perspectives in Vernacular Architecture*, 4, 130-137. [in English].
12. Nurlanova, N. K. (2016). Goroda kak tochki rosta ekonomicheskogo prostranstva Kazakhstana: tendentsii i perspektivy razvitiya [Cities as growth points of the economic space of Kazakhstan: trends and development prospects]. *Problemy razvitiya territorii* [Problems of the territory development], 5 (85), 201-215. [in Russian].
13. Oborin, M. S., Sheresheva, M. Yu., Ivanova, S. A. (2018). Analiz rezul'tatov gosudarstvennoy podderzhki i tendentsiy razvitiya monogorodov RF [Analysis of the results of state support and development trends of monocities of the Russian Federation]. *Gosudarstvennoye upravleniye* [Public administration], 68, 211-241. [in Russian].
14. Onnerberg, F. (2015). Vulnerability in Small Single Industry Towns in Sweden: A Case Study of Hofors Municipality. *Divaportal* <<http://www.divaportal.org/smash/record.jsf?pid=diva2%3A821538&dswid=5365>>. (2020, April, 14). [in English].
15. Rama, M. (1999). Labor earnings in one-company towns: theory and evidence from Kazakhstan. *The World Bank Economic Review*, 13 (1), 185-209. [in English].
16. Official website of Kryvyi Rih City Council and its executive committee (2015). *Stratehichnyy plan rozvytku mista Kryvoho Rohu na period do 2025 roku* [Strategic plan for the development of the city of Kryvyi Rih for the period until 2025]. <https://kr.gov.ua/ua/st/pg/100415583959267_s/> (2020, April, 14). [in Ukrainian].
17. Turgel, I. G., Bozhko, L. L., Syuy, L. (2016). Gosudarstvennaya podderzhka monogorodov Rossii i Kazakhstana [State support of monocities of Russia and Kazakhstan]. *Vestnik Finansovogo universiteta* [Bulletin of the University of Finance], 1, 22-32. [in Russian].
18. Udod, Y. G. (2015). Proektnyy pidkhid shchodo pidsylennya spromozhnosti terytorial'nykh hromad v umovakh detsentralizatsiyi [Project approach to strengthening the capacity of territorial communities in the conditions of decentralization]. *Aspekti piblichnogo admistruvannya* [Public Administration Aspects], 3 (4), 6-13. doi:<https://doi.org/10.15421/151527>. [in Ukrainian].
19. Udod, Y. G. (2017). Community-led local development approach principles implementation when forming a regional local development projects support system in Ukraine. *Public Administration Aspects*, 4 (11-12), 63-69. doi:<https://doi.org/10.15421/15201663>. [in English].