

Article

Spatial Regulation Instruments of Work at Home: The Case of Slovenia as a Post-Transition Country

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Abstract: Work at home and work from home are becoming the subject of interdisciplinary research in the current social conditions. Slovenia, as a post-transition country, has specific experience in terms of its regulation, as the former socialist and later transition period were relatively tolerant of various forms of work at home. The article presents the results of research aimed at studying current normative provisions for the organization of work at home, its actual spatial and program scope, and its correlation with building typology and morphology. Using a descriptive research method and by analyzing existing databases in the GIS environment, we found that work at home is a very extensive phenomenon in Slovenia. Despite the effective instruments in the fields of spatial planning, public administration, tax system, and employment legal relationships, its scope is mainly a consequence of historical tolerance, as this form of work has been legally organized and desirable for decades. We found that various urban characteristics did not significantly affect its occurrence in the past. The differences are reflected only in the extent of business activities that can be carried out in residential areas and differ according to the distance from urban centers. In order for the regulation of work at home to become even more efficient in the future, it is necessary to define more detailed criteria, especially in terms of its program regulation and monitoring of the spatial situation.

Keywords: work at home; work from home; telecommuting; business entities; regulation; monitoring; zoned land use; building typology; morphology; Slovenia



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1. Introduction

The current COVID-19 epidemic (hereinafter the epidemic) raises some fundamental questions in the field of spatial planning, such as the importance of the workplace location, the intertwining of the living and working environments, commuting, and related health and environmental impacts. This framework also includes work at home as a unique spatial phenomenon with many economic, social, and environmental consequences. Its regulation represents a particular spatial challenge, mainly due to the spectrum and the size of business activities carried out in the living environment. At the same time, it is also becoming important to critically evaluate the available urban design instruments, which enable the spatial planning in accordance with the guidelines of sustainable spatial development.

In the integration of work and residence, it is necessary to distinguish between work at home as a permanent form of business activity in a residential building [1] and work from home, which is usually an occasional alternative to a workplace generally based in a different location [2]. During the epidemic, due to security and movement restrictions, work from home, i.e., computer working, e-working, teleworking, and telecommuting, was applied especially in those activities that do not require special technological or physical conditions. In contrast, permanent work at home requires appropriate spatial working conditions. Depending on the needs of each activity, the residential building in its functional design is architecturally and urbanistically adapted to the coexistence of residential and

business programs. The existing studies examining this phenomenon have found that the construction intervention of the building appears in various forms [3], from minimal intervention, such as internal adaptation of living spaces, to interventions that significantly transform the volume, functional design, and functional land into a commercial residential building [4,5]. The consequences of business activities carried out at home have an impact on the living environment, as they bring additional noise, emissions, and an uncharacteristic architectural typology of commercial, service, or even production buildings into the living environment [5]. It is very likely that after the epidemic, work from home in particular will increase. This will present an apparent challenge in terms of adapting individual homes and entire neighborhoods. Each workplace (including computer working) has its own needs. This will probably require a thorough consideration of the new architectural concept of the living environment.

Analytical studies of work at home date back to the 1980s, when the development of the information society [6] and the global economy relativized the conventional concept of the workplace location. Work at home or work from home has been studied by sociologists, psychologists, economists, and other professionals who have explored their positive and negative effects on the individual, family, local community, and environment [7–9]. The previous development of the footloose industry [10,11] had already announced the redefinition of conventional location criteria for placing economic activities in physical space. Emerging information technology has enabled completely new working conditions. At the beginning of the concept of »a computer on every desk and every home«, the book *The Third Wave* [12] by Alvin Toffler predicted the general digitalization as a transformation of society, space, and time where the personal computer will reunite production and consumption or the locations of work and living that the industrial revolution separated. A similar understanding of the modern living environment is also given in his book *The Electronic Cottage* [13] in which he predicts a model of combining work and living as a complex technological and living environment.

In addition to information technology, the intertwining of work and living was encouraged for other reasons as well. Post-industrial restructuring of the economy, environmental awareness, economic and spatial development consensus at the international level [14], and the development of efficient infrastructure networks [15,16] redefined the locations of employment areas [17] and consequently encouraged a dispersion development of subcontractors and services of the tertiary and quaternary sector [18]. These trends are characteristic of both developed western and eastern post-socialist countries. The only difference is the speed and method of their implementation. The socialist transition and post-transition countries are responding to these trends with different political-administrative and socio-development facts. Among the key ones are the long-term ownership transformation of public into private property, the comprehensive transformation of sectoral legislation, and the limited experience of operating in the free market conditions [19].

1.1. Work at Home in Slovenia as a Post-Socialist Country

Slovenia is one of the mentioned transition (post-socialist) countries, as it has faced the challenges of regulating work at home three times. The first time was the socialist period under the former Republic of Yugoslavia after World War II in which, despite the development of the planned economy, small crafts were established as a private form of entrepreneurial practice [20–22]. This work was carried out mainly at home, to a lesser extent also in the form of residential and artisanal areas, of which spatial plans were intended for residential and craft activities. This period is characterized by the introduction of very flexible project conditions [23,24], which enabled extensive self-construction both in rural and urban areas and essentially did not restrict the addition of commercial premises (extensions or separate business facilities) to housing (Figure 1). Consequently, self-employment (own workplace at home) was allowed as an alternative to employment in the then socialist (state) companies [25]. The last decade of the Republic of Yugoslavia (1980–1990) brought political tolerance towards the general self-sufficiency of the population, which

also resulted in grey economy [21,26], dispersed construction [27,28], and an establishment of small businesses [29]. These phenomena were often reflected in the intertwining of the location of work with the location of residence and strengthened the phenomenon of business activities in living environments [27].



Figure 1. Examples of additions for the purpose of working at home and introducing a new building typology (a,b) into residential environments (Photo: G. Čok).

The disintegration of the Republic of Yugoslavia (1991) was followed by the period of transition or the privatization of social property and the transition to a market economy [30,31]. In accordance with the change in the social order and similarly to other post-socialist countries [32], the spatial planning legislation [33,34], economic law [35], and labor relations began to transform. The employment gap created by the decline of most socialist companies [36,37] was once again mainly solved by self-employment. In the period 1990–1995, the number of self-employed and small companies more than doubled (from 26,000 to 57,000) [38]. However, their spatial organization was mostly realized in the form of work at home.

Due to the growing demand for developing areas and facilities for the needs of both the domestic economy and desirable foreign investors [39], this period brought the establishment of new business zones. Their implementation was relatively slow for administrative reasons and in many cases postponed to the next decade. In the interim period, the available capacities in the existing, mostly privatized, former industrial zones were filled, and simultaneously opportunities were sought in the areas primarily intended for central activities and housing [40].

The third period followed after 2004 when Slovenia became a member of the EU. This was followed by a post-transition and a few years of conjuncture that caused an increased need for development areas and facilities. The new spatial legislation applied in 2007 introduced the planning doctrine, which was based more on individual (investment) initiatives than on the conventional zoning of areas with planned land use. Numerous professionals enhanced the awareness of the inadequate interpretation of sustainable development principles [14] and the predominance of the investment approach in spatial planning [41]. In the field of residential construction for the market, Slovenia witnessed the emergence of innovative morphological structures, which were accompanied by extreme rationalization and typification [38,42].

Even in the post-transition period, spatial planning documents maintained relatively loose provisions regarding the placement of business activities in the living environment [5]. Slovenia witnessed another wave of the establishment of new business zones [43,44], and record-keeping of their locations and capacities [45]. These zones became occupied by various activities from production to services and many entrepreneurs who needed a larger

development area for their activity. Work at home, its spatial characteristics (the size and impacts on the environment), and the possibilities of effective administrative regulation in the spatial planning profession have not yet been extensively researched in Slovenia [5].

1.2. Overview of Foreign Practices in the Regulation of Work at Home

An overview of practices, especially in the USA, Australia, and Europe, shows that these countries use similar regulatory elements for work at home as Slovenia. Among the most limiting factors are usually the tax system and the zoned land in terms of function (coning) [46]. This is quite inflexible for work at home, especially in countries with cities that have millions of inhabitants and strict urban criteria of regulated residential areas. Beale [6] divided coning as the regulation of work at home in the United States into four restrictive types: physical changes and visibility, traffic, external effects, and type of business activity (a spatial act may, for example, determine the maximum number of employees).

Moreover, we found that in some cities in the USA and Australia the registration of a new company requires a city council permit, which the emerging company must obtain for legal purposes (Home-based Business Local Planning Policy, 2020; [47,48]). Thus, those activities that are incompatible with the spatial plan can be excluded from the area before registration and therefore any possible conflicts that could arise in the residential area due to the unsuitability of the activity can be prevented. Gonzalez and Gray [48] comment on such practices as often too restrictive and insufficiently adaptable to rapidly growing changes in work needs and see work at home as an opportunity for urban development rather than a cause of possible conflict. The solution can be found in the system proposed by Thierer [49], which would allow innovative companies (not yet on the list of permitted activities) to develop without the permits.

In the area of some European countries, and this applies to Slovenia as well, the company registration system is separated from the planning act. The supervision therefore falls under the responsibility of inspections, or in some cases the compliance with the spatial plan is verified in the occurrence of redevelopment of buildings by obtaining a building permit and later by obtaining a use permit. However, the present research has shown that individual institutions keep their own records for monitoring, regulation, and supervision of business entities. However, these are not coherent, so the question of actual institutional control over the situation in Slovenia remains open.

1.3. Epidemic and Post-Epidemic

While facing the epidemic and the consequent challenges in the organization of work at home and work from home, all of the above represent a definite advantage. It is reflected in dispersed settlements, flexible project and labor legal conditions and a large proportion of single-family houses [50,51] with relatively large plots of land and large floor plans [52,53]. In this context, it is also necessary to understand the relatively favorable response of the population to the restrictive conditions of the epidemic in which many Slovenians had to organize work from home ad hoc [54].

However, the described high tolerance in the organization of work at home has its negative effects as well. These are mainly reflected in the social isolation of the work environment, increased noise, visual degradation, and other impacts on health and the environment that directly or indirectly reduce the quality of the living environment. The main positive effects include high utilization of existing buildings and associated infrastructure, shorter labor migration, and mobilization of neighborhood and family support. [5].

Over the past year, the epidemic has stimulated extensive research of work at home and work from home [55–57]. Once again, we are on the verge of prognostic predictions of redefining the location and the scope of the workplace. Current considerations predict the introduction of a shared workplace [58], where individuals will perform their work responsibilities in multiple locations (at workplace, at home, and at an intermediate location), which will provide appropriate health as well as socio-psychological conditions.

1.4. Environmental Implications of Teleworking

During the epidemic, the amount of teleworking increased and consequently the interest in its research in terms of environmental impacts and sustainable development has risen. The measures to curb the pandemic accelerated the use of ICT (Information Communication Technology), changed practices in the field of labor and non-work mobility, the ratio of public and private transport use, working conditions, consumption, and production of goods and services, and social interaction [59]. However, various studies have shown that teleworking improves key environmental indicators, such as carbon emissions, air quality, and biodiversity [60], but on the other hand many studies have addressed its rebound effects, which for example increased energy consumption in some analyzed areas, despite the opposite expectations of decrease [61,62].

In the field of researching the teleworking effects on the environment, various studies emerged before and during the epidemic [63,64]. They address the need for a comprehensive approach to this phenomenon, as most of them were focused on researching the increased use of ICT, reducing labor migration, and changes in the living habits of the population. In this context, most studies focus on energy-related and emission-related impacts.

The results of various studies on the environmental impacts caused by teleworking address in particular:

- energy savings: lower energy consumption (motor fuels and other energy sources) due to decrease in commuting and reduction of office space areas (heating, cooling, and lighting),
- higher energy consumption: as rebound effects due to increase in or duplication of ICT equipment (its production, distribution, operation, recycling, i.e., LCA = Life Cycle Assessment); higher energy consumption of households (heating, cooling, and lighting and increased use of other electrical and electronic equipment); increase in non-work trips, such as compensatory trips due to social isolation; increased need for movement; unnecessary commuting to work for fear of not being promoted; shopping, childcare, or other errands, which are otherwise an integral part of commuting to work; parallel energy consumption for the operation of housing and offices in cases where the latter are not completely closed, etc.
- emissions: compared to the decrease or increase in energy sources, greenhouse gas emissions and other emissions also decrease or increase. Horvath and Kitou [65] estimate that teleworking, for example, can increase CH₄, CO₂, N₂O, PM₁₀, and SO₂ emissions while reducing CO and NO_x emissions.

Moreover, most studies have found that examining the full environmental potential of teleworking is a complex process that requires an analytical study of all individual factors [63,64] and an assessment of both its local and global impacts. In this sense, for an accurate assessment it is necessary to provide quality statistics and to regionalize or localize areas of analysis, as there are many differences (settlement system, migration habits, diversification of ICT, energy efficiency of residential and commercial buildings, energy availability, etc.) and to consider LCA principles to ensure that all factors are taken into account.

The epidemic and post-epidemic periods represent an opportunity for meaningful reflection on the effectiveness of the current regulation of work at home and work at home and on the introduction of appropriate systemic or methodological improvements. At the same time, we were wondering about what influences its location, size, and shape at all? Could it be a plan with the zoned land use, project implementation conditions for the construction of dwellings with business activities, or an overarching strategy for locating activities in space? We also asked ourselves whether we actually know its extent and can manage the situation?

2. Problem and Methods

2.1. Problem

Although the introduction defines two forms of work that are carried out in a living environment (work at home and work from home), the article deals mainly with work at home as a permanent form of self-employment. Its economic, social, and environmental effects are both positive (utilization of residential buildings, individual scheduling of the work process, and consequently greater efficiency, more frequent contact with family members, lower environmental impact due to lower labor migration, etc.) and negative (dispersal of workers, uncontrolled working conditions and effectiveness, social isolation of individuals, low but widespread and numerical impact on the environment, etc.). Regarding the spatial planning, the basic challenge is its efficient management, which includes: (a) the definition of permissible business activities in the living environment and (b) the determination of urban design conditions for its spatial and architectural design. In Slovenia, the current approach in this field has allowed a wide range of possible urban and architectural design, as this form of work is generally very widespread and even desirable. At the same time, it is becoming increasingly clear that loose conditions in the organization of work in the living environment can also generate various conflicts [5,38]. The research is not aimed at analyzing the consequences of working from home in a particular space, but at presenting the situation in the field of its institutional regulation and monitoring, with the aim of identifying possible systemic improvements.

Three research questions were posed, which the article will try to answer, and, based on the findings, some improvements to the existing system of regulation and monitoring of work at home will be proposed:

1. What institutional frameworks (normative provisions) have been regulating work at home as a spatial phenomenon and how are the competent institutions monitoring it?
2. What is the current spatial size and program scope of work at home in Slovenia as a post-transition country?
3. Is there a correlation between the morphology of the living environment and the occurrence of work at home?

2.2. Methods and Data

Based on previous research [40] of work at home, we found that its spatial occurrence can be mainly analyzed analytically by studying publicly available data on business entities [66], as these also contain information of their location. Of course, we are aware of the deficiencies of the information, as the registration process allows business entities to register an activity at one address. In fact, in the process of data processing and analysis, we found that in practice there are in fact certain deviations from the data provided by official databases. This is mainly due to obsolete data on the location of the business entity's registered office or its business unit and on the location where this business entity actually operates (e.g., possibility for business entities to report the activity at one address, but actually perform it at another). Public records do not contain this information, so the results of the analysis cannot fully reflect the actual situation. A similar case is the employee registration, as larger entities register all employees at one address, even though they actually work in various offices across the country [40]. Due to the lack of data, the share of these deviations cannot be determined exactly. Based on the previous experience of studying business entities and their spatial distribution, we believe that this share is relatively small and research still provides relevant results. This can also be justified by the fact that in the past decade the institutional control (various inspectorates) of business entities has become very intensive and effective. More information about the characteristics of the data in the field of business entities is given in the 2020 study [40].

For the purpose of the research, we focused on business entities of all legal forms, among which the predominant ones in residential environments are sole proprietorships and limited liability companies. The informal forms of work, such as undeclared work, family assistance, neighborly assistance, etc., which are also present to a relatively large extent as work at home and are examined in other studies (e.g., [67]) are not the subject of this analysis.

According to the research questions, the research was chronologically divided into four phases, where the second phase is partly related to previously conducted analyses [40].

In the first phase, we defined a wide range of institutions responsible for business entities and identified: (a) which databases are managed by individual institutions and (b) which normative provisions that enable work at home are under the responsibility of individual institutions. Then, on the basis of two additional criteria, we selected only those institutions that were relevant for researching the spatial aspect of work at home: (c) they have the authority to collect and manage various data on business entities (legal, tax, business, human resources, and spatial); (d) they have the authority to formulate normative provisions (the location of business activity, the type of business activity, and the spatial design), their implementation, and control. The result of the analysis was a set of key institutions in the field of spatial planning in the field of business (establishment, operation, liquidation of a business entity, and the field of public administration procedures).

The second step of the first phase of the research reviewed in more detail the normative provisions in the field of spatial planning and the structure of spatial acts as well as available databases managed by selected institutions (such as various records, registers, and databases).

The second phase was based on selected databases in order to analyze the size of business entities in space and their location according to: (a) zoned land use in accordance with the spatial regulations for the preparation of land use and (b) building typology, where buildings were divided into two types only: residential and non-residential buildings. By using GIS apps and Excel tools, we linked data on business entities [66] with data from the house number register [68], the zoned land use [69], the real estate register [70], and the building area register [71]. Consequently, we determined the share of business entities operating in residential areas (according to the zoned land use), the share of business entities operating in a residential or non-residential building according to the building typology, and the size of building area used by an individual business entity [71].

In the third phase, we determined the correlation between the morphology of the living environment and business entities that perform work at home. We analyzed the influence of spatial factors (location, land, building, and spatial implementation conditions) on the spatial size of business entities and the type of activities carried out in the living environment.

In the first step, we identified five (5) different types of morphological units; four types for residential areas and, for comparison purposes, an additional business zone (Table 1), which is important mainly due to the analysis of business sectors carried out by business entities in various types of morphological units. The types of morphological units differ significantly in: (1) location in space, (2) urban design, and (3) spatial act, which determines the urban design conditions regarding: (a) sizing and design of building area, (b) sizing and design of residential buildings and possible extensions for business purposes, and (c) permissible business activities.

Table 1. The definition of morphological units based on selected types.

Type of Morphological Unit	Characteristics of Morphological Unit	Period of the Spatial Plan Adaptation ¹
Type A	<ul style="list-style-type: none"> - integral morphological structure: detached single-family houses in rural and/or suburban settlements - flexible sizing and design of buildings and land, - numerous business activities in the living environment are permitted 	until 1991 and after 1991
Type B	<ul style="list-style-type: none"> - socialist approach to urban planning: detached single-family houses in urban and/or suburban settlements - rational urban design (in urban settlements) - conditions regarding urban design and permissible activities are more regulated 	until 1991
Type C	<ul style="list-style-type: none"> - transitional/market approach to urban and architectural planning: detached single-family houses and/or semi-detached houses in urban and/or suburban settlements - distinctly rational and uniform urban and architectural design - minimum tolerance on urban design and permissible activities 	1991–2004 and 2004–2021
Type D	<ul style="list-style-type: none"> - socialist approach to urban planning: multi-apartment buildings (neighborhoods, urbanization) in urban settlements - partial projects - residential function is a priority, limited opportunities for business activities in residential areas - planned public services within neighborhoods 	until 1991 and 1991–2021
Type E	<ul style="list-style-type: none"> - business zone throughout the territory: in rural, suburban and urban areas - provisions adapted to the conduct of business activities 	until 1991 and 1991–2021

¹ Period explanation: until 1991: socialist period; 1991: secession of Slovenia from the Republic of Yugoslavia; 1991–2004: transition period; and 2004: Slovenia's accession to the EU, post-transition period.

In the second step, test morphological units in eight municipalities were selected in terms of representing different natural geographical areas in Slovenia:

- Ljubljana as the municipality with the Slovenian capital;
- Domžale as a larger suburban municipality;
- municipalities of Kranj, Nova Gorica, and Novo mesto as regional centers;
- Črnomelj, Ptuj, and Velenje as municipalities with subregional centers.

In each of the selected municipalities, two cases for all five types of morphological units (a total of 80 test cases) were selected. Consequently, we found that in three of the selected municipalities (Črnomelj, Ptuj, and Velenje) the identification of morphological units of Type C (Table 1) was impossible. The reason was the inaccessible data, so we excluded these cases from further consideration and proceeded with 74 test morphological units.

The analyzed examples of planning and construction of buildings in the considered morphological units derive from: (a) the socialist period (before 1991), (b) the later transition period (1991–2004), and (c) the post-transition period (after 2004). When defining time sequences, it is also necessary to point out the validity of the same spatial implementation acts throughout all considered periods, which in some morphological units determined the same urban design conditions for the construction of buildings, regardless of the changes in economic and socio-political conditions.

Furthermore, for all selected morphological units, three key urban design indicators were calculated: (a) the share of buildings in which business activity is carried out in relation to all buildings, (b) the average size of the building (m²), and (c) the average size of building area (m²) [71]. Subsequently, by linking data on the address of the business entity [66] and data on buildings with the house number [68], we spatially located precisely each business entity with the building.

As we were also interested in the type of activities carried out by business entities in each type of morphological units, in the last step of the third phase of the research we connected the obtained results with the sector of activities. This step was based on the Standard Classification of Activities [72] and therefore divided the activities into four sectors of activity [40]:

- I—primary sector, which includes agriculture, hunting, forestry, fishing, mining, oil and gas;
- II—secondary sector, which includes production, processing, and construction;
- III—tertiary sector, which includes all services of non-general interest, including information and communication technologies, transport, trade, and tourism;
- IV—quaternary sector: services of general interest [73], which includes public administration health, judiciary, culture, education, science, and social welfare.

Based on the results of the analyses, the fourth phase provided guidelines for upgrading the existing system of recording and regulating work at home.

3. Results

3.1. Institutional Framework of Work at Home

The analysis of the institutional framework for the regulation and monitoring of work at home included the following three key areas: (a) spatial planning, (b) economic law, and (c) labor relations and occupational health and safety. Each area has its own legal basis in the form of basic laws and regulations detailing the individual institutions, their competences, and their functions. An overview of the extensive body of competent institutional laws and associated regulations (Table 2) shows that the responsibilities of regulation and implementation of supervision of work at home fall under various institutions, which are also in charge of managing databases, but the study focused only on those relevant to research the spatial aspect of work at home.

Figure 2 shows the overall structure of competent institutions, their responsibilities, and their dual function in terms of database management and provision of conditions for the organization of work at home. This is to illustrate the complexity of the current situation or the institutional diversity of competences and tasks.

Table 2. A concise overview of the competent institutional laws and associated regulations.

The Legal Documents and Regulations			
Spatial Planning		Business Legislation	Labor Legislation, Employment Protection, and Healthcare Protection
<ul style="list-style-type: none"> • Spatial Management Act • Decree on the Content and Management of Spatial Data System • Rules on the Content, Format, and Drawing-up of Municipal Detailed Spatial Plan +12 associated regulations <ul style="list-style-type: none"> • Building Act • Decree on the classification of structures +17 associated regulations <ul style="list-style-type: none"> • Housing Act • Rules on Minimum Technical Requirements for the Construction of Apartment Buildings and Apartments +13 associated regulations	<ul style="list-style-type: none"> • Environmental Protection Act +waste management regulation (38), air quality (13), industrial pollution (59), prevention of industrial accidents (3), environmental assessment (4), light pollution (1), electromagnetic radiation (2), soil protection (6), noise protection (5), water protection (47) <ul style="list-style-type: none"> • Land Survey Activities Act • Real Estate Records Act • Decree on the Marking of Apartments and Business Premises +47 associated regulations and +10 regulations linked to land surveying	<ul style="list-style-type: none"> • Companies Act • Business Register of Slovenia Act • Decree on the Standard Classification of Institutional Sectors • Instruction on Type and Range of Data for a Particular Legal and Organizational Form of a Business Register of Slovenia Unit • Public Information Access Act +8 regulations linked to the field of business law	<ul style="list-style-type: none"> • Employment Relationships Act • Labor and Social Security Registers Act • Labor Inspection Act +29 associated regulations <ul style="list-style-type: none"> • Health and Safety at Work Act • Rules on the Reports in the Field of Safety at Work +39 associated regulations <ul style="list-style-type: none"> • Labor Market Regulation Act • Equalization of Opportunities for Persons with Disabilities Act +12 associated regulations

Table 3 illustrates the competent institutional and legal framework and regulatory instruments governing work at home. It highlights the specific elements that are subject to regulation and through which the location, form, and scale of work at home can be directly or indirectly influenced. The field of spatial planning covers the competences relevant to work at home in relation to: spatial planning, environmental protection, housing design and construction, and surveying. The field of commercial law covers the competencies relating to the organisational forms of business entities and their business activities. The field of labour relations, occupational medicine, and health care includes competences related to working conditions and vocational training.

We found that work at home is never considered separately, as a special form of business, but is integrated into normative provisions as well as into databases on the performance of business entities in general. It has also been shown that each institution manages the database independently, in accordance with its competence. Also, an appropriate institutional system of cross-sectoral integration, which would enable a comprehensive overview of work at home as a spatial phenomenon, has not yet been established.

In the documents reviewed, we did not find any definite programming documents that consider work at home as a specific potential for development, or at least as a modern method in the area. Even within the sectoral development strategies (spatial, economic, infrastructural, etc.), this phenomenon is not mentioned. It is dealt with in the context of the partial aspects of monitoring and managing of business entities in space, regardless of their legal organizational form, location, and scope of activity.

Table 3. An overview of the competent institutions, their responsibilities, and elements of regulation based on the spatial organization of work at home.

Institutions and Responsibilities for the Regulation, Supervision, and Management of Databases on Business Entities (with Emphasis on Work at Home)		
Spatial Planning	Business	Working, Health and Occupational Conditions
<ul style="list-style-type: none"> • The Ministry of the Environment and Spatial Planning and its constituent bodies: • Surveying and Mapping Authority of the Republic of Slovenia • Environmental Agency of the Republic of Slovenia • Water Directorate of the Republic of Slovenia • Inspectorate for Environment and Spatial Planning • Municipalities (212 in Slovenia) 	<ul style="list-style-type: none"> • Agency for Public Administration Records and Public Services • Financial Administration of the Republic of Slovenia • Ministry of Agriculture, Forestry, and Food 	<ul style="list-style-type: none"> • Labor Inspectorate, an organization that performs professional tasks in the field of safety and health at work • Slovenian Chamber of Commerce • The Chamber of Craft and Small Business of Slovenia and other chambers and entities responsible for issuing licenses for performing activities • Administrative unit (building permits)
REGULATION SYSTEMS OF BUSINESS ENTITIES		
Legislation in the field of spatial planning	Legislation in the field of commercial law	Legislation in the field of employment relationships, vocational education, and health care
<ul style="list-style-type: none"> • spatial planning conditions (zoned land use) • urban and architectural design conditions • environmental conditions (health and environmental effects) • technological conditions (activity) 	<ul style="list-style-type: none"> • legal conditions • business conditions • tax conditions (compensation for the use of building area, real estate tax) 	<ul style="list-style-type: none"> • conditions for the employer • professional conditions (education) • safety conditions (hazards in the working environment and conditions regarding work equipment)
REGULATION ELEMENTS individual elements of the spatial, technological, business, and personnel organization		
<ul style="list-style-type: none"> • location • scope of spatial planning • design and form of spatial planning • project measures for reducing health and environmental impacts 	<ul style="list-style-type: none"> • business activity (active/non active) • scope of business (size of a business entity) • location 	<ul style="list-style-type: none"> • scope of business activity (education) • spatial form of business activity (safety at work) • location (safety at work)

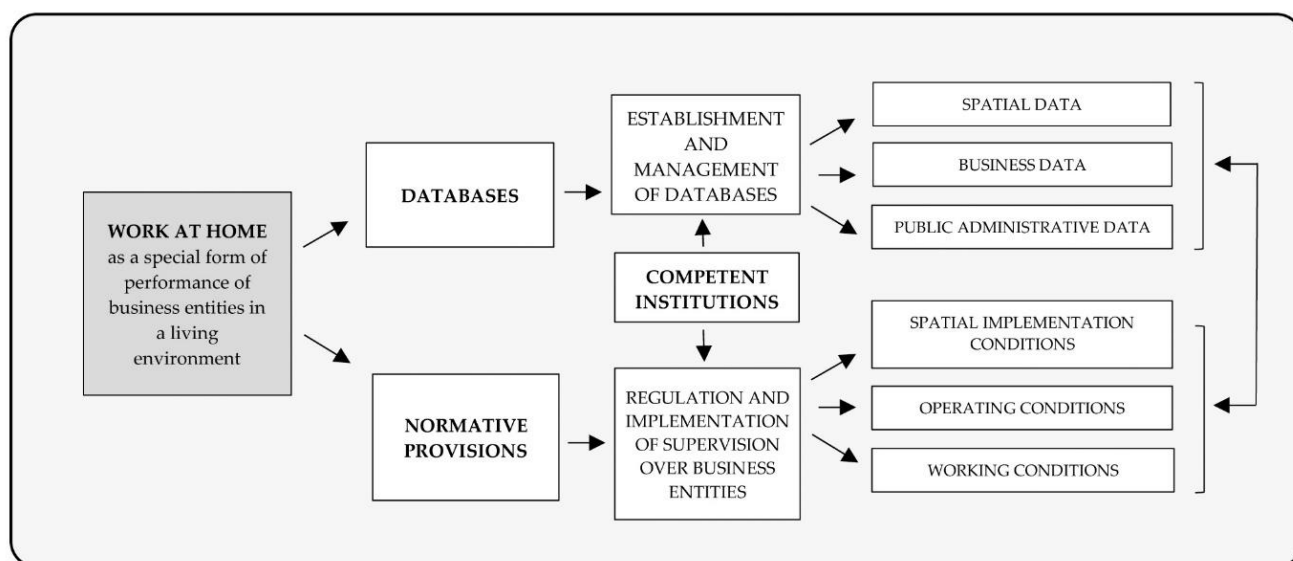


Figure 2. Presentation of the existing institutional framework in the field of business entities of work at home.

3.1.1. Outline of Responsibilities and Tasks of Competent Institutions

In the field of spatial planning, the most relevant is the ministry responsible for space and the related bodies within it that are responsible for the formation of normative provisions for the planning of spatial interventions, such as:

- definition of location conditions (e.g., zoned land use, admissible programs, or business activities);
- definition of project conditions for urban and architectural planning of buildings and building areas and conditions regarding impacts on health and the environment;
- implementation of spatial control (e.g., verification of the legality of spatial interventions and their compliance with spatial planning acts).

In addition, each of them maintains applicable databases for its field, which are used in order to enforce normative provisions and carry out on-site inspections. Most of this information is collected and publicly available on various websites:

- E-space (<https://www.e-prostor.gov.si/access-to-geodetic-data/ordering-data/>, accessed on 20 January 2022), which provides insight into the databases of spatial data on real estate, topographic and cartographic data, data on economic public infrastructure, and mass real estate assessment.
- PIS—spatial information system (<http://www.pis.gov.si/>, accessed on 20 January 2022), which provides insight into spatial data on national and municipal spatial acts, administrative acts in the field of construction, records of building areas, spatial restrictions, and real estate records.
- E-geodetic data (<https://egp.gu.gov.si/egp/?lang=en>, accessed on 20 January 2022) with insight into the building cadaster, house number records, and real estate register.
- Insight into detailed spatial plans is possible via the websites of municipalities.

The urban design conditions of detailed spatial plans refer to the location, form, and amount of work at home. These conditions can be very strict or, conversely, very flexible, depending on the time of creation of the spatial plan and on the related area (e.g., rural area or city). In the process of constructing a new building, and especially in the process of adapting an existing residential building to a business, urban design conditions enable a greater or lesser intervention in its functional plan and design. This includes permissible dimensions of extensions or alterations (height, width in meters, or floor plan in m²), deviations along plot boundaries (in meters), tolerances in the organization of access to public roads, permissible placement of additional parking spaces for clients, etc.

They also define the spectrum of business activities that can be carried out in a certain living environment (SKD, 2010), which is analyzed below. The opinions of the competent institutions, which check the compliance of the spatial solution with the program and project conditions and other normative provisions for the location of the spatial intervention are important as well.

It should also be noted that in Slovenia, as a post-transition country, the transition to a new legal order in the field of spatial planning is still not complete, so some adopted (and still valid) spatial acts date back to the pre-transition socialist period. The socialist period in particular was characterized by a relatively tolerant attitude in terms of organization of work at home (a good example are the so-called spatial planning conditions for rural areas from the 1980s, which provided very general conditions for building design; buildings could comprise of working and living environments). In some cases, however, these conditions for the construction of buildings, regardless of the changed economic and socio-political situation, were easily transferred to spatial acts created during the transition period and even in the post-transition period.

In the field of commercial law, we addressed the public administration, managerial system, and tax system, which in the field of business entities include:

- definition of normative provisions for business performance (legal equity and tax conditions for company registration and implementation of activities);
- implementation of control in the field of business performance (financial control, tax liabilities in the field of business, movables, and real estate owned by business entities).

The key databases in the field of recording work at home in this context are:

- Business Register of Slovenia (<https://www.ajpes.si/?language=english>, accessed on 20 January 2022);
- Taxpayer List (<https://www.fu.gov.si/en/>, accessed on 20 January 2022).

We found that these data can be linked to real estate data as well as demographic data via the location where the company is based or has its business unit.

In the field of spatial organization of work at home, commercial law has a relatively modest or indirect impact. The decision to work at home does not depend directly on the legal organizational conditions for setting up a business, as it may depend, for example, very much on the project conditions of the land use plan, which may allow or restrict work at home. In this context, it is especially the tax policy that, through its instruments (taxes and other charges), incites or inhibits operations at a particular location (e.g., a municipal contribution or compensation for the use of a building area in a residential area or business zone or financial incentives to start a business in a particular area). This is mainly due to the fact that Slovenia, as a post-transition country, does not yet have a system of real estate taxation in comparison with other EU members. Once implemented, it will certainly affect the allocation and size of commercial and commercial residential buildings in the area.

Within the framework of employment legal relationships, we studied the vocational education system and the health care system, which include:

- definition of employment conditions (occupational competences, pension insurance, health insurance, and occupational safety);
- supervision implementation in the field of employment legal relationships (verification of professional competencies, protective conditions, and other working conditions).

Key databases in the field of employment legal relationships, which also include data on work at home, are maintained by the Pension and Disability Insurance Institute of Slovenia (ZPIZ), the Health Insurance Institute of Slovenia (ZZZS), and individual inspectorates. These data are not publicly available and could not be used in the research due to the protection of personal data.

This field also has a relatively small impact on the organization of work at home. Above all, it is the regulation of safety at work, which determines the normative scope of activities and work processes in the living environment. Although work processes are monitored by the competent inspection services, they are often insufficient, which reduces the effectiveness of supervision. During the analysis of competent institutional regulations, we recorded various conditions regarding the limitation of impacts on health and the environment (permissible noise levels, lighting, etc.), which do not include the effect of cumulative impacts, such as cumulative noise introduced into living environments by increased individual and road transport (customers, employees, raw materials, etc., as otherwise regulated in planning of business zones), visual impact of commercial buildings and open landfills, usurpation of public parking spaces, etc.).

3.1.2. Institutional Parity and the Importance of Their Regulations

By recording work at home, we found that the presented institutional framework is extensive and only partially effective, as it does not allow a synthetic assessment and presentation of the actual spatial situation. In fact, the mentioned databases kept by the competent institutions are not interconnected, so by analyzing them we can identify certain deviations due to methodological deficiencies or incomplete or even inaccessible databases.

We also found that all these areas and their conditions have a partial impact on the organization of work at home. However, from the point of view of spatial regulation, the most important urban design conditions can be noticed within the framework of spatial acts. These conditions directly affect the potential locations of work at home and their spatial form and scope.

3.2. Spatial Scope and Distribution of Business Entities with Emphasis on Work at Home

3.2.1. Based on Zoned Land Use and Building Typology

Due to the absence of associated databases on business entities (work at home), the determination of spatial scope and distribution of business entities can only be achieved by combining individual databases.

The results of the analysis from 2019 surprisingly showed that as many as 56.7% of all business entities in Slovenia (257,032 business entities = 100%) are located in residential areas (Table 4). It is also surprising that despite the extensive network of business zones (in Slovenia we had 653 registered business zones for 2019 [45]), only 6.82% of business entities are located within them. Moreover, it should be emphasized that this percentage mainly includes medium-sized and large companies, which are fewer in number, but employ more people. Unfortunately, it is not possible to collect precise data on the number of those who work from home and are formally employed by these companies. In this sense, it is not possible to define the extent of temporary or even more permanent work from home. The share in the areas of central activities is 31.51%; in special areas it is 2.3%, and in other areas it is 2.65%.

By analyzing activities of business entities in individual types of buildings, we found that 64.66% of them operate in residential buildings along with residential uses in the same buildings and 35.34% operate in non-residential buildings. Given the relatively large number of business entities in almost all categories of detailed zoned land use, a high percentage of business entities in residential buildings is expected. More surprising is the conclusion that many commercial (non-residential) buildings, which would otherwise be expected mainly in areas intended for industry and other business activities, are located within residential areas.

The data therefore unequivocally show that placing business entities in residential buildings and thus also in living environments is a common practice.

Table 4. Business entities based on detailed zoned land use and building typology. ([66,69–71]; individual calculation).

Number and Share (%) of Business Entities in Areas of Detailed Zoned Land Use			
Zoned Land Use Category	Total	In a Non-Residential Building	In a Residential Building
Residential areas	145,804 (56.73%)	14,496 (5.64%)	131,308 (51.09%)
Special areas	5902 (2.30%)	5253 (2.04%)	649 (0.25%)
Community, commerce, and business services	80,987 (31.51%)	51,769 (20.14%)	29,218 (11.37%)
Industry and manufacturing	17,521 (6.82%)	16,688 (6.49%)	833 (0.32%)
Other	6816 (2.65%)	2635 (1.03%)	4181 (1.63%)
Total	257,030 (100.00%)	90,841 (35.34%)	166,189 (64.66%)

3.2.2. Based on Business Activity and the Morphological Design of the Living Environment

The next phase of the research was aimed at determining the influence of the spatial characteristics of a certain living environment on the scope of work at home. The analyzed test cases show residential areas with various conditions for the organization of work at home, which were formed in different time periods and were divided into four types of morphological units A, B, C, and D (Figure 3).

The analysis of the selected 74 cases of morphological units showed that business entities are located in all of them, regardless of the period of origin (before 1991, 1991–2004, or after 2004), spatial distribution, or provision strictness of the spatial act. Their number varies, but it confirms the preliminary results of the general presence of business entities in the living environment.

In order to make it clearer, we chose two examples of morphological units of Types A, B, and D in the case of the Municipality of Ptuj (Figure 4). The examples show that business entities are located in all of the morphological units and are particularly present in multi-apartment buildings.

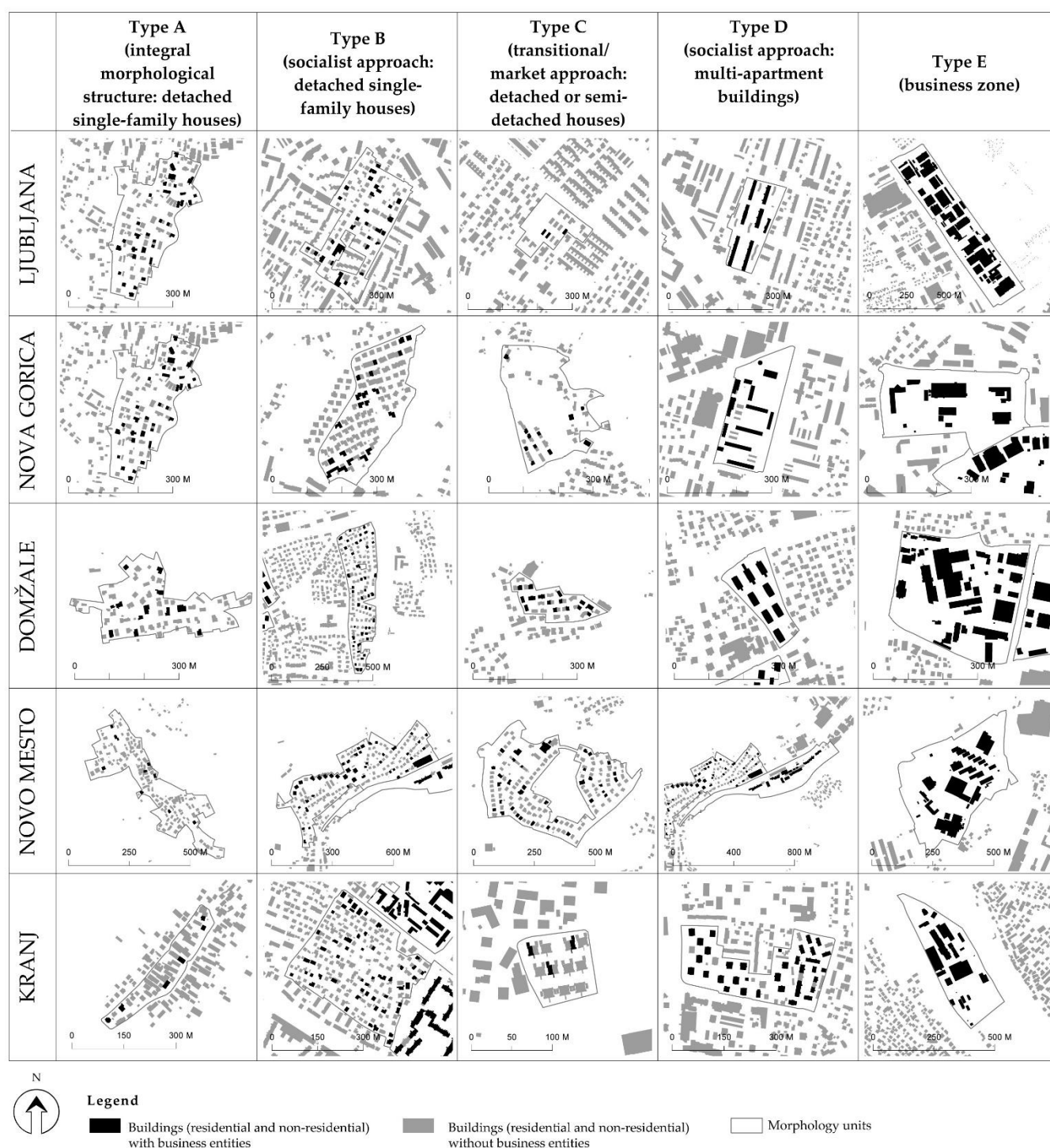


Figure 3. The presentation of typical cases of selected morphological units with marked buildings or parts of buildings (black) in which business activities are carried out. Residential buildings without business activities are marked in gray. ([66,69,70]; own presentation).



Figure 4. A detailed display of locations of business entities in residential buildings by selected cases in the Municipality of Ptuj. The yellow dot indicates the buildings in which the business activity is carried out. The border of the morphological unit is in red ([69–71]; own presentation).

3.2.3. Based on Selected Urban Design Indicators

According to the purpose and goal of the research, we analyzed the share of buildings in which business activities are carried out and the average size of the building area and buildings for each of the 74 selected morphological units.

A more detailed analysis of the shares of buildings later showed that there are approximately 19% of buildings with business entities in all of morphological units in all selected municipalities (Figure 5). Excluded from the analysis are morphological units of Type E (business zones) in which business entities can be found in all buildings.

In terms of the distribution by individual cities (Figure 5), we can determine that on average a larger share of buildings with business entities can be found in morphological units in the municipalities of Domžale, Kranj, and Ljubljana. This can most probably be attributed to the fact that all three are located in the Osrednjeslovenska region, which is the most economically developed and urbanized. In addition, Ljubljana is the largest employment center in the country. The municipalities of Črnomelj and Velenje, which are the most remote considering this region, have the smallest share. For a more detailed interpretation of these results, further economic research is needed (emergence of subcontractors, demand for service activities, etc.). The results regarding the distribution by types of morphological units are more relevant for this article (Figure 6).

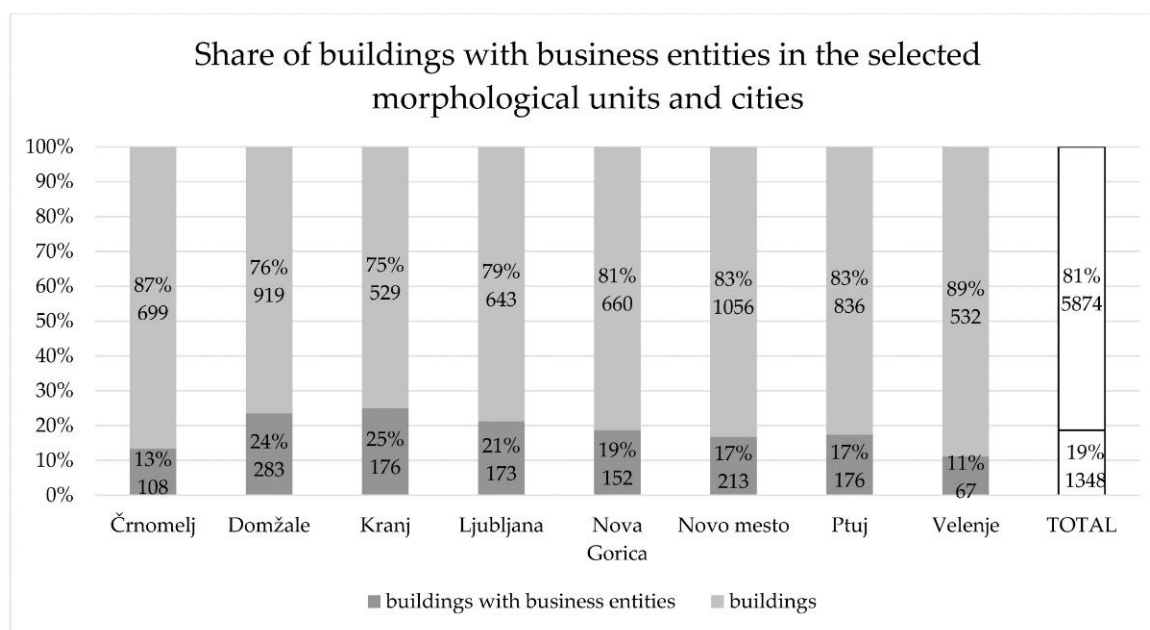


Figure 5. The share of buildings (both types: residential and non residential) with business entities in the considered morphological units located in the selected municipalities ([69–71]; individual calculation).

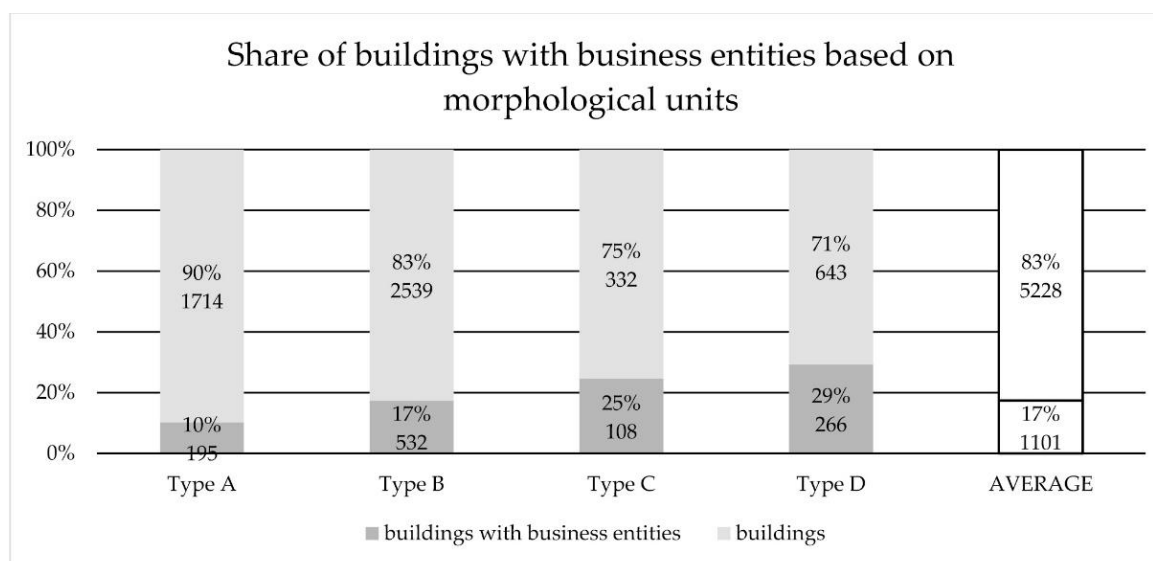


Figure 6. The share of buildings with business entities in total based on all considered types of morphological units ([66,70,71]; individual calculation).

In total, the smallest share of buildings with business entities is present in morphological units of Type A (10%), which represent single-family houses in a relatively sparsely populated rural area. The share is evidently higher in morphological units of Type B (17%), which represent single-family houses in a suburban or urban environment. Surprisingly, despite the rational construction of single-family houses or semi-detached houses, the share is even higher in morphological units of Type C (25%). In addition to macro-location, the reasons for this situation can also be found in spatial factors.

In terms of this comparison, morphological units of Type D with multi-apartment buildings show the largest share of business entities (57%), but these data need to be interpreted carefully because these are multi-apartment buildings with business and service activities located on the ground floor. In addition, there are a large number of small or micro companies, which usually employ a small number of people.

Later we analyzed in more detail the average size of the building and the building area for buildings in morphological units (Figure 7) in which business entities are located. Due to the unavailability of data on the number and size of individual dwellings in multi-apartment buildings and the inability to obtain floor plans of entire buildings, morphological units of Type D (multi-apartment buildings) were excluded from this analysis. Business zones (morphological units of Type E) were also excluded from this analysis, as the comparison with other morphological units is not applicable in terms of the size of buildings and building area.

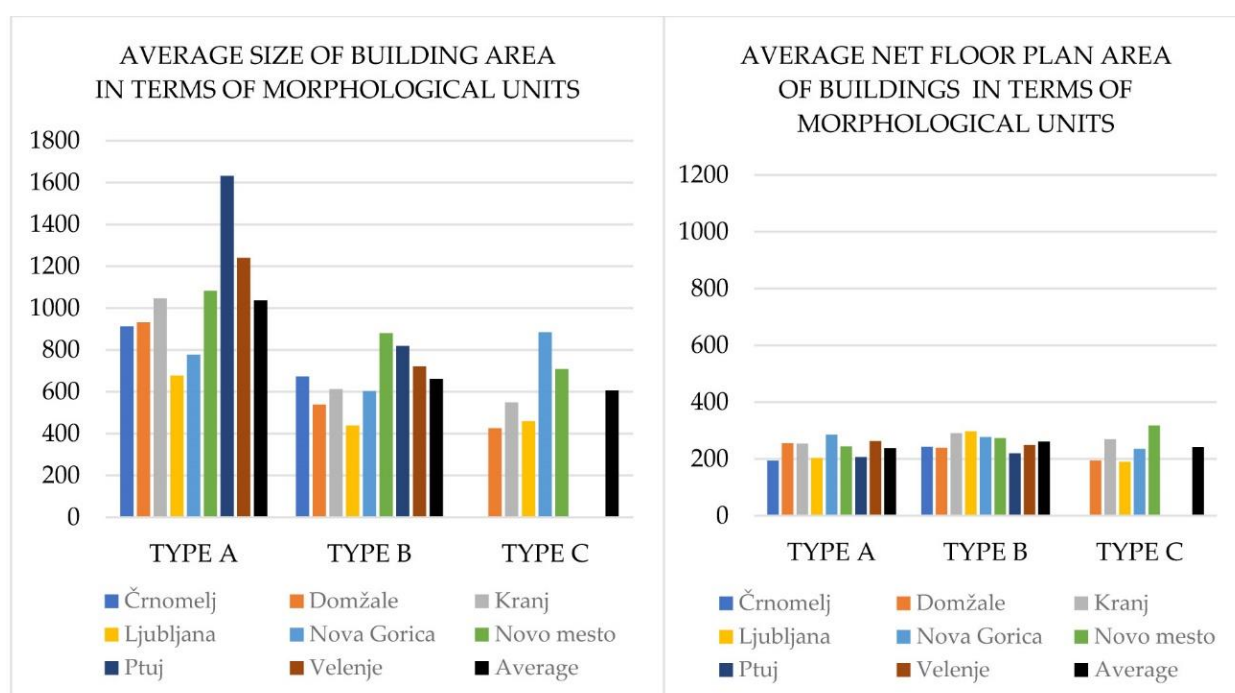


Figure 7. Average sizes of building area (m^2) and buildings in terms of types of morphological units in the selected municipalities ([66,69–71]; individual calculation).

The size of an average building area is the largest in morphological units of Type A (1037.4 m^2), which are located in rural areas and are subject to looser urban design conditions. Of course, this is also due to the spatial conditions themselves (such as relief features, population density, presence of a transport network, etc.). On the contrary, the smallest building areas can be found in morphological units of Type C (605.3 m^2), as these units show a very rational planning in the transition and post-transition period.

Moreover, it is interesting to note that average sizes of buildings do not differ significantly in terms of morphological units (Type A = 238.2 m^2 , Type B = 261.1 m^2 , and Type C = 241.4 m^2). The average size of buildings is slightly larger in morphological units of Type B. Compared to the average size of buildings in morphological units of Type A, which have a larger average size of building area, morphological units of Type B obtain a more structured urban and architectural planning, but with relatively large floor plans, which is very characteristic of the socialist period of the construction of individual detached houses.

According to the findings of the analysis based on selected urban design indicators, it was expected that the share of business entities in the considered morphological units would be higher in rural areas (morphological units of Type A) and the lowest in areas of compact urban construction (morphological units of Type C). However, the results show that the considered morphological parameters for the organization of work at home are not essential or at least not conclusive, as no case recorded a major deviation (significantly higher or significantly lower share of business entities in any of the types of morphological units). Consequently, it is necessary to search elsewhere for those factors that more or less encourage work at home (macro location, population, supply and demand for a particular type of business activity, etc.). In addition, we can conclude with great certainty that the provisions of all spatial acts allow work at home to a greater or lesser extent, in terms of types of morphological units which include residential buildings and in terms of the time of its occurrence (Table 1).

3.2.4. Based on the Sector of Activity

In accordance with the standard classification of activities [72], business entities were methodologically divided into four sectors (primary, secondary, tertiary, and quaternary; chapter 2) in order to facilitate the study. We then examined the relationship between spatial characteristics (location) and the sector of activities performed by business entities in each Type of morphological units. The data show (Table 5) that within the considered morphological units with residential construction (Types A–D) the activities of the tertiary sector are the most present (76.57% in total). To a lesser extent the quaternary activities are present as well (16.46% in total). Surprisingly, the activities of the secondary sector are present in a relatively high share (6.8% in total). As expected, the activities of the primary sector are negligible (0.18% in total). In this context, the minimal presence of the primary sector in rural areas is surprising as well (morphological units of Type A = 0.72%).

Table 5. Business entities by sectors of activity in terms of morphological units.

Morphological Unit	Number and Share (%) of Business Entities by Sector of Activity				
	I. Primary	II. Secondary	III. Tertiary	IV. Quaternary	All Business Entities
Type A	2 (0.72%)	37 (13.41%)	202 (73.19%)	35 (12.68%)	276 (100%)
Type B	0 (0%)	96 (9.88%)	728 (74.9%)	148 (15.23%)	972 (100%)
Type C	0 (0%)	10 (5.59%)	143 (79.89%)	26 (14.53%)	179 (100%)
Type D	3 (0.21%)	51 (3.57%)	1113 (77.94%)	261 (18.28%)	1428 (100%)
TOTAL (A+B+C+D)	5 (0.18%)	194 (6.8%)	2186 (76.57%)	470 (16.46%)	2855 (100%)
Type E	8 (0.45%)	243 (13.72%)	1371 (77.41%)	149 (8.41%)	1771 (100%)

The activities of the secondary sector (e.g., production, artisanal activities) are evidently more represented in rural areas (morphological units of Type A = 13.41%) than in suburban and urban settlements (morphological units of Type B = 9.88% and Type C = 5.59%). This is certainly due to looser urban design conditions, larger building areas, and general characteristics of rural areas where these activities are traditionally present (artisanal activities). The activities of the secondary sector were found even in the areas of multi-apartment buildings (Type D = 3.57%), which can be considered a particular spatial anomaly.

As expected, the activities of the tertiary sector are the most numerous and approximately evenly present in all types of morphological units, both in rural and urban areas (morphological units of Type A = 73.19%, Type B = 74.9%, Type C = 79.89%, and Type D = 77.94%). Moreover, the activities of the tertiary sector were later analyzed in more detail, and it was found that in all types of morphological units (from Type A to D) there are five activities that occur most often—other business and management consulting; accounting, bookkeeping and auditing activities; tax consulting; computer programming; and architectural design.

Similarly, quaternary activities are represented in all of the morphological units. A slightly higher share of quaternary activities can be found in multi-apartment buildings (morphological units of Type D = 18.28%), as these are the activities that are most flexible in terms of operating in residential environments.

A comparison with the morphological unit of Type E (business zones) is interesting as well. We found that the structure of business entities in terms of activity sector in Type E is quite similar to other types of morphological units, although it is a completely different category of detailed zoned land use and thus also construction. As expected, the highest share of secondary activities can be found in morphological units of Type E (13.72%, which is twice as high as in the morphological units of other types). In tertiary activities, which include a wide range of different business services (trade, services, consulting, etc.), this share is almost identical (77.41%). As expected, morphological units of Type E have a significantly lower share of the activities of the quaternary sector (8.41%).

On the one hand, it was found that morphological parameters do not represent definitive factors for placing business entities in individual types of morphological units. On the other hand, the analysis of business entities by sectors of activity showed slightly larger differences between them. The most evident is the higher presence of activities of the secondary sector in rural areas and the activities of the quaternary sector in multi-apartment buildings.

4. Proposals for the Systematic Upgrade of Existing Regulative Instruments of Work at Home

Furthermore, the results of the research show that the spatial situation is a consequence of various factors, but the key factor is certainly the personal decision of an individual to organize the workplace at home. In this sense, the existing system of spatial planning with urban design conditions enables the organization of business entities in the form of work at home, either as a new construction or as an extension and/or rearrangement of existing residential buildings for the needs of business activities. As we found, urban design conditions for the organization of work at home have fluctuated over time, and depending on location, they have gone from being more restrictive in urban areas to looser in rural and suburban areas, but contrary to our expectations the scope-wise emergence and spatial distribution of business entities in the living environment do not reflect these differences.

Therefore, the key proposals for improving the institutional framework for regulating work at home in terms of spatial planning (Figure 8) and inter-institutional integration are:

- to ensure continuous monitoring of the situation in the field of work at home;
- to connect the existing databases (with the help of information technology), which are currently kept separately for each sector and the needs of each institution;
- to introduce monitoring of the situation, especially work at home, which is increasingly appearing as a temporary form of conducting the activities of those business entities that otherwise carry out their activities in a location intended only for business purposes.

It is especially in the field of spatial planning that the spatial implementation conditions are often too loose, which can lead to overdesign of residential buildings, design degradation of the wider living environment, constant congestions on the transport network, increased noise, etc. In order to upgrade the existing instruments for the spatial distribution of business entities in the field of work at home, we also propose the following detailed measures, which all have an impact on the quality of living and the visual aspect of the settlement:

1. The establishment of monitoring of work at home, with the aim of ensuring:
 - constant monitoring of the scope (size, number of buildings) and spatial distribution (location) of business entities that conduct their activity permanently from home;
 - uniform monitoring of the activity implementation due to potential negative impacts on the environment and human health, which is currently divided between individual institutions;
 - constant monitoring of the scope and spatial distribution of business entities that conduct their activity temporarily, in the form of work at home;
 - more efficient implementation of spatial plans at the implementation level.
2. Definition of more detailed spatial implementation and urban design conditions for work at home, which would enable:
 - targeted planning of urban and architectural design of buildings for the needs of work at home (also guided and encouraged architects to plan appropriate flexible solutions);
 - more rational land use at the level of settlement or neighborhood, especially with regard to open areas (car parks, landfills, etc.) and greater utilization of existing spatial potentials;
 - more effective regulation of health and environmental impacts, in particular in terms of cumulative impacts;
 - prevention of potential spatial conflicts, especially in terms of living business involvement;
 - typology of buildings adapted to residential areas;
 - noise-generating activities caused by traffic;
 - inadequate manipulative space and outdoor open warehouses, lighting elements.

Individual local communities, which have recognized the importance and scope of work at home in the process of spatial planning, have already started approaching the implementation of the proposed measures in the preparation of spatial acts. In this sense, examples of good practices in some Slovenian municipalities can already be noticed. We suggest such that experiences be institutionalized in the form of guidelines, norms, or mandatory provisions at the appropriate administrative level and thus introduced into wider utilization. In order to implement the proposed improvements to the system, sufficient readiness or constructive response of the competent institutions is required.

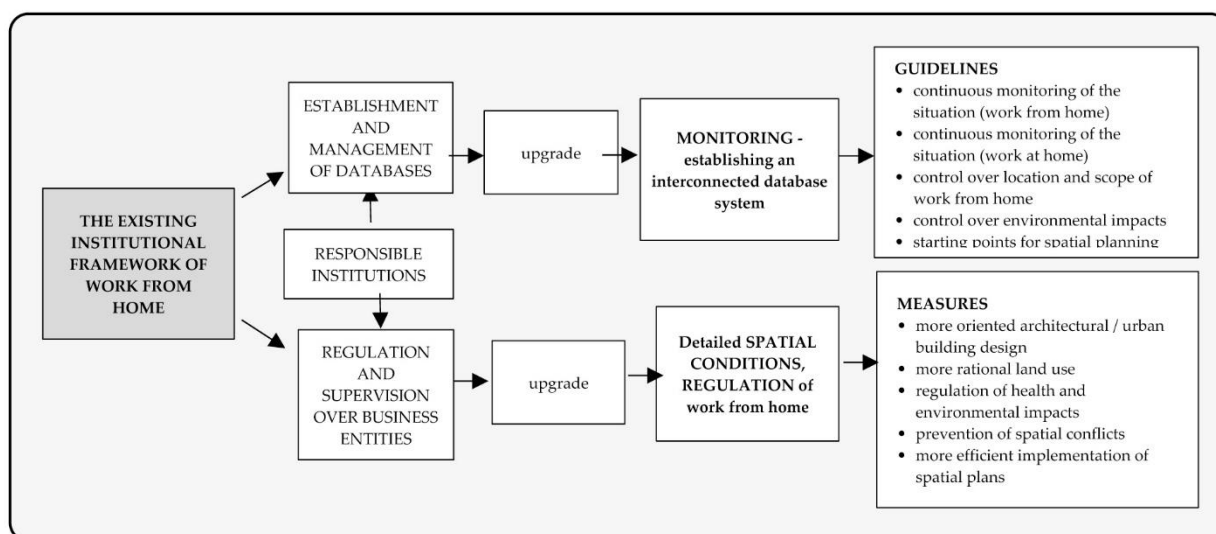


Figure 8. Proposal for a systemic upgrade of the existing institutional framework for the establishment of regulation, monitoring, and supervision of work at home in terms of spatial planning.

5. Discussion

By joining the European Union, Slovenia accepted the essential elements of its legislation and adapted the socialist institutions of the self-governing system to the new socio-political conditions. This also applies to institutions that have responsibilities in recording and regulating work at home. However, it is still evident that the situation regarding the regulation of work at home is still largely a consequence of the extensive spatial urbanization from the seventies and eighties of the last century. At the time, the institutional framework for the construction of single-family buildings, including the possibility of working from home, was very tolerant. We found that work at home, as a special form of a business entity conducting its activity in the living environment, is now managed by institutions in the field of spatial planning, commercial law, and employment legal relationships. On the one hand, they formulate normative provisions for their business and spatial organization, and, on the other hand, they keep databases on business entities. Nonetheless, it should be emphasized again that there are no special records on forms of work at home.

From the point of view of the spatial organization of work at home, the institute of the spatial implementation act, which provides urban design conditions for the planning of residential buildings and accompanying activities, is of key importance. The system as a whole is very complex. With its analysis, we found that in 2019, 257,032 business entities were registered in Slovenia, among them as many as 56.7% (or 145,804) are located in residential areas. According to the available data and with an appropriate interpretation of the location of the company's registered office and the location of the actual performance of business activities, this share of business entities can be considered as a credible understanding of the extent of work at home. The data are also correlated with the building typology, as 64.66% of all entities in Slovenia conduct their activities in residential buildings and 35.34% in non-residential buildings. Therefore, we can conclude that this is a large-scale spatial phenomenon.

A comparison of various spatial structures in selected types of morphological units showed that there are no significant differences in the share of buildings with business activity within individual morphological units (with the logical exception in the case of multi-apartment buildings). Nevertheless, we can speculate that the reason for the relatively low share in morphological units of Type A is also the demographic factor (agricultural households, seniors, a larger share of uninhabited buildings and consequently limited needs for service activities, etc.). The same can be found for morphological units of Type B, where the individual construction of single-family houses was mostly done in the 80s and 90s of the last century. This means that the first homeowners (assuming most of the original owners still live in these houses) are now retired and have no motive to carry out business activities. However, the share in morphological units of Type C (25%) can be interpreted differently, as it is, despite the rational transition and post-transition construction, relatively high. In this case, it is mainly the younger generation that actively participates in business activities and responds quickly to the changing conditions of the current free market economy. In addition, all locations of the considered morphological units of Type C are located in intensively urbanized environments.

There are differences between the analyzed municipalities, but to determine the detailed reasons (micro location, population and demography, supply and demand, labor market, etc.) it would be necessary to expand the research to the fields of geography, sociology, and economics. Differences among the analyzed morphological units are more evident in the business sector, as in rural areas we noticed a significant share of secondary sector activities, which include various manufacturing industries with certain technological and spatial needs. However, as expected, the activities of the tertiary and quaternary sectors predominate in urban areas. Both of these findings are not surprising; more surprising is the fact that more land (rural area) or larger building (urban development plans) does not necessarily indicate a larger share of work at home.

Given that there were no significant differences in all of the analyzed indicators (location, the size of land and buildings, the period of creation of the spatial plan and realization of the residential area, and sectors of activity), we believe that the conditions of spatial acts from different periods are very comparable. In this sense, the period of transition and post-transition did not transform the established tolerant conditions for building planning, including the possibility of work at home.

6. Conclusions

As work at home (and work from home) will continue to be an important spatial development paradigm, we need to be even more aware of its importance and consequences. The results of the research confirm the introductory statements regarding the former and current institutional tolerance in the field of work at home. Even in the post-transition period, the design of residential buildings certainly represents some sort of a continuity of liberal understanding of the organization of the living environment. As expected, this freedom only gained in legitimacy during the epidemic. However, we must be aware that its consequences can also be negative, as they interfere with the institute of spatial planning, which strives to design finalized residential areas in areas with the expected functional and design qualities. On the other hand, the institute also presents business zones as zoned land for all forms of business. The uncontrolled placement of business activities in finalized living environments certainly undermines the social consensus achieved through the adoption of a specific spatial act. Such a situation raises questions of priorities, rights, and expectations of all users of space. In this context, the epidemic has highlighted the importance of ensuring a healthy living and working environment, which means that we are on the verge of a new social agreement in terms of balancing the economy, environment, and society.

Based on all the above, the authors argue that work at home is certainly a positive spatial phenomenon, but only to the extent that its negative effects do not significantly worsen the living conditions. In this sense, we argue for a more effective regulation of work at home. Business zones as a spatial alternative have clearly not reached their full effect just yet. Despite their abundance, spatial distribution and market (real estate) promotion, work at home remains a traditional spatial practice. In this context, business zones are merely a parallel development capacity that has yet to compete with some of the benefits of work at home.

The relic of socialism, which in Slovenia is expressed in a large share of single-family houses, relatively urbanized rural areas, and continuously tolerant urban design conditions for housing, can present a starting point for future challenges of new epidemics as well as post-epidemic economic and environmental changes. Therefore, in the future, in order to critically assess the situation regarding the effects of work at home (economic aspect, sociological aspect, environmental impact, etc.), the research should be extended to various fields of study.

When facing the challenges of the epidemic, all the above findings are important especially in terms of recognizing that work at home is a large-scale territorial phenomenon and as such a serious alternative to working in large collectives. Credible and inter-institutional and cross-sectoral coherent and linked databases regarding the location and nature of business activities, the number of employees, etc., can make a significant contribution to a more efficient planning of spatial activities, a greater use of existing potentials, a limitation of health and environment impacts, and consequently to a higher overall productivity of the living and working environment. We estimate that the current legislation presents an appropriate basis for the establishment and implementation of the proposed system upgrade of the existing institutional framework for the establishment of regulation, monitoring, and supervision of work at home in terms of spatial planning.

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