

Alexy, Kavan, Trnkus:  
počus o reflexiu a vizualizáciu diela



Bratislavská urbanistická škola:  
Alexy – Kavan – Trnkus



Potenciál hlavných mestských koridorov

# English Summary

## An Attempt To Reflex And Visualize

By Nikola Winková

The paper is an attempt to reflect and visualize on the long-life work of the founders of the Slovak urban design school – the practicing architects Alexy, Kavan and Trnkus. The work responds to the exhibition of 3 Professors – Architects – Urban Planners Exhibit Their Selected Works (1965-1995) which was held at the Faculty of Architecture in Bratislava. The exhibition maps the key stages of their thirty year long cooperation during which their projects succeeded in the Slovak and foreign competitions, they commenced research and are authors of many publications.

Symbolically – thirty exhibition panels covered three basic topics: Design, Research and Publications. As there was a lot of original material which the professors managed to bring up, the exhibition was extended of the presentation of their original blueprints and models of their selected works. The exhibition thus offered a unique picture not only of their urban concepts, theories and their transfer to the practice, but also showed some formal signs of urban design in the second half of the 20th century.

The selected works in the paper present 16 most important works which were also part of the exhibition. Among the key works undoubtedly belong – the urban area of Petržalka in Bratislava, a competition entry for extension of Vienna-South, or a competition entry for the residential complex in Trnava – Hlboká and in Brno – Bohunice. The selection of theoretical works focused on the basic research which aimed to define the greater central area of the town, while focusing at the demonstration of the theory of transformation on the internal urban structure; the process resulted in the definition of notions such as the bearing core system and the urbanization. Their research work, within the VEGA project, which was presented at the exhibition, dealt with the topic of localization and perception of the dominants on the axis of Ružinovská Street.

## Bratislava Urban Design School Alexy – Kavan – Trnkus

By Henrieta Moravčíková

The author of this study analyses the work of three architects – urban planners: Tibor Alexy, Ján Kavan and Filip Trnkus, in context of their time. She points out the significant impact of their work determining the research, education and design work in the field of urban planning. It also presents their international importance related to the major urban planning completions in the late 1960s. Based on considering their theoretical work and their urban design work, the main features of their approach have been identified. It is characterized by the belief of logical expressions of urban structures with emphasis on dynamics, morphological and functional hierarchy of urban structures and their overall composition with respect to unique local features. From the perspective of architectural historiography in context of urban planning development in Slovakia she specifies three essential directions in work of Alexy, Kavan and Trnkus: new satellite settlements, interference into existing historical structures and their transformation and finally adjusting modern concepts of urban planning by humanizing the existing housing estates. In the final part the author focuses on the heritage of the trio Alexy, Kavan and Trnkus for the contemporary academic environment. Its fundament is in a productive connection of theoretical research, design work and teaching.

## Potential of Main Urban Transition Corridors

By Ľubica Vitková

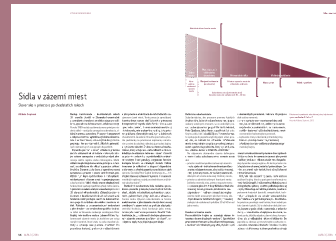
For the urban planning research, one of the fundamental topics is the issue of corridors that is connecting transitions like streets, axes, boulevards, avenues, etc. It was these corridors that were paid special attention in the history of urban development. Streets, boulevards and avenues as core dynamic parts of urban territory represent the main skeleton of urban development. They were and they still are an integral part of urban theories, visionary concepts, models of urban development, planning mechanisms, developmental and transformation strategies.

Importance of the core linear system for development or transformation of a city lies in its natural capability to attach industrial and social activities. The linear system is based on rationality and effectiveness of “transportation roots”, good “visibility” of facilities resulting in their optimal utilization.

The article follows the development of views on formation of core urban linear transition roots in Slovakia in the last 100 years and in the European context. It evaluates the current situation of selected core roots and shows the cardinal problems of their formation as well as factors that have induced the situation.

After the period of stagnation or even decline of interest in solving these urban areas (including the transition roots) caused by functionalistic principles of urban development, the research of these topics becomes urgent in its full complexity. So is the implementation of research results into the practice.

The article presents research results from the running research of public areas for the Municipality of the City of Bratislava, the Office of the Head Architect. It also continuously follows the realised research activities on The Chair of Urban Architectural Complexes and Institute of Urban Planning and Design at the Faculty of Architecture,



Slovak University of Technology in Bratislava (FA STU). It above all continues in researching the core transition system elaborated by professors Alexy, Kavan and Trnkus.

### Potential for the Eastwards City Development

By Bohumil Kováč

With respect to historical foundation of the city and its natural conditions, the eastern area around the city appeared to be the most natural and respecting the agglomeration tendencies as well. This direction of the city development was realised already in the period after the city development got over the rampart. The development continued even in the period of industrial revolution. At the beginning, the development continued by slow addition of building construction. Then the development gradually accelerated and so did the agglomeration relations. This was reflected in extension of the city functions into the broader region. Today, this development is primarily marked by so called "developers' urbanism" which takes advantage of existing legislative drawbacks and which is also marked by absenting conceptual preparation. Interestingly, it was right this direction of the potential city development which was the topic of numerous debates and considerations by architects and urban planners. The article presents an outline of the debates and the essay by scholars – urban planners from the former Chair of Urban Planning directed by Professor Svetlík is in this way presented for the first time. The authors stressed in it the need of landscape and urban planning solutions for the region.

In the eastern direction of the city development are also included "land use seals" that prevent a compact land use development. Apart from the industrialised areas and production services on the outskirts of the developed city area, it is the airport area, which offers large urban planning potential.

The function of this area is to a great extent dependent on commercial parameters and some foreign examples prove that the retreat situation can emerge relatively easily. Treatise presented on this topic can contribute to formulate such scenarios that seem to be unreal today.

### Changes in the Urban Paradigm

The Potential of a City Energy Transformation by Intensifying its Use of Solar Radiation

By Robert Špaček, Ján Legény, Peter Morgenstein

Cities originate from more simple settlements. Before the city, there was a hamlet and a shrine and a village; before the village, a camp, a cache, a cave. As the food producer, the village is closely linked with the city. However, the city concentrates more complex energy-exploitative human activities such as industry, transport, but also education, innovation or culture. Each creation is energy. In terms of supply, the city lives at the expense of its surrounding - energy for consumption (converted into higher value), be it electricity, heat sources, but also food or fuel; and construction materials are transported to the intensively growing urban areas. The increasing rate of growth of human population is also highly obvious in cities. In regard to all these aspects, the image of the city has been formed as a large energy consumer.

There are plenty of shining examples of foreign cities responding to their increasing energy demand for renewable sources. The energy conservation measures, except for thermal insulation of buildings, are being implemented in our environment – cities very slowly and still remain mainly at the level of theory and research. The change of current urban paradigm is adopted by detecting the potential of the city to use renewable energy sources. One can speak of two strategies – *energy cooperativeness of urban structures* and *a production of energy effective*

*urban structures* based on solar access principle. Ideally, cities will become energy-independent from non-renewable energy resources. Such situation can be at least reasonably expected in urban fragments. The energy dependence rate will decrease within the progressive development of a city as a whole.

Town planning will acquire a new quality - there appears a new aesthetic of building shapes and urban structures generated under criterion of optimally inclined solar surfaces. The solar potential of urban structures is characterized by two proposed urban indicators – *a solar index* and *a cooperative indicator*. Intensifying of the solar energy use within the urban structures can transform the "traditional" city into the green, intelligent and sustainable settlement. Solar roadways, solar parking lots and piezoelectric floor systems generating electricity are new achievements of the high technology. The solar town planning including the solar cadastre of the city can provide a new principle in urban regulation represented by a new aesthetic paradigm. Shall we codify it or modify it?

### Settlements in the Vicinity of Towns

Spatial Changes in Slovakia over the Past Twenty Years

By Alžbeta Sopirová

The transformation period in Slovak settlement structures is characterized by a strong regional differentiation with an impact on the conditions and possibilities for development of rural settlements. The article examines the main aspects of spatial development in rural settlements with their urban structures, taking into account their nature as well as available economic, social and geographic potential. The rural settlements are analyzed under consideration of implementing their internal structures and external spatial expansion into the country. The subjects of investigation are large rural settlements located in the suburbs

of towns in the residential development axes as well as villages in marginal regions. The most important indicators of the level of development, which were observed in the model settlements, have been the changes in demographic and physical structures. The indicator for potential development areas was the intensity of land-use, given by the density of the urban zones. Many rural settlements have significant environmental, cultural and natural potential, which has to be directed and regulated by legislation.

### Strategic Planning in Connection to Land-Use Planning

By Jaroslav Coplák

The paper discusses the topic of strategic urban planning in the planning system of the Slovak Republic at local level. The introduction notes that the changing socio-economic conditions of global nature bring new demands on the form of spatial planning. Further it briefly describes the origins and development of strategic planning, particularly its application by municipalities. Compared to physical (land-use) planning, which modern history dates back to the beginning of the 20th century, is thus the strategic urban planning considerably younger and our towns and cities have started using it only in the last 10 years.

The core theme of the paper is, however, the difference between land-use planning and strategic planning as well as their position in the planning system. Based on their knowledge, the paper defines the potential connections of land-use planning and strategic planning. Both types of planning differ in their philosophy, approach to problems, which is reflected in the various methods of engagement and problem solving. They represent complementary principles that may be properly interlinked.

The most needed connection is identified at the stage of setting objectives. Objectives of the overall development strategy of the municipality,

especially those related to the development of the physical environment, should be reflected in the commitment of a land-use plan, which defines the objectives and requirements for the proposal. A significant potential interconnection of the planning systems is also present in the implementation phase.

Land-use planning thanks to strategic plans offers an opportunity to lean the development concept on the overall development strategy which underlines the development priorities that represent the preferred directions of political and financial support. It also enables an appropriate implementation of some projects regarding the physical environment, particularly of investment projects. The system of strategic planning through successive short-term plans has the potential to contribute to a successful implementation of the land-use plan. Strategic planning has a significant innovation potential towards land-use plans in terms of adding economic aspects, understanding market principles, phenomenon of competition and territorial capital. It can also balance the primary regulatory function of planning through a complementary approach of promoting the desired development and mobilisation of internal potential of municipalities.



### Quality of the Built Environment Appraisal Problems of the Influence of the Development Plans on the Quality within an Urban Environment.

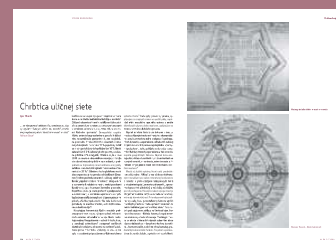
By Zuzana Aufrichtová, Július Hanus

Build environment is a complex, large and dynamic system. Searching for its development strategies which would be sustainable, both from the point of view of human inhabitants as well as of biodiversity; it requires interdisciplinary approach supported by simulation, assessment and decision-making methods that allow for prediction of the effects of investment activities within the territory with an acceptable level of verisimilitude, thus creating the basis for the territorial decision-making.

The assessment of build environment is a complex and relevant issue. The assessment indicators of build environment will include measurable inputs, norms, standards, proportions, energy demands, as well as a set of social criteria which encompass social needs of the inhabitants, their culture, habits and living standards.

These criteria are reflected in decisive policies and strategies of the EU – in the Europe 2020 document, which includes information on the sustainable development, on a research support and a social cohesion as one of the main goals of the EU for the upcoming planning period. Although the main part of sustainable development of settlements is still in the working, its character has been shaped by the demands of developed society. Ever greater attention is placed upon increasing the quality of operations and maintenance of the existing structures and increasing their build environment quality through partial intervention instead of massive reconstruction.

Urbanism in Slovakia is currently undergoing a paradigmatic shift due to increased importance of sustainable development of the build environment. This is influenced by parameters and indicators of spatial, social and ecological qualities, which need to be specified and simulated through modern technologies during the planning



and assessment of qualities of settlement structures. A new legislation, which is currently being prepared, requires the municipalities to continuously monitor the quality of the built environment. The research has an ambition to define the build environment not only through verbal description, which is a subject to individual interpretation, but also through a set of indicators which will come with defined acceptable values and limits. The current methods of urban planning organize a given territory into functional spaces (residential area, industrial zone, services etc.). Such approach is currently challenged as it is unable to provide sufficient quality of build environment through a functional definition alone. The proposed approach to urban planning is built upon a set of criteria to be fulfilled in order to achieve sustainable environment, ethics, and social aspects, and so on, with an aim to ensure the quality of the build environment for its users.

### Urban Street Network and its Backbone

By Igor Hianik

The growing concentration of urban population has presented the opportunities and challenges concerning possible alternatives of sustainable development in the future. Despite plentiful historical evidence of the fact that the towns represent the principal driving force of innovation and economic growth, the quantitative theory of predicting the understanding of their dynamism and organization, and the estimates of their future trajectory still remain obscure. The towns represent complex systems consisting of various subsystems. The size and shape of the towns are well defined benchmarks for the law of intensive competition concerning the place and the area, and therefore it is important to develop and expand integrated theories of the town growths combining urban economics, transportation systems (infrastructure) with other



factors in order to understand them better.

This paper focuses on some specific features of the street networks in the towns, describing the methods and analyses, and deals with the fragmental urban growth not only from the spatial but also from a system's point of view. Professionally, it relies on the three theories and a partial research carried out in the selected cities in Slovakia, with the follow-up synthesis of the information and knowledge obtained.

The definitions found in the book *Focal Supporting Systems* (Ťažisková nosná sústava) by Prof. Tibor Alexy (1999) present the central theory further expanded by the information published in *The Backbone of a City* by S. Scellato, A. Cardillo, V. Latora, and S. Porta (2006). Quite an important role in the process of the study was also the theory of urban growth explained in *Growth, Innovation, Scaling, and the Pace of Life in Cities* by Geoffrey B. West et al. (2007). Based on this theory, the values calculated mathematically were compared with the values determined through a geometric analyses of the cities evaluated in the partial research.

The resulting data are quite interesting; they point out to the fact that urban areas in Slovakia demonstrate certain faults, which shows us that:

- there is a considerable absence of understanding of the street network which bears the system of the public areas,
- the streets are, regrettably, still taken as the network necessary for the distribution of the material elements, and thus the network is subjected to a strong and strict transportation dimensioning and sizing of the volume and corridors.

The general consequences are, quite naturally, already well known. However, despite the consequences, it is urgent to seek for the ways out the situation and for relevant answers to questions concerning the ideal and effective geometrical shape of the street

network, in regard to the historical development of the towns in Slovakia, and facilitate feasible approaches taking into account its growth or regression in the following periods. Defining the skeleton of the street network should be of substantial importance as it represents the core system for the urban public areas, in a variety of scales – from the conceptual one to micro scales while respecting the urban and architectural planning.

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### On the Development of Modern School of Urban Design in Slovakia

By Peter Kardoš:

The brief description of a period in development of modern school of urban design presents the contribution of a unique group of creative university teachers: Prof. Tibor Alexy, Prof. Jan Kavan and Prof. Filip Trnkus. They created conditions for raising the followers of the development in the field of urban planning, for independent urban design, reconstruction and composition of city forming spatial structures and for successful competitions and lectures at various study levels. The primary impulse of course came from the distinguished European professor Emanuel Hruška, who founded at the faculty the specialisation of architecture and urban planning and his ideas still correspond to the contemporary approach of complexity and sustainability of urban way of life and human environment.

The author of this paper presents the reasons and forms of implementing these ideas by the tools of modern technologies, which can support the imagination and aesthetical approach both in education and professional practice when creating the atmosphere of urban environment. The individual chapters explain the urban design principles as 'cities constructions', which is most suitably explained on model fabrications. Further, it compares the

analogue and digital design tools and suggests the way of their interactive interconnection in analogue-digital verification methods and in evaluating the space atmosphere in the form of visual dynamic spatial continuum. He introduces also examples of applications in pedagogical process with the characteristics of analogue and digital methods. In conclusion, the significance of spatial modelling in creative processes and of completing urban structures within the revitalization or reconstruction of well-preserved urban structures has been presented.

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