Industrial quarters. Redevelopment as a tool for the integrated development of the Moscow industrial zones that have lost their purpose

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Abstract

The study was prepared in connection with the need to form effective mechanisms for the integrated development of the former industrial zones to achieve the strategic development goals of Moscow. Subject of the study: identification of territorial potential, priorities of urban development, determination of approaches and possible vectors of transformation of the former industrial zones. The industrial zones considered in this study are located mainly in the middle and peripheral zones (so-called the “rust belt”) and can become centers for the formation of new public and business spaces, a territorial resource for the polycentric scenario of the city development. The objects of study were 21 industrial zones located on the area of 30 Moscow districts, including 38 ITD areas (Integrated territorial development). Formalized models and detailed recommendations were prepared for the 13 pilot ITD areas.

Keywords

Redevelopment, strategic, urban, industrial, scenario

1. Analytics. Potential and practice of redevelopment

Moscow is actively reorganizing industrial zones. In 2017, its occupied 17% of the city’s area. Of the 7.8 thousand hectares within the boundaries of the industrial zones, enterprises and organizations of science and industry occupy 50%. The rest of the plots are occupied by «non-core» objects for these zones, characterized by inefficient use of land resources. Now many of these areas are acquiring new functions and appearance.

In the period from 2017 to 2020, the city surveyed 100% of the industrial areas, this is about 14.8 thousand hectares or more than 13% of the old Moscow total area. About 5.4 thousand hectares of this land are areas potentially suitable for urban development, including by ITD areas (Integrated territorial development).

In recent years, the areas contiguous with the Third Ring Road have been redeveloped and have changed their functional purpose. Transport interchange hubs, rapid transit stations, social facilities have been built along with residential buildings and new jobs have been created.

Today, the projects for the integrated territorial development in relation to the reorganization of the former industrial areas of the city are unified in the new project «Industrial quarters».

Urban development potential of ITD areas can reach about 37 million square meters. ITD is a set of measures carried out in accordance with the approved documentation for the planning of the area and aimed at updating the living environment and creating favorable living conditions for citizens, public space, ensuring the development of such area and its
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improvement. It’s a new urban tool, which received a legal basis in 2017 and was actively implemented in 2020.

According to the stated mission of Moscow, the achievement of the given scenario of territorial and spatial development and the level of quality of the urban environment will be possible when solving the following tasks:

- Implementation of a new planning model for polycentric Moscow, the formation of new multifunctional urban centers.
- Improving the quality of the urban environment in peripheral and middle areas in order to correct imbalances.
- Ensuring the development of the road network and transport infrastructure on the scale of the Moscow agglomeration.
- Development of Moscow as a Smart-City / Reconstruction of the urban environment.

1.1. Trends. World experience

Successful world capitals form long-term strategies in relation to the zones of reorganization. 7 global examples of megacities that are leaders in quality of life and 20 cases of the most interesting examples relevant to Moscow have been reviewed.

In terms of strategic directions, the most interesting are:

- the experience of London where the Good Growth concept is implemented and focused on sustainable urban development and optimal use of urban areas;
- the strategic agenda of redevelopment in New York in terms of changes in legal regulation for the purpose of promising mixed use — (including new housing formats, job creation, qualitatively new public spaces, improvement of the city’s transport framework);
- implementation of the urban planning concept of Modern Urban Village in Tokyo with the integration of the megacity environmental policy, earthquake-resistant solutions;
- the creation of a hybrid work-life-rest-leisure environment and the Superblocks concept in Barcelona.

![Figure 1. Global experience geography. Source: CENTER Lab](image-url)
In order to review tactical decisions and responses to some new challenges of our time, a case study of Paris was considered, including ambitious start-up projects of the area and international positioning. Beijing’s experience is associated with the development of creative industries, popular art zones and an emphasis on the climate agenda along with the leading projects created for the environmental innovation. Seoul’s experience is associated with the creation of a new type of public space, the integration of nature into the urban environment, the preservation of biodiversity and the principles of using the competitive advantages of the peripheral districts of the city.

Among the main trends are as follows:

- creating a comfortable urban environment through integrated planning, including the development of new points of attraction (attractors) on the periphery and the formation of self-sustainable, economically
- and socially active regional centers;
- optimization of the use of the urban planning potential of brownfields and the allocation of “strategic industrial areas” for the placement of new facilities for environmentally friendly industry;
- development of a smart urban economy, an interconnected system of communication and information technologies, stimulating economic growth and increasing the number of jobs, incl. those in the field of creative industries;
- the development of creative clusters and the implementation of unique projects based on the symbolic capital of the areas;
- creating a beautiful and provocative design, a “visual footprint” with the architectural integration of historic buildings;
- consolidating local communities and involving citizens in the urban planning agenda;
- contribution to sustainable development and the formation of an environmental agenda for the efficient use of resources.

Relevant trends for Moscow:
- Functional content.
- Transport policy.
- Employment.
- Public spaces.
- Symbolic capital and identity.
- Eco-friendly approaches.
- Cultural and event programming.

1.2. Trends. Moscow experience

In order to identify generalizing factors affecting the efficiency of using the area of former production zones, the implemented cases and cases under implementation of Moscow redevelopment were considered: «ZIL», «Alekseevskiye Ulitsy», «Graivoronovo», «Zapadny port», «Yuzhny port», «Oktyabryskoye pole», «Krasny stroitel».

Among the unique characteristics of these examples are:

- The author’s approach to the development of buildings.
- Multi-functionality.
- Connection with the history of the district.
- The uniqueness of the public space.
- Creation of new attractor objects.
Among the advantages of the Moscow experience are adherence to the strategic objectives of social and economic and spatial development, the formation of local public centers in conjunction with the transport and communication framework, the placement of high-tech industries and public-leisure facilities, the creation of a system of public spaces, including significant facilities-attractors, giving new life to historical spaces. As a general issue, it refers to the putting into practice of standards for the integrated development of the urban environment and the requirements of sustainable development.

At the same time, not all of the considered examples conform to the principles of the “mixed use” concept and the tasks of replenishing the deficits related to the districts location. Development of production areas such as Graivoronovo, Zapadny Port, Krasny Stroitel does not fully use the original urban planning potential, representing rather isolated from the surrounding buildings quarters of new residential and social infrastructure with comfortable recreational zones, harmoniously included in the environment, but not in fully following the trends of multifunctionality such as spaces for living, work and leisure.

2. Objectives of the study

The objects of study were 21 industrial zones located on the area of 30 Moscow districts, including 38 ITD areas. Formalized models and detailed recommendations were prepared for the 13 pilot ITD areas.

Objectives of the study:

- Characteristics of strategic development resources. New challenges and competitive advantages of Moscow.
- Revealing the features of the organization of industrial zones and ITD areas and the factors of their integration into the urban environment.
- Determination of the industrial and economic potential of the zones and areas in the system of urban sub-centers.
- Analysis of the world’s best practices in redevelopment.
- Search for optimal methods of redevelopment of the industrial areas and ITD areas that have lost their industrial purpose.
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3. Three-level assessment methodology

Methodology of the study consists in systematizing of trends of redevelopment in the world’s largest capitals, analyzing of the unique characteristics of the industrial zones and ITD areas and identifying of individual district requests.

Assessment of the objects of the study was carried out a three-level structure:

- City level
- District level
- Industrial zones level
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Figure 4. City level. Source: CENTER Lab
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4. Evaluation result

As a result of the analysis, the division of urban deficits at the level of every studied district was carried out and 5 groups of districts with similar characteristics, existing conditions of infrastructural provision, the history of the development of the area and the prospects for reorganization were identified.

Based on this grouping were selected 13 typical examples ITD areas and presented list of ideas for the placement of anchor facilities for the effective redevelopment.
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The study results will contribute to implement a new planning model for polycentric Moscow, improving the quality of the urban environment in peripheral and middle areas and development of Moscow as a Smart-City.

4.1. Recommendations for redevelopment

For districts of middle and peripheral belts, that have become the objects of this study, the most important is to follow the following directions:

- For the middle belt: Interconnected development within the framework of urban planning prerequisites and tasks of implementing strategic priorities, increasing media activity and image promotion of competitive advantages.
- For the peripheral belt: Intensification of infrastructure provision and increasing the density of the road network, socialization and inclusiveness of the environment.

The potential of production zones is ranked into 6 types of territories:

- New centers of innovation and forward-looking social technologies.
- New life-style centers.
- Niche innovation centers.
- Alternative technology centers.
- Territories of new social inclusion.
- Growth points of new urban systems.
4.2. Models of development of the ITD areas

Taking into account the territorial potential of production zones, an assessment was made of the areas that are located in comfortable pedestrian accessibility (15 minutes) from the ITD areas, taking into account the following 4 factors:

1. Possibilities of functional planning integration (with adjacent areas);
2. Inclusion in the transport framework, accessibility (including the presence of existing, implemented and planned transport interchange hubs and stops for street and road transport and rapid transit transport);
3. Presence of barriers and impenetrable areas (including preserved industrial zones);
4. Availability of public spaces, forest parks and specially protected natural areas within the boundaries of comfortable pedestrian accessibility.

Based on the combined analysis of four factors of spatial potential and a formalized analytical model of the city-planning situation, three groups of ITD areas were identified:

- groups with high territorial potential;
- groups with average territorial potential;
- groups with high territorial potential.

![Figure 8. Aggregate potential of ITD areas. Source: CENTER Lab](image-url)
### 4.3. Ideas for placing semantic objects in the territories of ITD areas

Considering the analysis of the adopted standards for the ITD, the requirements of regulatory legal acts, the world and Moscow experience of redevelopment, the typological features of production zones and their role in the framework, the following types of structural models for the formation of planning formations of the ITD areas are identified:

- considering the variation in the scale of redevelopment of territories (more than 2 hectares)
- the presence/absence of city-forming nodes of urban and regional scale in the immediate vicinity of the ITD areas.

#### Key requirements for the development of the ITD area

<table>
<thead>
<tr>
<th>Urban scale</th>
<th>District scale</th>
<th>Local scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;30 ha</td>
<td>5-30 ha</td>
<td>not more than 5 ha</td>
</tr>
<tr>
<td>Placement of objects of federal, regional and city scale</td>
<td>100% Regulatory density of distribution and local road traffic system</td>
<td>20% Ensuring the density of the local road traffic system</td>
</tr>
<tr>
<td>Ensuring compliance with the status of the adjacent road traffic systems</td>
<td>100% Facilities of education, health care, culture and sports, considering the existing deficits/surpluses</td>
<td>10-30% Reservation of part of the PZ territory for public natural facilities</td>
</tr>
<tr>
<td>Consideration of the impact of key urban-planning units on an urban scale</td>
<td>100% Standard radii of pedestrian and transport accessibility to infrastructure facilities</td>
<td>100% Providing with educational facilities</td>
</tr>
<tr>
<td>50% Providing the planned population with jobs</td>
<td>100% Providing the planned population with commercial retail and household facilities</td>
<td>100% Providing with regulatory parking</td>
</tr>
</tbody>
</table>

Figure 9. Factors Influencing the development scenario of the ITD area. Source: CENTER Lab

A list of hypothetical ideas for the placement of anchor semantic facilities is presented based on the recommendations for the effective redevelopment of the types of ITD areas of the selected categories of production zones and strategic priorities.

**Key principles of selecting anchor semantic facilities:**

- Ensuring the safety of production functions on the area in an amount sufficient to preserve technological competencies and a favorable social climate.
- Attention to the symbolic features of production facilities.
- Integration into the territory of anchor facilities and residents, serving as a point of attraction for representatives of promising economic specializations.
- Consideration of the effects of “path dependency” (approx. “depending on the previous trajectory of evolution”).
- The use of differentiated formats for the spatial organization of industrial facilities, including urban mini- and micro-factories, vertical factories.
- Priority of production formats that meet the goals of sustainable urban development: fablabs, productions using fabless technologies, industry 4.0 technologies, creative industries and intelligent services that increase the efficiency of production and return per unit of territory.
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- Support of experimental geographically capacious business models in the field of creative industries and urban agriculture.

For example, the media Industries quarter "Media Quarter Marx" in Austria, Vienna is relevant for the ITD area Grayvoronovo (Ryazansky district). It is a mixed-use quarter that combines specializations in the field of science and media.

«Cleantech Playground De Ceuvel» in the Netherlands, Amsterdam is relevant for the ITD area Altufyevskoe highway, Altufyevsky district. This is a new type of creative technopark in the field of consumer electronics, electrical equipment and alternative energy, existing in the format of separate objects (spatial organization-no more than 2000 sq. m. production facilities with individual architecture that comply with the principles of sustainable development).

For the ITD area "Teply stan", Yasenevo - Competence Center "Blau Lagune" in Austria, Fezendorf.- A competence center with a permanent exhibition space, educational and life-style events, a demonstration zone (for example, 3D printing).

For the ITD area Kashirskoe Highway, Moskvorechye-Saburovo - EC 1 Planetarium in Poland, Lodz with a permanent exhibition quarter and a technopark for manufacturers of educational and laboratory equipment.

Figure 10. Ideas for anchor semantic facilities. Source: CENTER Lab
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Sedletskaya M.

Figure 11. Ideas for anchor semantic facilities. Source: CENTER Lab

5. References


