Spatial Regulation for Change _

Business Zones as Areas of Continuous Transformation

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ABSTRACT **Within the context of the sustainable planning of a productive business environment, business zones represent large spatial areas that change continuously with regard to various conditions (business environment, strategies for promotion and development of economy, production of spatial planning documents, etc.). This calls for the continuous transition of internal programmatic and morphological design, as a result of which it is becoming increasingly difficult to provide high-quality and sustainable justified urban design and architectural solutions at these sites. This chaotic situation also diminishes the business competitiveness of such zones, as well as their developmental and visual significance in a wider area. This paper highlights the individual regulatory measures at planning and implementation levels that, under given conditions, allow for the development of a productive business environment and positive implications of the zones for a wider area.**

KEYWORDS business zones, sustainable doctrine of planning and design, impacts and connections, regulation, morphological structure

1 Introduction

Over the last couple of decades, in West Balkan countries (WB countries) distinctive free-market economy conditions have evolved, under which the formation of business environments has become the priority of various development strategies. Here, business zones play an important role as places of siting, business operations, and the permanent existence of economic operators in certain environments. Zones are primarily the engines of economic development, directly affecting the general social and physical contexts. Business interests and processes of contemporary industry, services, and trade materialise therein. Globally, business environments are changing rapidly. It is necessary to appropriately address these challenges by offering a flexible range of business areas and structures. Because of this trend, special conditions of continuous change are established in the zones, which, with a view to regulating the situation, require an appropriate professional approach. In this sense, it is essential to put in place the concept of sustainable urban design. Indeed, the location of new and existing zones, their scale, internal organisation, and environmental impacts, as well as other synergistic effects, make it necessary for the profession to plan for the reciprocity of its fundamental sustainable goals in the society–environment–economy triangle.

The management of business zones in developed western countries nowadays is characterised by various regulatory trends that are being implemented increasingly in WB countries. Many institutions and associations are being established at the local, regional, and transnational level, which are organisationally, financially, and structurally supplying individual zones, thus striving to increase their competitiveness and effectiveness. Zone management is in the interest of cities and regions as it is directly linked to attracting new investors (Clark & Moonen, 2013), creation of jobs, and providing the conditions for permanently retaining companies in a given location (MacCarthy & Atthirawong, 2003). Zone management also means physical space management as a public interest element (Fig. 1.1). Competent services (city and municipal administration), which directly take part in developing and regulating the zones with their spatial planning documents, play an important role in this process.

The zones as we know them today are areas of predominantly mixed use, allowing for the siting of industrial, service, storage, and similar activities (Čok, 2004). In theory, and in the profession, the term *business zone* (hereinafter: BZ) has been used as a cover term for areas where entities of various content operate. Below, this term refers to a common label for all types of zones, i.e. with mixed, mostly industrial, trade, business, or storage uses. In developed western countries, there are only a few that are located in traditional industrial locations, as intensive urbanisation in the second half of the 20th century significantly changed the settlement structure and morphology of many towns and cities (Assink & Groenendijk, 2009).

In the context of creating a sustainable environment, zones play a vital role, so it is of utmost importance to address them both appropriately at the macro level of sustainable planning and the micro level of sustainable urban design. This contribution is trying to provide an outline of potential spatial regulatory instruments that can increase the general effectiveness and competitiveness of the individual zones. The presented outcomes and proposals are based mostly on experience in zone planning and design in Slovenia and Croatia (Čok, Kavaš, & Zimmermann, 2016) over the past 25 years. Due to their common recent history (the existing situation concerning zones in both countries is based on the early industrialisation of space in the Austro-Hungarian monarchy, followed by common legislation and planned economy of the Socialist Federal Republic of Yugoslavia, and today the EU market and legislation frame), the outcomes can be also applied to other countries in the economically connected WB region.

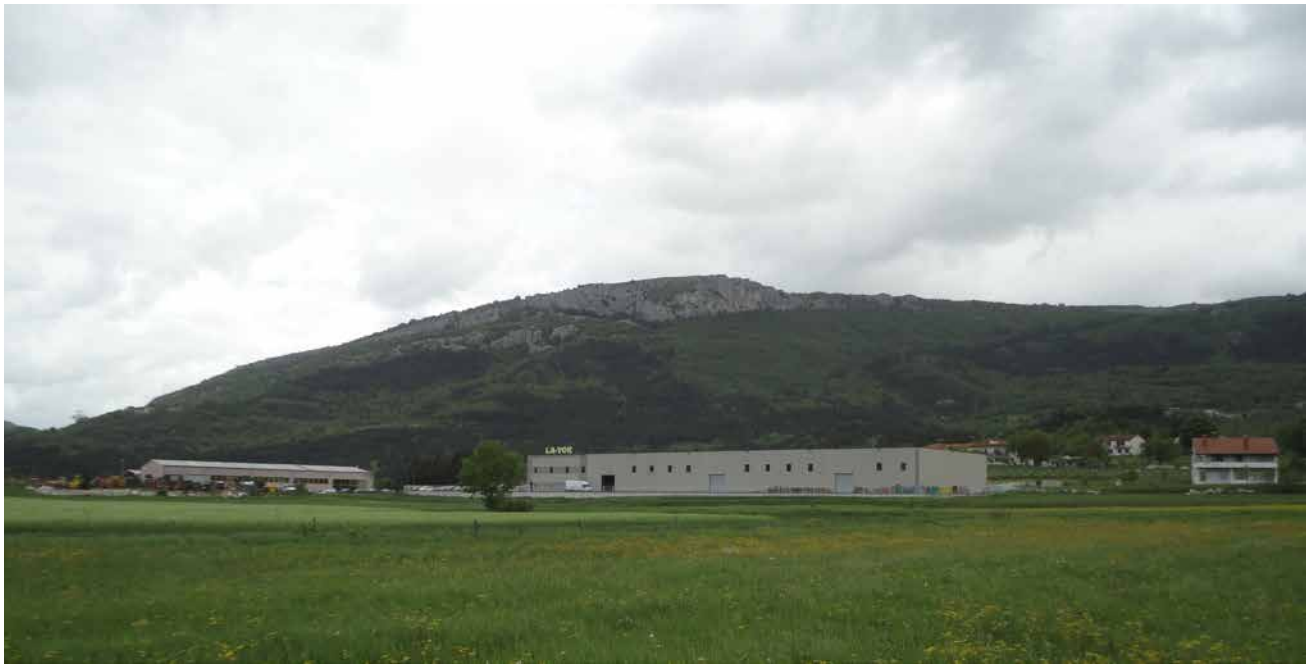

FIG. 1.1 Business structures as major phenomena in relation to existing spatial entities (zone Mažinjica, Buzet, Croatia)

2 Timeline of Business Zones' Development

Spatial forms of organisation of business activities in the physical space of the European continent (and beyond) can be chronologically followed from the first wave of industrialisation in the 17th century (Košir, 1993), when primary manufacturing was replaced by mechanised manufacturing and later by technologically sophisticated machine production. The siting of the early industrial complexes of the time followed primary locational criteria: energy products (water force, coal), access (transport corridors, watercourses), and labour force (proximity of cities) (Badri, 2007). The 19th century also saw the development of the theoretical approach to the spatial placement of the industry. In 1826, Von Thünen developed the locational rent theory, while in 1909 Weber defined the location theory. The central-place theory was introduced by Christaller (1933) and Lösch (1940). Through electrification, automation of work processes, and spatial automation, and additionally the introduction of protective environmental parameters, the traditionally organised production in the form of single-culture industrial zones became obsolete. In terms of location, an increasingly independent *footloose industry* (Toffler, 1981) started to gain ground, which is a general term for an industry that can be placed and located at any location without effect from factors such as resources or transport. The social and technological development in the second half of the 20th century also strengthened the sector of business activities, services, entrepreneurship, and other *dispersed* content, which needed a new typology of *multi-purpose zones* with flexible conditions of business conduct. Such zones were an important developmental element in the extensive post-war urbanisation of the European space.

3 Regulatory Flexibility as a Development Opportunity or a Spatial Problem

Nowadays, on the extreme end of this trend, the so-called NoLimit zones are being established, as sites that are practically without any limitations regarding the activities allowed and the regulatory criteria for urban and architectural design of the buildings therein. The existing zones with more rigorous conditions adapt, with various results, to the market of business real estate using partial regulatory measures. Such a philosophy corresponds to the current demands but, on the contrary, it also represents the failure of "instruments" for regulation of space, which is what cities, regions, and other administrative units should possess should they want to comprehensively plan their living and working environment (Gabrijelčič et al., 2016). Many cases of designing almost chaotic situations are testimonies to this fact, as they reduce the business attractiveness and efficiency of zones as potential development locations, e.g. some BZs in eastern EU countries with programmatically and architecturally unregulated situations, i.e. unattractive appearance of some buildings and coexistence of exclusive content as a result of extremely loose conditions for building design, following the principle "anybody–anything–anywhere".

A

B

FIG. 3.1 A+B: Flexible regulatory conditions allow for various architectural interpretations in the design of individual structures (zone Mala Huba, Buzet, Croatia).

In these areas, spatial planners have a broad range of regulatory instruments available (see chapter 5), which are unfortunately often not used due to: (a) established professional practice (non-motivated participants); (b) lack of understanding by investors and decision makers; (c) principle of reducing investment costs; and (d) other known or unknown reasons (e.g. inappropriate inclusion of the public in adopting and implementing a spatial planning document (PIA)).

Despite the evident growth of environmental awareness that we have faced in the last decades, and the implementation of sustainable planning in national legislation, we still encounter an incomprehensible disinterest for the aesthetic *dimension* (Fig. 3.1) in designing spatial solutions (Gabrijelčič, 2013). Sustainable qualities of buildings are not only numerically determined (and achieved) standards in terms of energy efficiency, recyclability, etc., or economically justified spatial developments, but rather socio-cultural qualities underpinned by the aesthetic dimension. This refers to the culture of building design and external areas. In the zones, this dimension/quality is reflected in visually attractive (and healthy) working and business environments, which can be more stimulating and thus more productive.

A well-organised and attractive environment is also an economic category, so the response of zone managers to market needs, asking for an increased flexibility of internal programmatic and design conditions, should be very careful. In the field of planning residential and hotel complexes, shopping centres, and other similar typologically completed spatial entities in WB countries, this awareness is high, in terms of both users and the investment companies who plan and build these complexes. For the BZ domain, this "aesthetic aspect" is only recently becoming more prominent in its actual, and indeed economic, dimension.

FIG. 3.2 Comprehensively designed urban and architectural concept as a consequence of an efficient professional approach and quality design conditions (Technology Park Ljubljana).

At the design level, the concept of internal technological processes for the individual industrial, business, service, etc. buildings and their overall functional planning and energy efficiency, the profession possesses a comprehensive line-up of recommendations, rules, and guidelines (Wiendahl, Jürgen, & Nyhuis, 2015; MODON, 2012; PURES, 2010).

At the planning level of site selection for zones in the field of architectural design for internal buildings, we record a lack of professional initiative and thus fewer good practices (Potts Carr, 1998). The architectural aspect of zones is left to the individual approach of investors (entrepreneurs) or their business and aesthetic views (Fig. 3.2). In this sense, the mostly passive role of the included public should be emphasised, which, under the law, has the right to take part in the drafting of spatial planning documents. Generally, there is still the belief that zones are isolated areas with no need for aesthetic considerations, as their image is formed by standardised technological processes. Such a technocratic doctrine covers the established viewpoint that aesthetic measures are irrelevant, and in some cases even restrictive, for potential investors.

4 Planning and Design of Business Zones

The planning and design of the zones are two processes that are chronologically separate, but, indeed, complex and, in many parameters, reciprocal. Both the planning and design levels are relevant for their final efficiency, which represents a synthesis of the programmatic, functional, morphological, and architectural design. Bearing in mind that zones are primarily the engines of economic development, they are, at the same time, major spatial entities with many environmental implications. In the process of their planning and design, it is thus necessary to consider their spatial and economic aspects separately.

This contribution is focused on the problem of spatial zone regulation, so below we outline the economic and general geographic aspects only in principle.

4.1 Zones as Contributors to the Business Environment

The network of modern-day zones in the developed western world is relatively well diversified, thus the competition and competitiveness among them is logically justified. This practice is now also implemented in WB area.

A competitive *business environment* in a zone is the result of many economic and spatial parameters (Koman, Rojec, & Kavaš, 2012). Along with conventional location factors of zone establishment and regulation, such as (a) economic (tax rates, costs of raw material, energy products, price of land, etc.) and (b) spatial ones (location, appropriate surface area and possibility of expansion, transport accessibility, internal infrastructure, presence of service activities, proximity of labour force, limitations regarding potential environmental impacts, etc.), other factors are increasingly important as well: (c) integration of the zone in stimulating development programmes encouraging zones with financial support and administrative and organisational management, and (d) updated database on the situation in the zone (implementation level, availability of land and facilities, expansion and migration, utility infrastructure, ownership, services, etc.).

Nowadays, the economic paradigm is increasingly characterised by the fast changing free-market economic parameters, to which companies respond with fast migration, organisational changes, takeovers, etc.; thus, along with the aforementioned location factors the following factors are also important: (e) fast response of the administrative procedure in acquiring spatial documentation (building and operating permit) and (f) flexibility of design conditions for planning buildings and exteriors.

The mixture of all these parameters *more* or *less* forms an attractive environment when making the decision about placing a certain business entity in a zone. The prescribed conditions for planning internal urban fabric also affect its spatial appearance, i.e. both its interior and exterior. The relevant prescriptions can lead to the formation of an attractive, i.e. compelling, working or business environment or, in contrast, an amorphous situation without the dimension of stimulatory productivity. In this sense, the understanding of the described complexity is among the key elements of approaching zone planning today.

4.2 Starting Points and Goals in the Planning and Design of Business Zones

The basic goal of regulating both existing and planned new zones is the provision of good conditions for the operation of in-house companies and, while mitigating environmental impacts (Čok, 2016). In doing this, it is necessary to put emphasis on the zone's *visual impact* as an occurrence in a certain spatial context and *internal architectural setting* contributing to perception quality of the zone as a complete spatial entity. The visual dimension as part of the socio-cultural qualities of

sustainable planning (guideline) is defined as a component of a quality business or working environment.

In both cases (existing and new BZs), both planning and design are based on the individual starting points leading the processes to a desired outcome.

The key starting-points in the **planning level** include:

- Coverage of the territory (municipality, region, etc.) with the relevant range of land and facilities to be developed (diversified zone network allows for various conditions in various locations; e.g. cheaper land and labour in the catchment area or more accessible locations in terms of transport and concentrated labour force near urban centres, etc.)

- The compatibility of settlement system planning and transport, energy, and economic infrastructure (followed by planning distinct types of zones, their size, programmatic orientation, etc.)

- Provision of attractive conditions for encouraging new investment and for permanent retention of the existing companies (this is one of the starting points of economic development – spatial and economic strategies must follow common goals and ensure coherent implementation of individual sectoral measures)

- Concentration of environmental impacts in a single place (zone location) and its control (dilemma: dispersed structure of many small zones or a small number of large zones)

- Provision of development phasing of zone network (implementation of planning strategy according to the needs).

The key starting-points at the **design level** include:

- Relevant range of activities allowed (the nature of the activities affects the technological processes in the zone as a whole and in individual buildings, environmental impacts and their remediation, zone scope, internal sectoral division, etc.)

- Rational and efficient infrastructure (transport, energy, utility infrastructure, etc.)

- Flexible while still efficient regulatory provisions for building design, such as:
    - Rational and efficient design of the basic plot raster
    - Instrument of modular connection or division of building plots
    - Conditions for designing buildings using sustainable planning principles

– Phasing of development and the possibility of zone expansion as a whole (this is an important regulatory and implementation quality, particularly when zones are being slowly filled in with companies, as is the case for smaller zones in the hinterland, which are established by municipalities to boost local entrepreneurship or, on the contrary, for strategically more significant zones that, at a certain point, require expansion)

– Development of spatial form of the zone as a whole, which is acceptable in connection with neighbouring areas (most zones are located in the *relative proximity* of urban structures so their dimension and form are, in various aspects, automatically integrated in the context of the impact area).

4.3 Reasons and Opportunities for Planning, Design, and Regulation of Business Zones

Zone planning and design involves a distinctly interdisciplinary approach. Along with spatial planners, urban designers, and architects, it involves the participation of economists, geographers, sociologists, and other experts contributing their perspectives, so that the zone, with its structural elements, is based on appropriate expertise. This process must, in an appropriate form and scope, include the lay public and professional community. Public participation in preparing implementation documents is justified by the law in practically all WB countries. In the case of zone planning, there is a relative lack of interest for public participation (except for ecologically controversial content). One of the tasks that producers of spatial documents take on is to inform and motivate the public. This is the only way to make land development more legitimate, while the possibility of the actual implementation becomes more feasible.

Zone designers, planners, and managers respond to the current requirements (economic, technological, real estate) with various measures. It is first necessary to stress the administrative situations or opportunities where there is a chance of developing the internal zone structure or the option of influencing the basic parameters of planning new zones (Čok et al., 2006). In principle, this framework involves two basic situations: (1) regulation in the locations of existing zones along with the opportunity of changing the applicable implementing spatial document; or (2) planning and design of new zones in new locations (i.e. *greenfields*) with the opportunity to prepare a new strategic planning document at the level of a municipality or a region.

OPPORTUNITIES FOR BZ REGULATION	
↓	↓
1 / REGULATION OF EXISTING ZONES	**2 / DESIGN AND DEVELOPMENT OF NEW ZONES**
• programmatic/ownership reorganisation	• preparation and implementation of development strategies
• spatial reorganisation	• preparation and implementation of spatial plans
• upgrading of infrastructure	• new zones as a consequence of revitalisation of built-up areas
• changes and amendments of PIA	• realisation of an actual initiative
• implementation of contemporary standards	• production of an original PIA (National Spatial Plan – DPN)

FIG. 4.1 Opportunities for regulation of business zones.

Given the extensive locational and morphological heritage of urbanisation so far, there are far fewer opportunities for establishing completely new zones in new locations compared to the regulation of existing ones. This is particularly prompted by: (a) increasingly rational management of land as a limited resource (sustainability principles) justified with the limitations regarding the balance of planning quota of a particular type of land use (agricultural, building, etc.) or with difficulty to prove requirement to develop new locations along with the available land quota inside the existing zones; (b) administrative and temporally complex, expensive procedures of changing zoned land use in spatial plans; and (c) long-lasting design and many limitations in realising interdisciplinary spatial and economic development strategies (dichotomy between strategic planning and the implementing level).

The domain of regulating the existing zones includes the following opportunities:

– Internal reorganisation of the zone because of changed ownership structure (new needs) or change of the implementing document introducing a different programmatic concept due to internal exclusion of activities (coexistence) or environmental impacts (impact on neighbouring areas)

– Spatial reorganisation because of technological needs of companies (expansion of built or open spaces, internal migration of companies, changed transport infrastructure, etc.)

– Modification of infrastructure lines due to deterioration, changed needs, or implementation of environmental standards (transport, energy, information technology, landfill sites, etc.)

– Zone enlargement due to the needs of in-house entities and arrival of new ones, if there are spatial possibilities available, environmental conditions, and all other relevant parameters (transport sustainability, energy products, manpower, etc.)

– Changes and/or amendments of the applicable spatial planning document as a consequence of introducing new regulatory measures (e.g. phasing out of disturbances, changes due to strategic documents – new zone typology, new profiling of the programmes allowed, etc.)

– Introducing contemporary standards in terms of environmental impacts (emissions, energy efficiency, etc.), building and exterior design (introduction of green elements, urban furniture, etc.), transport design and pressures, etc.

All of these situations require a formal change of the implementing spatial planning document (PIA changes and amendments), representing the opportunity for the *redesign* of practically all regulatory provisions. These procedures are rather simpler than developing completely new zones. The better financial and temporal feasibility allows them to be implemented in a longer sequence (e.g. 10 years), as well as repeatedly, and thus gradually influence the formation of a more quality and attractive internal environment (business and visual). The ecological aspect is inherent in the dilemma of redesigning the existing and establishing new zones. Opening new locations means, in one way or another, the emergence of new hot spots with certain environmental impacts, consumption of space as a finite resource, etc. Generally, the existing locations are already integrated in a certain spatial and social context, while the existing situation can only be improved by modifying them to meet contemporary environmental standards.

The domain of design and development of new zones includes the following opportunities:

– Preparation and implementation of strategic sectoral strategies. This opportunity makes it possible to harmonise various development interests and develop a zone network of various typologies. Development strategies in modern economies are becoming more and more frequent. This is prompted by increasingly changeable characteristics of a complex post-information society (many social, administrative, political, environmental, etc. aspects) leading to its fast response and the need for changing the living and working environment.

– Preparation and implementation of new spatial planning documents at the municipal level. This process is an opportunity to review the existing situation, valorise potentials and constraints, and thus introduce change at the land balance level (removal of certain zones, development of new ones, change of locations, etc.). Preparation of a completely new spatial planning documentation is typical for post-socialist countries that initiated a complete overhaul of sectoral legislation and practices in the process of implementing western, sustainable development standards.

– Change in spatial plans is also an opportunity to revitalise the existing situation. Non-active locations (e.g. industrial complexes in decline) with appropriate spatial measures (environmental rehabilitation, change in land use, etc.) are profiled into new programmatic and spatial forms (industrial or technology parks, mixed use, public content, etc.)

(De Cesaris & Del Monaco, 2011) that are acceptable for the city organism. Although the changing of spatial plans is an extensive and long-lasting process, many municipalities opt for repeated changing and amendments to existing plans.

– The change in plans is an opportunity for realisation of a concrete development incentive. Precisely specified real estate investments in the field of establishing new zones or the need for actual new-build developments for a known user at a known location can provide a justified *input* for the change of plan.

– Changes in administrative legislation and policies are thus accompanied by changes in the spatial planning area. At the level of establishing new administrative units, in this context new spatial planning documents and/or development projects are developed (e.g. national development programme) introducing specific measures for the general spatial and economic development (e.g. economic centre of SE Slovenia, regional technology park, etc.).

These opportunities do not present themselves often, as they involve the drafting and adoption (under administrative procedures) of general spatial planning documents, with both strategic and implementing parts (Plazar Mlakar et al., 2007). Various sectoral interests are confronted in these documents. It is necessary to define the appropriate starting-points and goals and justify them using credible expert studies. These procedures are relatively complex and long-lasting, while the adoption of planning documents asks for a general administrative and political consensus. Nevertheless, producing spatial planning documents is the most realistic opportunity to ensure that comprehensive planning and design of zones takes place. These documents lay down their location, number, size, typology, organisation (internal regulation), and other key elements determining their overall programmatic and spatial design.

5 Elements of Regulating Business Zones

5.1 Regulatory Elements at the Planning Level

Along with the starting points of economic geography stemming from the strategic goals of spatial planning policy and development of the economic sector in a certain planning area (municipality, region, etc.), three *planning measures* are significant in the process of developing new zones (or in the recategorisation of the existing ones) (Fig. 5.1):

PLANNING LEVEL – SPATIAL SITING AND PLACEMENT OF ZONES		
Planning measures and regulatory elements		
↓	↓	↓
1 / LOCATION	**2 / SCOPE AND EXPANSION**	**3 / TYPOLOGY**
• macro/micro location criteria; infrastructure, labour force, etc.	• available surface area	• programmatic design
• interaction with neighbouring areas significance	• possibility of expansion	• typological profiling, size
• business environment in the region	• sectoral division	• definition/strategic
• environmental impacts/boundary conditions	• implementation phasing	• role and significance in zone network

FIG. 5.1 Key regulation elements in planning BZs

– Choice of the appropriate location, which affects its necessary supply (staff, energy-generating products, raw material, etc.), absorption of environmental impacts, and avoiding conflicts in relation to other spatial entities; this selection provides the fundamental strategic measure, so the location must be checked from various perspectives and harmonised with the underlying goals of economic and social development of a certain administrative unit (municipality, region, state); efficient size of the area providing its long-term existence and possible expansion;

– Efficient size of the area providing its long-term existence and possible expansion;

– Typological profiling determining its significance and programmatic direction (prevailing use and significance, e.g. a zone of local, regional, or national significance with prevailing business, service, etc., activities).

In the spatial planning process, certain parameters (Table 5.1) can be influenced in each segment, thus regulating the individual characteristics of a zone as a whole.

PLANNING MEASURE	CHARACTERISTICS AND SIGNIFICANCE	SUBJECT OF REGULATION
Selection of locations	- location in the settlement system (area of impact): with distance from urban areas we influence the availability of workers and thus the length of home-work-home commuting	- **presence of capacity**; appropriate staff, services, existing management in the region, etc. - **environmental implications**; regulation of the length of commuting journeys (environmental and financial aspects)
	- **infrastructure:** location in relation to transport, energy, and utility infrastructure corridors	- **effectiveness:** zone's connection to existing networks - **environmental implications**; regulation of the length of connecting segments
	- boundary conditions in terms of absorption of environmental impacts, presence of waste management centres	- **environmental acceptability:** regulation of the range of activities allowed - **economy:** regulation of operating costs
	- price of land, public utility charges, ecological fees, construction industry services, etc.	- **investment:** regulating the costs of building the zone and individual facilities
	- cost of workforce (in the local and regional sense)	- **competitiveness**: regulation of operating costs
	- presence of existing and envisaged financial incentives	- **investment and competitiveness**: regulation of operating costs
	- presence of administrative management	- **operating performance**
Providing for the appropriate dimension	- size of land (in ha) is the basic precondition for: specifying the zone typology, its programmatic design, sectoral division, occasional structural reorganisation, and the possibility of long-term expansion.	- **efficiency and competitiveness:** sufficient surface area allows for introduction of a wide range of activities, structural flexibility, placement of auxiliary support activities, etc.
		- **sustainability of operations:** sufficient surface area allows for eventual expansion of in-house companies and thus sustainable operations in a given location
Typological definition	- strategic definition: according to the macro location in a settlement system, size, and programmatic orientation, the zones provide an *instrument* for plan implementation, - their typological profiling allows for embedding companies with various requirements regarding their size, programmes, and connection to infrastructure networks - supply and demand doctrine, a network of various zone types allows for various business environments in different locations	- **strategic importance:** zone of local, regional, or national significance
		- **programmatic competitiveness:** with a clearly defined programmatic focus the zone is marketed as: a universal zone or a zone with a prevalence of production, commercial, service, storage, etc., content
		- **flexibility**: programmatic diversity allows for embedding a wide range of activities and also the possibility of reclassifying the companies at the same location

TABLE 5.1 Measures and regulation elements at the planning level

5.2 Regulatory Elements at the Design Level

At the design level, the planning of a new or the modification of an existing zone typically involves the following three design measures (Fig 5.2):

– Definition of the programmes allowed, significance of careful selection according to the existing boundary conditions and the zone's strategic orientation (typology). The nature of these activities affects the micro design of buildings, their functional conception, urban design, and architecture. This measure provides the opportunity to control the introduction of compatible or exclusive programmes (e.g. noise, light, technological cycles: day–night, etc.);

– Structural design directing the morphology of the construction, supply, equipment, and design of the sectors with various programmes. If possible, we make use of rational network structures allowing for an adequate organisational flexibility at an individual plot (or block), but, at the same time, we should also define other architectural parameters preventing the monotony in design and thus unattractive internal environments;

– Conditions for the design of buildings and exteriors, which lay down the quality of the built structure and open spaces. The conditions are either common or partial for individual sectors; they can be defined as general orientations or precisely defined for certain typological elements of buildings. These conditions directly affect the final design of a zone.

DESIGN LEVEL – INTERNAL STRUCTURE PLANNING

Design measures and regulatory elements

↓ 1 / ALLOWED	↓ 2 / STRUCTURAL DESIGN	↓ 3 / DESIGN CONDITIONS FOR BUILDINGS AND SURFACES
• range of programmes	• basic raster	• structure, plot subdivision
• mutual effectiveness	• building situation	• building size, micro regulation
• exclusion	• area for building development	• conditions for urban design
• zone profiling (prevailing use)		• conditions for architectural design

FIG. 5.2 Key regulatory elements in BZ planning

In the design process, certain parameters (Table 5.2) can be influenced in each segment, thus regulating the individual characteristics of a zone as a whole.

DESIGN MEASURE	CHARACTERISTICS AND SIGNIFICANCE	SUBJECT OF REGULATION
Range of the programmes allowed	- the range of programmes lays down the boundary conditions for embedding companies according to their primary activity. This range can be very wide or, on the contrary, highly limited. It depends on the strategic orientation of the zone and external location limitations. After its definition, it is necessary to allow for the potential exclusion of individual programmes.	**- development possibilities of in-house companies:** they depend on the range of the programmes allowed and their mutual compatibility (programmatic expansion of operations, e.g. production + sales)
		- flexibility and management: various programmatic possibilities allow the zone to quickly respond to the changing conditions of the contemporary market; precisely defined programmes also enable the operator to effectively operate the zone (e.g. the risk of commercialising a zone)
		- competitiveness: zone attractiveness for potential investors depends on the range of possible activities
Structural design	**- basic raster:** the concept of dividing the zone into urban blocks and its supply immediately impacts the functionality of an individual block or zone as a whole, the coexistence of programmes, potential internal allocations, and expansions. **- implementation phasing:** allows for a gradual implementation in accordance with the needs	**- supply flexibility of building blocks:** an appropriate concept of dividing and combining can form various spatial characteristics of the individual blocks (different size of building plots)
		- environmental impacts: locational clustering and division of actors with evident environmental impacts affect their absorption (noise, emissions, etc.)
		- sectoral division: the basic division of the zone into sectors can allow for formation of rounded-off programmatic segments allowing for undisturbed mutual operations (coexistence)
		- effectiveness: appropriate distribution of programmes (production, storage, landfills, parking areas) impacts the functionality of the zone as a whole.
		- investment: regulating the costs of building the zone and individual facilities
	- transport supply: access to the zone, its connection to the primary transport network and internal supply (raw material, energy products, personnel, clients, etc.) representing the key elements of rationality of internal processes	**- rationality and efficiency:** quality design of supply and traffic-calming areas **- investment:** length of external and internal routes **- environmental impacts:** rational solutions reduce traffic flows
	- land allotment and building structure: (a) *building situation* as a completed urban design solution with prescribed building size and orientation (b) *building development area* as aconcept of a flexible area allowing for the construction of various forms with prescribed admissible factors of land use	**- (a) rationality:** fully planned development with a certain tolerance, complete land utilization **- (b) flexibility:** complete adaptability of spatial development conditions, suitable in zone planning for unknown users; while, on the contrary, too loose conditions lead to a chaotic structure (!) **- morphological structure:** as a consequence of guiding partial development
Conditions for building design	**- building line and size:** vertical and horizontal	**- size of buildings:** surveillance of building volume composition development, mutual interactions (shading, access, etc.)
	- orientation and division of building masses: general and detailed conditions for site selection and placement of buildings in a given development situation	**- internal division:** e.g. control of building design with separate production and business segments; allocation of access, business, storage segments, etc. **- health:** provision of natural lighting in the workplace **- architectural setting: design of high-quality spatial situations:** primary and peripheral facades, position and orientation along the central supply avenue, etc.
	- facade envelope: general and detailed conditions for building design, materials allowed, colours, configuration of the building envelope, etc.	visual image: individual buildings and larger complexes (blocks) **- architectural setting of the whole:** architectural space on the inside and outside (facade of the zone as a whole) in relation to the exterior – view of the zone (!) **- competitiveness:** attractive appearance is an economic category (attractiveness of a zone as a whole)
Conditions for the design of external surfaces	**- external public and green public areas:** (lines of trees, green plots, urban furniture, etc.) important in designing a recognisable and *humane* business or working environment in the zone as an *isolated technological environment*, **- technological areas:** landfills, parking areas, etc., as the subject of design	**- perception quality:** business and working environment, psychological effect on workers and clients **- competitiveness:** attractive appearance is an economic category (attractiveness of a zone as a whole)

TABLE 5.2 Measures and regulatory measures at the design level.

6 Approach to Planning and Design of Business Zones

The planning and design of BZs is, in principle, undertaken by formal procedures in the framework of the applicable spatial legislation. Individual countries have different provisions and professional practices in this field, whereas with zones as *complex projects* the so co-called informal approach of everyone involved is essential, particularly the producers of spatial planning documentation. The efficiency of final solutions in the framework, along with the established steps of the administrative procedure, depends on the following parameters:

A **Personal and professional initiative of participants:** approach of planners, designers, investors, developers, and other decision-makers who can, with an appropriate personal engagement, encourage the drafting of a document and support good-quality decision-making. This approach involves the following: work team motivation, willingness to understand the individual aspects, willingness to compromise, ability to exclude unacceptable demands (e.g. investment aspect only), etc.

B **Commissioning and production of good-quality expert studies,** variant solutions, and implementation scenarios: quality professional initial preparation is the guiding starting point of a successful project. Along with the basic project analysis and feasibility studies, expert studies should be produced, which reveal the specificities of a place (boundary limitations, social potential, existing spatial strategies, etc.).

C **Understanding of the wider economic and spatial significance** of the zone and its synergistic effects triggered by the wider environment: in each case, the zones influence the physical and social environment; along with expected benefits, we should also know and address their negative effects. In site selection and placement of a zone and in designing the regulatory instruments, it is necessary to assume the potential response, correlations between employers and employees, willingness of the local inhabitants to accept novelties in a perceived environment, etc. Only through careful consideration of all these aspects will it be possible to implement the zone in a given situation.

D **Knowledge of BZ potential:** modern, particularly programmatically mixed zones are always competitive to a certain degree, therefore the knowledge of competitive locations and their internal operating conditions is one of the basic starting points when deciding about the typology of the newly planned zones, or the regulation of the existing ones.

E **Information and inclusion of the public in due time and manner:** public participation in developing the projects of this size is extremely important so it should be stimulated and included in the individual steps (formal and informal procedures of document preparation). Zones should be understood in a broad social context; in the project promotion and development, everyone involved must be prepared to take the consequences – likewise in challenging situations, e.g. the NIMBY principle (not in my back yard). In fact, the design of acceptable spatial forms and a constructive approach from those responsible in the public discussion can convince the

sceptical public to listen to the arguments and take a constructive part in designing harmonised spatial solutions.

7 Conclusion

In principle, zones are major and complex spatial phenomena. They are monotonous technological and business environments, as well as workplaces where workers spend an important part of their lives. They can be tackled as risk projects presenting an unavoidable infrastructure in the planning and design system or, on the contrary, as a professional challenge for setting up a high-quality area where the work process takes place, accompanied by social correlations between the employed, clients, and other participants of the internal environment.

In the planning and design process, it is critical that the response to the current trends that require flexible internal conditions is professional. Each operating or programmatic requirement can be appropriately interpreted and addressed. This is not to condone conditions that might lead to a chaotic situation, as we have a wide range of regulatory options available. The question is whether they are, in fact, used, i.e. whether we actually have the possibility of using them or the professional mandate.

In modern society, along with increasing the environmental standards (environmental impacts), awareness about the significance of aesthetics in space and the connection between working and living environments is increasingly being raised. One of the key breaking points will be (already is) the realisation that a high-quality design and consequently stimulating and attractive business environment is not only an aesthetic but also an economic category.

In this sense, WB countries have a certain advantage. By changing the national government framework, transition into the market economy, and introduction of sustainable planning principles in accession processes, a special development impulse is present in these countries. National spatial legislation and planning practices are seeing a revival where there are many opportunities and space for promoting quality innovation.

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