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MINISTRY OF REGIONAL DEVELOPMENT CZ

Analysis, recommendations and legislative proposals for a Building Act reform in the area of spatial planning

Analytical report – brief report

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Id. Nr : 474 429 572
VAT registration number: BE474 429 572

Luchthaven Brussel Nationaal 1J, 1930,
Zaventem, Belgium

("Contractor")

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Analytical report

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Management summary

The analytical report was drafted between February and May 2020 and is based on analysis of literature, Czech regulation, quantitative data analysis and interviews with more than 30 stakeholders involved in the spatial development and spatial planning.

Following phase shall be a preparation of respective measures together with legislative implications. For further details please see Management document. Below see key recommendations to be analyzed and proposed in the following phase.

Spatial development

Czech development is mostly concentrated in large cities and their agglomeration hinterlands. Two-thirds of Czech sales and resales of housing units in new apartment developments are done in 4 cities (Prague, Brno, Olomouc, Pilsen). Almost in all Czech agglomerations population grows faster in suburban areas beyond the administrative boundaries of the core agglomeration municipality. This causes pressures on transport infrastructure due to regular commuting and on amenities provision in suburbias. In total, larger agglomerations grow faster on average as it is likely to reflect agglomeration economies benefits. Although property prices appreciated significantly between 2014 and 2018, among more attractive agglomeration roughly between 40% and 50%, there is no clear observable pattern, but based on the data it could be concluded there is more of a response to market signals for the segment of individual detached housing. In other words more construction of individual houses was likely seen in areas where individual houses appreciated more. These findings suggest the excessive demand not satisfied in agglomeration core cities is likely to spill-over into suburbias and for that reason overall housing prices appreciation does not show significant deviations from the average.

The building permitting processes, including zoning procedures and following on spatial planning processes, seem to be long in the Czech Republic. Obtaining all permits for a residential apartment project in Prague takes approximately 5 years on average. The detailed analysis of residential projects across the republic has shown some insights. First of all, there are findings suggesting residential property prices are on average higher in places with a longer permitting process. Additionally analysis has revealed building permits are issued on average faster in smaller municipalities which might be one of the reasons why developing there is more attractive. Regarding land use in the projects' proximity it takes on average longer when there is a higher share of urban green areas. It suggests there might be more opposition towards such projects that makes their approval longer. It is also likely that building permits take a shorter amount of time when officers at the building permitting authority have higher education and when a higher share of municipalities within the administrative area of building permitting authority have spatial plans. More detailed analysis of spatial permits for residential projects in Prague has shown projects located closer to central areas with more jobs opportunities obtain their spatial permit on average later than projects in more peripheral locations. On the other hand spatial permit seems to be shorter if the building is located in an already denser site in terms of gross floor area.

Spatial planning

The spatial planning has no general binding regulation at the level European Union when this competence has been left to the Member States. The spatial planning is regulated by Act No. 183/2006 Coll., on Spatial Planning and Building Code (the Building Act), as amended in the Czech Republic, together with around 50 other Acts containing affected public interest to be taken into account based on opinions of concerned authorities within spatial planning process as well as following procedures.

The spatial planning is generally accepted as various actors in the process of spatial planning got used to it since the reform in 2006 and many amendments of the Act since then. Nevertheless the

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system suffers from several major problems that have in common their interdisciplinary character that is so hard to tackle in the functionally organized public administration.

The stated ultimate goal of sustainable development is very hard to achieve as its idea is to balance existing private and public interests to come to the optimal solution for the area. Instead of being focused on developing existing and future values the system authorizes plenty of state authorities to protect listed features of interest. The system is in nature binary, some feature is either protected or not. This system of protection mostly fails in complex high-density urban settlements where various interests collides and often result to keep status quo as no reasonable project could possibly meet all the given requirements. Overall the system does not include compensating mechanisms, with exceptions of remedy for expropriation and under some conditions when land-use is changed to undevelopable, both between public and private sector and within public sector itself to mitigate costs imposed by otherwise beneficial projects on some stakeholders who end up with net loss. This seems to be a severe limit to create overall values and as a result many investments might be moved to less complex locations that are worse from the sustainability perspective, but easier to permit.

The lack of coordination is also apparent in the planning documentation. Unlike in other countries spatial and strategic planning create two parallel systems and are rarely coordinated with other policies with spatial impact, such as transport policies. Moreover planning often deals only with investment activities but lacks long-term perspectives about projects' feasibility. This is partly due to the low fiscal autonomy of self-governing units dependent on national financial transfers and system of investment subsidies where long-term sustainability might not play as important of a role. This all combined seems to disincentivise long-term holistic planning because self-governing municipalities cannot affect what size of future state transfers will be or what subsidy programs will be opened to fit in. The inability to combine predominantly restrictive spatial planning policies with more flexible market-oriented tools such as local-specific subsidies and differentiated taxation ends with inability to manage development. The management of development is underperforming not only between private and public sector, but also on the public side in transition from project planning to project realisation where much could be improved.

There is insufficient coordination between levels of plans. Although three levels of national, regional and municipal plans are defined the practical distinction of competencies on planning levels with respect to the principle of subsidiarity is vague and some planning goals from above-level documentation are hard to enforce in lower level documentation. Stark example is the inability to coordinate development on the agglomeration level that should be dealt on the first supra-municipal level, therefore on the regional level. But this seems to be out of reach of current tools given to regional development principles. On the other hand there are evident issues when state powers unnecessarily intervenes in municipal self-governing rights to plan its development such as in requiring detailed methods of spatial planning and regulating some very local aspects such as noise limits, requirements on local transport infrastructure and local historic heritage and environment protection. The problems of coordination also partly arise from extremely fragmented municipal subdivision that is rather extreme in international comparison. This fragmentation does not allow vast number of municipalities to plan their development efficiently and provide basic public services unless they would jointly cooperate.

Spatial planning has become significantly more formal as much more emphasis is put on plans' justification because it is expected that plans will be reviewed by the court. It does not seem the judicial review would have significant effect on protecting violated individual rights, but the whole system has become much more volatile and prone to be misused to follow individual intentions. As a result much more work on spatial planning documentation is paid to redundant justification that in principle does not positively affect the intended spatial development. That does not mean the principle of judicial review is wrong. Unfortunately it seems the present judicial review is mostly formal without taking into consideration both the purpose of planning documents and results of judicial reviews.

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Key recommendations for spatial planning proposal

Integrate spatial planning with spatial dimension
Spatial planning should be more tightly connected to other areas of sectoral planning typically considered to be within strategic planning. These areas are for instance mobility planning (being broader than transport infrastructure planning in current spatial planning), housing policy and public amenities provision. These plans should be linked to medium and long-term financial plans as well as to the large public investment projects. Land management tools within spatial planning framework should be considered.

Legislation revision
Many issues that appear in spatial development and spatial planning are not rooted in the Building Act or its subordinated decrees, but also in many related regulations belonging under competencies of other ministries. Governmental cross-sectoral board should assess this wide set of regulation and propose reform that would follow the goal of simplified process together with more sustainable development.

Clarify planning competencies of national, regional and local governments
Clearer distinction in competencies and role of three levels of government are essential. The distinction of powers should follow principle of subsidiarity so public policies are efficiently elaborated on an appropriate level of government. Planning documents on all levels must be equipped with appropriate regulatory, incentive-based and other economic tools to enforce their planning goals on lower levels of self-government. Introduction of the regional level new planning tool of agglomeration plans should be considered.

Consider relation between self-governing and state powers
Transfer of more competencies in spatial planning including its last step of spatial permit to local governments should be considered. Within the competencies they are given in the spatial planning they should have a decisive power in spatial planning processes to assess optimal form of sustainable development. As a part of broader competencies self-governing units should receive a higher level of fiscal autonomy.

Promote inter-municipal cooperation
To devolve larger share of autonomies on municipal governments their cooperation is essential. Majority of Czech municipalities are too small to efficiently administer their agenda and run holistic planning. Therefore municipal consortia lead by municipal elected representatives should be supported with more autonomies to secure planning and public services provision.

Extend set of planning tools especially with economic instruments
Spatial planning documentation (and spatial plan in particular) should become a complex of documents that are mutually interconnected. These should be coordinated by strategic plan that clarifies understanding of sustainable development in given place and therefore becomes a baseline for designing detailed policies. Following documents should define conditions for functional use, land-use intensity, local fees and property taxes and mobility policy.

Redefine role of spatial plan, more detailed plans and zoning permit
Spatial plan should be rather spatial interpretation of local strategy. It should define buildable area, stabilised areas and development and redevelopment areas. In development and redevelopment areas spatial permit would be supplemented by more detailed planning documentation. In all other locations a zoning permit issued according to local context would allow construction.

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Enhancing the judicial review
When reviewing spatial planning documentation, courts should sufficiently protect the rights of individuals and recover their gross violations within the spatial planning processes. On the other hand, courts should follow the restraint principle and annul the spatial planning documentation only in cases of obvious infringement of the rules considering the consequences of the annulment of a documentation of such importance. Furthermore, there should be limited time only when the spatial plan can be reviewed.

Include compensation mechanism
Current spatial planning system does not support negotiation as a tool of finding optimal solution because there is nothing to trade. Compensating mechanisms would allow for the compensation of actors who are negatively affected to obtain their consent.

Create national Geoportal with standardised information
To help all levels of governments and agencies analyze spatial development and spatial planning proposals universal access to spatial data is essential. All spatial planning documentation should be accessible via the national Geoportal that would on the top of that link spatial planning data with RUIAN and cadastre data and join spatial administrative areas with CSU (Czech Statistical Office) data. To do so standardization of spatial planning data is necessary, but regulatives themselves might be still left largely non-standardised.

Improve communication and education
Public authorities should be supported to disseminate information about spatial development and planning and be open to public discussions generally in less formal way than current Building Act assumes. Public participation should be always designed to be appropriate level of detail of given problem and stage of elaboration of planning document. Education on all levels need to receive attention to promote holistic understanding of spatial development within sustainable development framework.

Disclaimer

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1. Current planning system assessment

1.1. Goals of spatial planning

Stated goals and tasks

The goals of the Czech spatial planning system are stated in the Building Act in Section 18 and include the following six articles:

(1) The objective of town and country planning is to create the preconditions for construction and for sustainable development of the area, consisting in the balanced relationship of conditions for the favourable environment, for economic development, and for cohesion of community of inhabitants of the area, and which satisfies the needs of present generation without endangering the conditions of life of future generations.

(2) The town and country planning ensures the preconditions for sustainable development of the area by means of continuous and complex solution of useful utilisation and spatial arrangement of the area with the aim of achieving the harmony of public and private priorities in relation to the development of the area. For this purpose it follows the social and economic potential of the development.

(3) The authorities of the town and country planning coordinate, by means of a procedure pursuant to this Act, the public and private programmes of changes in the area, construction and other activities influencing the development of the area, and putting the protection of public interests arising from special regulations in concrete terms.

(4) The town and country planning protects and develops the natural, cultural and civilization values of the area as a public priority, including the urban planning, architectural and archaeological heritage. And it protects the landscape as the substantial component of the environment of the inhabitants´ life and the basis of their identity. With respect to that it determines the conditions for economical utilization of the developed area and ensures the protection of the non-developed area and grounds without development potential. The areas with development potential are limited with respect to the potential of the area development and the rate of utilisation of the developed area.

(5) Within the non-developed area it is possible, in accordance with its character, to locate the structures, facilities and other measures only for agriculture, forestry, water management, raw material extraction, for protection of nature and landscape, for public transport and public infrastructure, for reduction of danger of ecological and natural disasters and for removing of their consequences, and further such technical measures and structures, which will improve the conditions of its utilization for purposes of recreation and tourism, for example, cycle paths, sanitary facilities, ecological and information centres.

(6) In the grounds without development potential it is exceptionally possible to locate the public infrastructure in such a method, which will not make impossible their existing utilization

Section 19 then provides in detail the tasks of the spatial planning:

(1) The task of town and country planning is especially

a) to ascertain and assess the area condition, its natural, cultural and civilisation values,
b) to determine the concept of the area development, including the urban planning concept in respect to the values and conditions of the area,
c) to examine and assess the need of changes in the area, public priorities in their implementation, their contributions, problems, risks in respect to, for example, public health, environment, geologic structure of the area, impact on the public infrastructure and its economical utilisation,

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d) to determine the urban planning, architectural and aesthetic requirements for utilisation and spatial arrangement of the area and for its alterations, especially on location, arrangement and layout of structures,
e) to determine the conditions for the implementation of changes in the area, especially for location and arranging of the structures in respect to the existing character and values of the area,
f) determine the order of the implementation of the changes in the area (phasing),
g) to create within the area the conditions for reduction of danger of ecological and natural disasters and for removing their consequences, in a method close to the nature,
h) to create within the area the conditions for removing the consequences of sudden economic changes,
i) to determine the condition for renewal and development of the settlements' pattern and for quality housing,
j) to examine and create within the area the conditions for economical expenditure of financial means from the public budgets for the changes in the area,
k) to create within the area the conditions for ensuring the civil defence,
l) to determine the necessary redevelopment, reconstruction and reclaiming interventions into the area,
m) to create the conditions for protection of the area pursuant to special regulations against the negative impacts of the programmes on the area and to suggest the compensating measures, unless the special regulation stipulate otherwise,
n) to regulate the extent of areas for the utilization of natural resources,
o) to apply the knowledge especially from the sphere of architecture, urban planning, town and country planning and ecology and preservation of monuments.

(2) The task of the town and country planning is also to assess the impacts of the spatial development policy, the development principles or the plan principles or the plan on a balanced relationship of territorial conditions for a favourable environment, economic development and for cohesion of the inhabitants community of the territory (hereinafter referred to as "assessment of impacts on sustainable development of the territory"); its component is the assessment of impacts on the environment elaborated according to the appendix to this Act and the assessment of impact on the a significant locality within European standards or birds area, on condition that the authority of the preservation of nature did not exclude such an impact by its opinion

Assessment of stated goals of spatial planning

Stakeholders interviewed within this analysis see the current goals of spatial planning as mostly well-defined and they rather question to what extent these goals are followed in the practical spatial planning and decision-making. The goals' definition is perceived more negatively by those who deal with the everyday agenda of spatial development and who lack explicit emphasis on pro-active acting in the spatial development. It could be argued the sustainability framework calls for balance between pillars of sustainable development and balance between the needs of current and future generations, this said under condition of interpreting sustainability as a weak sustainability (Maier, 2012) means to find the solution of highest net present value. The real issue is this perspective is not so much reflected because in the following process each body protecting public interests has conditions what must be protected and real negotiation when some potential interests are left unprotected to support other aspects of sustainability are rare. Therefore as already mentioned, the goals stated in law seem to be defined well.

The broad goal of sustainable development seems to be aligned with international good practice and also planning literature, for instance referring to Crane and Weber (2015).

As it was already mentioned, the problem arises when general principles of sustainable development are applied on a level of a particular part of a region or municipality and it is not immediately obvious what the actual value of various options is in the framework of sustainable development. In other words whether under the given circumstances it is more worthile to protect existing values to develop new values. It has been repeatedly pointed out as a problem that the Building Act does not clarify who is responsible to detail requirements of sustainable development on all geographic scales that would become a baseline with which possible planning outcomes are compared.

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A frequently shared opinion is that there is too strong of an emphasis on environmental protection. Some stakeholders have admitted that environmental protection is gaining negative connotations among general public and other stakeholders. It does not seem that the problem is embedded in the spatial planning goals but rather later in the spatial planning processes as goals themselves are seemingly balanced.

It was also mentioned that the stated goals are not systematic and their detail is inconsistent. As an example articles 1 to 4 are very broad and conceptual while articles 5 and 6 are inconsistently much more detailed compared to previous ones.

In overall, stakeholders rated the goals of spatial development in the survey with grade slightly below 2.5 that is actually the best grade in the survey out of all graded themes of spatial development and spatial planning. All but three stakeholders rated the goals on average between 2 and 3 while permitting authorities on regional level and NGOs were more positive with grades below 2 and on the other hand investors and developers rated goals at 3.875. Representatives of academic sector rated goals with an average grade of 2.5, but there is significant variation within their group as standard deviation of their responses is very high. Relatively higher standard deviations and therefore heterogeneity in views on spatial planning goals was also recorded for regional authorities and municipalities and for companies preparing spatial planning documentation (including both private and public organizations).

Figure 1: Stakeholders' opinion on spatial planning goals
The bars represent mean values, dots median values, ticks one standard deviation from the mean and the number of respondents is given at the base of each bar

1.2. Position and state of spatial planning

The Czech Republic spatial planning belongs to the Eastern European group with the planning style belonging to a land-use category (together with Malta and Cyprus) with a move towards more comprehensive and strategic planning after the introduction of 2006 Building Act (Tosics, et al., 2010). The interviews have confirmed that the planning tradition has not been settled yet. The Czech Republic has both geographically close northern more integrated planning approaches and southern more urbanism approaches. The urbanism approach is gradually more emphasised as a response to the poor quality of urban environment built in the second half of 20th century and later. Although the urbanism spatial planning approach seems to have support, especially among architects who are largely drafting spatial plans in the Czech Republic, there are currently missing instruments in spatial planning documentation that would enable full implementation of it because a significant share of available resources is spent on practically obligatory spatial plans with limited willingness to proceed to commission more detailed planning documentation – regulation plan. Besides that almost all stakeholders agree that the process of drafting, consulting and authorising regulation plans makes them not feasible. For that reason proponents of the urbanism approach are largely missing the appropriate tool for such a kind of spatial planning.

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The Czech spatial planning system structure is typically said to be robust with hierarchy of national, regional and local plans with their distinct competencies and responsibilities but at the same time the planning system cannot deliver expected outcomes for instance in case of suburbanization (OECD, 2018a). When compared to other EU countries the Czech Republic has one of the lowest spatial planning efficiency (Fialová, Čechová, & Kunešová, 2015).

The interviews have revealed the current system fits needs of the state administration but it fails reaching goals of spatial development on the municipal level. In several interviews was mentioned the Building Act is now perceived well as it adopted amendments required by various ministries or state agencies. The problem arise from the fact if these requirements are not coordinated they might not achieve sustainable development goals. This seems to be related to another mentioned problem the Building Act requires all administration bodies protecting public interest simply to protect. Therefore for many of them the goal is not to find a mutually acceptable negotiated solution where all have to step back from some of their initial requirements, but they rather deny any proposal that just marginally affect some of their public interest subject to their protection not taking into account other potential benefits that might arise.

The above described seems to be deeply rooted in the traditional functional division of authorities and responsibilities between ministries and organizations that are not much motivated to cooperate and they rather appreciate they have ultimate decision power over some agenda and they are not willing to give up this right and have only recommendatory power and role in negotiations. It was admitted in an interview with authority protecting public interest that it is a problem there is too many of them and find consensus is complicated, but they would prefer to keep this system rather than reform it and loose the opportunity to have ultimate power over some agenda in the process. It might be also one of reasons why some stakeholders named spatial planning reform a threat to spatial planning and development in the Czech Republic. This is obviously a crucial obstacle to any reform, because all ministries and state administration organizations will likely be against such a reform where they lose some powers and it makes it politically undesirable.

Perception of the state of spatial planning also varied according to preferred approach to spatial planning. While stakeholders less critical to predominantly functional planning in the modernist tradition are more likely to be positive about current system of spatial planning, stakeholders favouring either new urbanism approaches or integrated planning are more likely to be more critical.

In the stakeholders‘ survey the current system of spatial planning is rated on average slightly above 3. There are no significant differences between stakeholders‘ groups, but there is a significant variation within members of the academic sector and among professionals drafting spatial planning documents. The best rating is given by ministries and state agencies and conversely the worst rating is given by local permitting authorities and investors and developers.

Figure 2: Stakeholders’ opinion on spatial planning system
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

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Missing cross-professional integrated approach

The current system of spatial planning shows a high degree of separation of agendas regarding spatial planning between ministries and agencies protecting public interests. This has been pointed out for instance by the OECD (OECD, 2018a) that claimed spatial planning in the Czech Republic is not coordinated with land management, economic policy, transport policy or taxation. OECD also recommends taking a more integrated approach in spatial planning (OECD, 2017b). The non-standard co-existence of spatial planning and strategic planning and the need of their coordination is also emphasized in Maier et al. (2015). The lack of integrated cross-ministrial and interdisciplinary approach was confirmed during our stakeholders' interviews.

Majority of stakeholders representing state administration, especially on the national level, are convinced the system overally performs well and there are no needs for significant changes or reforms. Actually many of them see current attempt of a Building Act reform as a significant threat. They often argue the process works well on their side and they are either not aware of any problems or they claim problems are within competencies of other actors.

The insufficiencies of current system are frequently mentioned by local authorities, elected representations and professionals in the spatial planning and actors directly involved in real-estate development. It seems the national administration and various agencies protecting public interests were able over time to fit the system to their needs, but this system does not address well issues of local spatial development.

This might be caused by several potential factors. The first reason is possibly inefficient information feedback from the local level to the national level that does not allow appropriately analyze and evaluate severity of problems in spatial development and then respond with sound public policy. This includes for instance lack of central collection of some important data such as spatial and building permits lengths and market indicators of regional attractiveness such as level of wages on local level, economic activity on local level or real estate values on local level. Although it seems a lot of data is being collected, it is then not processed and distributed to stakeholders who would exploit these data for policy-making purposes. This largely limits the currently common data-based decision making approach.

Besides information deficiency the problem might be also rooted in the institutional organization where it might be unclear for instance which ministry should be in charge of solving multi-sectoral problems that typically arise in spatial development. This could effectively impede policy responses to problems that require integrated approach. The low ability to respond to multisectoral problem might be also caused by low awareness of overall goals in spatial development and generally current trends in spatial planning by sectoral experts. It seems many professionals have high level of expertise in their fields, but might not be oriented well in the overall goals of sustainable development. It was mentioned during interviews experts especially with technical education background might find difficult to interpret abstract goals stated in strategic documents into concrete implications in spatial planning.

Links to strategic planning and development management

Separation of spatial planning from strategic planning is not common in the European context (Maier, et al., 2015). Currently the system of spatial planning is highly formalised in the Building Act[1] while broader strategic planning on the national, regional and municipal level is less formally regulated within the Act on Support of Regional Development[2]. These two acts are almost not mutually coordinated. Based on the two legal branches there exist two parallel spatially-oriented policies: On the national level there are Spatial development policy and Regional development strategy, on the regional level Development principles and Regional development program and on the municipal level there are Spatial plans and more detailed Regulatory plans according to the

[1] Act no. 183/2006 Coll.
[2] Act no. 248/2000 Coll.

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Building Act and local development plans or often called Strategic plans according to the Act on Support of Regional Development.

When the goals of the Building Act and Act on Support of Regional Development are compared there are many overlaps but almost no coordination and it is also unclear whether spatial planning is subordinated to strategic planning or it is vice versa. The goals and tasks of spatial planning according to the Building Act are among others to create preconditions for construction and spatial development and coordinate public and private interests and to propose the concept of spatial development. The Regional development strategy defined by the Act on Support of Regional Development for instance proposes national priorities to promote dynamic and balanced spatial development[3]. In the following paragraph on process of drafting the strategy it is stated the strategy should be based among others on Spatial development policy and other spatial planning documents defined by the Building Act. Similar requirement is given for preparation of Spatial development policy, in particular it should be among others based on documents based on the Act on Support of Regional Development. In case of municipal-level spatial plan there is no explicit requirement to propose it in accordance with strategic planning documents[4]. Despite the weak coordination there is not stated which stream of the planning should be subordinated to the other despite the principle of wider scale of planning should be above more detailed planning suggests the spatial planning should be subordinated to the strategic planning (or regional development planning as is often called).

The spatial planning in the Czech Republic seems to work very limitedly with market signals such as property prices and local wages that manifest local productivities, quality of environment and conditions for new development. As it is noted by Cheshire, Nathan and Overman (2015) understanding economics behind spatial development is crucial for improving spatial policies.

As stakeholders in spatial planning commented during interviews if they want to consider strategic planning they are largely dependent on local communication between different offices responsible for other than spatial planning. If the spatial planning is drafted by private company it is much more about them to what extent they follow strategic documentation. It was also confirmed there are in general no given requirements that would emphasise the need of mutual cooperation.

Current difficulties might also arise from understanding the role of spatial planning as it is given by the law. The stated goals of spatial planning tasks spatial planning to "create preconditions for construction and sustainable development" that is indeed a broad agenda. But on the other hand the set of instruments given to achieve this agenda is considerably limited, predominantly based in functional zoning[5] documents on three governmental levels. As a result many problems easily tackled by other instruments of public policies are inefficiently addressed by spatial planning documents.

There is also an ambiguous effect of national and EU subsidies on strategic planning. EU funding typically requires some form of strategic planning document so it incentivised many municipalities to make such plans that would otherwise not prepare them. On the other hand it seems these documents are often prepared to match current subsidy programs. As a result projects of main importance that might take longer than 6 to 8 years to prepare might be systematically neglected. Certain decrease in long-term strategic planning as a response to EU funding was mentioned. As municipalities have extremely limited fiscal autonomy and regular transfers seem to cover rather only current costs there are no additional resources for planned long-term investment. Instead in terms of investments municipalities rely on subsidies that are not predictable in the long-term. As a result there is lack of motivation to prepare long-term strategic documents because there is not any stable source of possible financing without need to fit projects constraints given in subsidy programs.

[3] §6, letter b) of the Act no. 248/2000 Coll.
[4] according to the Attachment 6 of the Decree no. 500/2006 Coll.
[5] Land use intensity, conditions for public amenities, infrastructure and phasing could and often are also planned, but functional zoning has a prime role.

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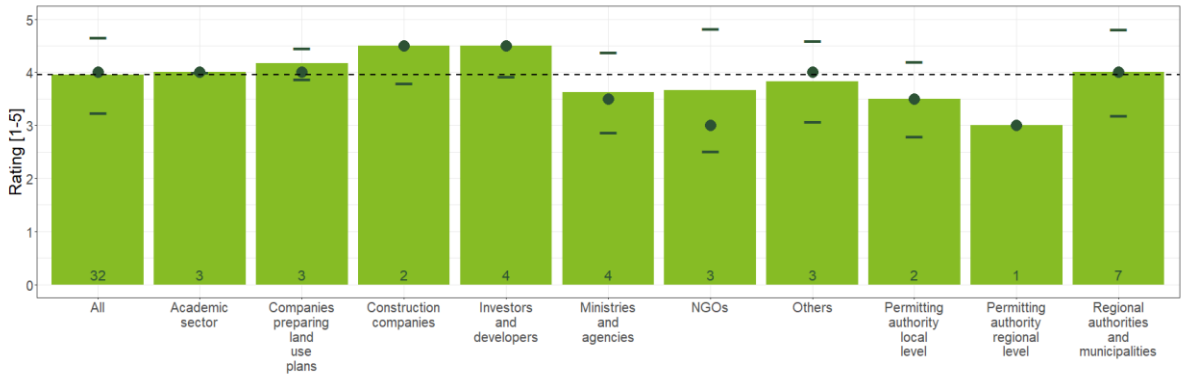
The survey among stakeholders had one question focused on the connection between spatial and strategic planning and one on how successful the realisation is of projects of regional and national importance. These two questions were graded with 2 worst grades of all questions, around 3.7 in case of the connectedness of spatial and strategic planning and 3.9 for planning and realization of project of regional and national importance. Very poor rating of both of these issues confirms dismal condition of broader spatial management. The interesting finding in these two questions, despite being seen as also problematic, is a better rating by ministries and national agencies and regional permitting authorities. It suggests the system might seem to work sufficiently from the upper level of government, but this view is not shared by other stakeholders. For instance during interviews some stakeholders from ministries and national agencies and to some extent from regional authorities did not consider the planning and realisation of projects of national or regional importance as very problematic or at least they did not see problems on their side.

Figure 3: Stakeholders' opinion on linkages between spatial and strategic planning
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

Figure 4: Stakeholders' opinion on planning and realization of projects of regional and national interest
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar



1.3. Spatial planning themes

This chapter introduces several identified themes in spatial planning that combines more aspects such as actors involvement, planning processes and instruments.

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Values protection

The Czech Charter of Fundamental Rights and Basic Freedoms in its article 11, paragraph 4 states: "Expropriation or some other mandatory limitation upon property rights is permitted in the public interest, on the basis of law, and for compensation"[6] [7]. The spatial planning documents may limit the owner to exercise his property rights and therefore decrease the value of his property. The aim of the Building Act said differently is to achieve the highest social utility in the long term, but this might come at costs for some stakeholders.

The implementation of the requirement to compensate losses caused by limitation of exercising property rights seems to be very narrow. It practically applies only to land expropriation when land is expropriated for fair value, but it does not take into account many other cases when property rights are affected[8]. Decrease in property values could be interpreted as 'limitation upon property rights' and following this argument for instance excessive restrictions on land-use function and intensities and proposing nuisant land-uses such as transport infrastructure should be compensated as well.

The intention of spatial planning is to increase overall net benefits, so under the assumption of appropriate planning benefits should outweigh negatives and stakeholders ending up with net loss should be compensated and as the planning results in net benefit the project would be still beneficial even when negatively affected stakeholders are compensated for their losses.

At this point it is not important whether the stakeholder is private or is represented by public institution. The public institution might be thought as an entity entitled with property rights to some collectively shared value. Such an example might be urban public space and municipality that is entitled to take care of it.

As the current system is not based on this approach of gains, losses and compensating mechanisms many stakeholders do not see the values they protect are continuous rather than discrete. For instance major transport infrastructure such as motorway is likely to have high overall value but still might significantly negatively affect some real estate owners in future proximity or might negatively affect a woods with significant natural value. In the system without compensating mechanisms both real estate owners and body protecting local environment face two discrete options: the infrastructure is permitted and built and they face net loss or they stop the project and values they protect are not affected. Therefore they are likely to use any feasible tool to resist the project. If there are compensating mechanisms both stakeholders should be compensated to be indifferent between accepting the project to be built and not building it at all. This approach seems to bring more fairness and also mitigate many potential conflicts.

It seems inadequate conceptualisation of real estate property rights and right to some other features of habitable environment, such as accessibility to recreation areas or unpolluted air and water, in terms of their value and inability to trade rights for these values negatively affects fluency and efficiency of spatial planning. It seems if compensations were more common and accepted even more interventions into property rights in the name of public interest would be socially acceptable, such as land mergers brownfields with fragmented ownership or areas that need significant public investment to promote their development potential.

Low emphasis on negotiation

The problem of negotiation directly follows the previously described problem of ambiguous understanding values and their operationalisation in spatial planning and further steps of

[6] Constitutional act No. 2/1993 Coll.
[7] Very similar wording regarding limitiation of use of private property is for instance in the Fifth amendment to the US Constitution: „nor shall private property be taken for public use, without just compensation" (Fischel, 1987)
[8] Under some conditions according to the §102 of the Building Act land owner could be compensated if developable land is turned into undevelopable.

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development approval processes. The goal of spatial development should be sustainable development as stated in Section18, article 1 of the Building Act. Despite the broad definition of the goal of spatial planning the actual implementation of this goal is complicated because actual balancing of intentions in the perspective of their contribution to the goals of sustainable development is largely missing. This was also reflected during stakeholders' interviews when most of stakeholders agreed on appropriate formulation of the goal of spatial planning in the Building Act, but then they were more or less critical about implementation of this goal in the spatial planning system.

Less convincing outcomes of the spatial planning are probably caused by several factors. The first one, mentioned during stakeholders' interviews, is the way in which the Building Act is written. While stating at the beginning requirements for sustainable development in the beginning in general, later on the Act focuses mostly on regulation in a restrictive way and not promoting enough expectable needs of reasonable development. This issue is tightly connected to the second one, the position of state authorities in the process of commissioning of the spatial plan. State authorities issue their statements that are obligatory and must be followed.

The regulatory nature of the Building Act and related acts is complicated. The state authorities protecting public interest are tasked to protect particular objectives specified by law or defiled ordinances, but they do not have to provide value of these features nor there is assumed more holistic authority to evaluate what public interest should desire more or less protection in any individual case. In case of the building permitting process this role should be fulfilled by the Building Authority that can follow specific mechanism to resolve struggles between state authorities. In principle state authorities are not motivated to negotiate because there are no compensating mechanisms so the proponent of any activity cannot actually offer compensation for some loss because there is no framework to follow.

As a result we do not see true negotiations despite it is assumed by the Building Act promotes agreement on sustainable development. Instead the process is more likely about convincing stakeholders about legitimacy of ones requirements.

Uncertainty and speculation

According to Koucký the current Prague zoning plan requires too low floor area ratios that does not allow profitable development. Koucký concludes this motivates developers to file zoning plan changes that would allow profitable development and he sees this as a problem of current zoning plan that inherently require its future changes (Koucký, 2017). From the economic perspective it might be argued if the political representation wanted to keep lower densities originally proposed in the plan and if it did not change the original plan, the land values would be lower to allow just marginally profitable development within the zoned regulation. But as political representation allowed increasing densities above the planned levels this drove land values up as land owners capitalized this, although risky, opportunity of increasing developable densities on their land. For instance Prague 1999 spatial plan undergone 732 adjustments and 2112 changes between 1999 and 2014 (IPR Praha, 2014). As a result, as land owners see there is some probability of obtaining spatial plan change and increasing build-able densities they project value of this potential into land value and in many setting new value will not allow for already planned low densities. Although it might be argued originally proposed densities were unreasonably low, it was not what made them undevelopable. It was unpredictability of the spatial plan that allowed for increasing densities.

The above shown example deals with speculation for increasing land-use densities, but it similarly holds for speculation on converting agricultural land into developable land. In particular it is acquisition of zoned agricultural land with expectation of its rezoning to developable land. From the theoretical perspective the current Czech planning practice could be compared to Fujita's model of urban fringe zoning (Fujita, 1989). The Fujita's model is derived from the classical monocentric city model and its key feature is boundary rent curve $\hat{R}(r)$ that marks what a land rent at the city edge. Under no zoning regulation the boundary land rent curve intersect agricultural land rent (R_A) from above and from a point further from the CBD land is not developed, because agricultural land is

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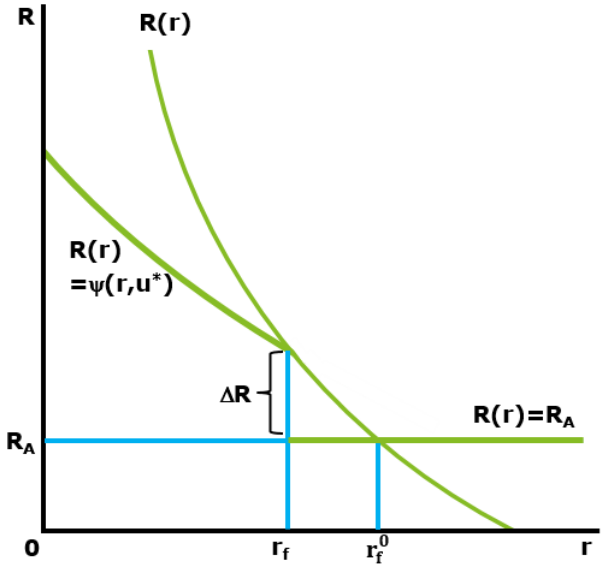
higher than rent from built-up land. In this case the land rent is continuous with respect to the distance to the CBD. When urban fringe zoning is imposed, that does not allow to develop agricultural land beyond given point, it could have two results. Either the regulation is not binding and land-use is not affected, or it is binding and force city to have smaller built-up area that it would otherwise have without any regulation. This regulation therefore pushes city the fringe boundary closer to the CBD and as the urban fringe boundary shifts inward so the land rent at this boundary changes to reflect the boundary rent curve. This theoretical model captures main features driving land speculation: The profit from changing undevelopable land to developable is given by their value difference (ΔR) times the probability of opportunity to change the plan. The more attractive the location is (closer to the CBD) the higher the value difference and expected profit from land-use change is given same probability to change the plan. If there is some probability to change the plan and increase its development capacity, it will therefore capitalize into the land values and the larger the value difference and the probability to increase developable densities is the less likely land will be developed at originally planned densities.

Figure 5: Land rent tax and urban fringe zoning
According to Fujita (1989)



Public amenities provision efficiency

It might be argued that the goal of sustainable spatial planning and following development is to provide an appropriate quality environment with a common level of amenities. In the case of publicly provided services, such as kindergartens and schools, the current spatial plan does not seem to be a good tool for securing these services. IPR Praha (2014) has conducted analysis on the usage of 'publicly beneficial buildings' proposed for kindergartens in the 1999 Prague zoning plan and compared them with actual construction of new kindergartens in Prague since 2000. They argue the most of planned 'publicly beneficial building' sites were not utilised although plenty of new kindergartens were built. They conclude that the problem of provision of public infrastructure does not seem to be a lack of plots, but rather poor overregulated conditions for their provision.

The problem of current spatial planning documentation is its separation from municipal investment planning and longer-term strategy. Therefore spatial plans typically only mark a plot on map to be developed as a public infrastructure, but this does not actually mean it will ever be built and a service provided. The additional limitation is fixing the public amenity as a geographical projection into the planning documentation. This seems to be rather problematic as it is in advance very hard to predict where to locate public facilities in large development or redevelopment sites elaborated in the scale 1:10,000 without further details of street networks and points of interest. Moreover the

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current preference to allocate public amenities on already publicly own land might lead in many cases to suboptimal planning outcomes as publicly owned land might not be optimally located for some public amenities. Although it would be in overall more efficient to trade the land between public sector and private land owners, this is currently not the case as there seems to be missing efficient processes that would mediate such a deal.

For these purposes it seems much more reasonable the parametric definition of amenities requirements and condition later development by agreement of public and private sector on land transfers to meet these requirements.

Therefore, investments into the new infrastructure are likely more efficiently ensurable by these obligatory mutual agreements between public and private sector. Similarly there is no need to define specific functional use for public services in the regulatory spatial planning documentation because the public sector either owns buildings where it provides public services or rents these facilities on the free market.

Alternative approaches to spatial planning on municipal level

The postmodern period is called by some pluralistic. This should be also reflected in spatial planning. While there are arising new approaches to spatial planning, for example some preferred new urbanism or form-based regulation while others would like to take more integrated spatial planning and some are comfortable with the newer version of functional zoning derived from the traditional approach. In terms of levels and details of documentations some municipalities might prefer to have one detailed plan covering the whole area while others might prefer two or even three layers of documentation with different level of detail and land coverage. It seems there is no clear response on which approach and documentation structure is better and it is rather dependent on local circumstances. In this perspective requirements on spatial planning documentation as they are given in the implementing regulation[9] are overly binding and in the case of spatial plan too focused on functional zoning.

An example of new approach to spatial planning is for instance the new Prague Metropolitan plan that defined new objectives for Prague planning. One of primary objectives is the need to rethink 20th century's expansive growth (Koucký, 2006; Koucký, 2017) and focus on better utilisation of land left undeveloped within the city limits. An example of land underutilisation in Prague is its large share of undeveloped permeable "green" areas that are poorly maintained and are called urban jungles. Stated in other words potential of these sites is not utilized. These sites could be either better maintained to provide green amenities value or developed to use scarce developable land. Koucký concludes that they have decided to allow new development on 25 out of 100 of these urban jungles. Another objective of spatial regulation is the definition of building heights in all locations rather than simple maximum intensity of land use. This new height regulation is motivated by the need for height composition derived from the Prague landscape morphology and already built-up city form (Koucký, 2017).

But the above mentioned is only one example of a new planning approach in the Czech Republic. It is highly likely this approach would not fit other cities and other cities might develop completely different regulation of some specific features relevant to their context while have their spatial planning system still within given general standards.

Need for standardization

Despite the need for individualised regulation to fit needs of all municipalities and regions there is also a need to keep some level of standardization especially to be able to monitor and evaluate policies taken on by the lower levels of government and to have appropriate planning materials for regional and national level projects.

[9] Atachments 6,7,9 and 11 to Decree no. 500/2006 Coll.

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In terms of the need for standardization of the planning documentation there is no consensus among stakeholders in spatial planning. While ministries and agencies on national and to some extent regional level would prefer much more standardised documentation, more standardised planning documentation is largely declined by stakeholders on the municipal level as they are afraid it would not meet their expectations about intended regulation.

Broadly speaking there was some consensus about standardization of some spatial planning layers that would be present in obligatory drawings, but the main purpose of these drawings would be to provide information for upper levels of government and for instance the main regulatory drawing would be left in complete competencies of municipalities.

Much more consensus was regarding the need to standardise data used for spatial planning, spatial analytical materials and produce spatial planning documentation in geodata presented and available through national geoportal where all geographic data would be provided. The availability of spatial planning data seemed to be the most important point.

Regarding the data needed for planning most of stakeholders do not see there are some data missing. Mentioned were for instance data about water cycle in landscape and drought preventions, urban climate conditions and urban heat island and settlement carbon footprint. Besides datasets mentioned in the interviews it seems additional highly important datasets are wages on local level, detailed real estate values, mobility patterns, opportunities for promoting low-carbon economy and data from evaluations of public policies including spatial planning.

High pressure on plans' justification

There is almost universal agreement on the fact the spatial planning documentation and building-permitting processes suffer from extremely formal and exhaustive requirements on the justification part. This is said to negatively affect the whole system from several directions.

On the side of spatial planning documentation producers (companies drafting spatial plans) there is much less time and space to work on quality solutions to the planning problems and instead much more time and effort is devoted to justification that has no effect on the quality of planning output and future spatial development that should be the primary objective of spatial planning.

Secondly, the requirements on justification in the case of spatial and building permits are commonly beyond expectable skills of professionals working at building permitting authorities as education in civil engineering, architecture and urbanism or spatial planning do not provide legal background that is gradually getting more important.

As a result of enlargement of the body of justification this part seems to be much more vulnerable to make a mistake. As it was mentioned in interviews some activist groups fighting against particular projects are very skilled in searching mistakes in the formal parts of spatial planning documentation or permits and exploit them to achieve their goals.

It seems the justification of spatial plans and building permitting documents do not bring any significant positives that would outweigh immense drawbacks it possess to the system of spatial planning and spatial development as a whole.

1.4. Administrative subdivision

Spatial reach of planning authority

Planning authority over the area is given by the administrative subdivision of the Czech Republic. The main drawback of this organization is large number of self-governing municipalities and their missing development coordination in functional areas of urban agglomerations.

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Czech municipalities are in terms of population on average smallest among OECD countries (OECD, 2016). Besides fragmented municipalities less efficient in providing public services better suited for larger populations their fragmentation limits effective coordination in spatial planning and development. To overcome administrative fragmentation OECD lists examples how to approach this problem.

The first option is providing incentives for merging municipalities. Denmark reformed local responsibilities and financing and imposed minimum size of municipality to 20,000. This was followed by bottom-up municipalities' merger. The number of municipalities in Greece was reduced to 325, one third of original number, in 2011 and municipalities were given more competencies and financing. In France inter-municipal coordination is compulsory in some cases, but currently government motivates municipalities to merge into larger 'communities of municipalities'. In both the Netherlands and Switzerland a higher level regional governments provide assistance to municipalities to evaluate potential mergers. In the Netherlands there is also grant for temporary merger that pays for merger costs and lasts 5 years.

The second option for public administration optimisation is joint provision of services by several municipalities that separately does not exceed some size threshold. For instance in Italy municipalities below 5000 inhabitants have to provide jointly basic public services and share expenses. In Hungary reform in 2010 municipalities below 2000 inhabitants have to share their administrative offices but keep their own mayor (OECD, 2016).

All three examples of municipalities mergers in Denmark, Greece and France, although some mandatory and some under incentives, include some kind of benefits for municipalities if they merge that they would had not otherwise received. This is an important motivation because forced municipal merger is politically extremely risky and undesired. On the other hand it might be also caused by political opportunism when limited competencies on municipal level are accepted by local governments because then they can easily claim the problems to be caused by other authorities.

Although there are some instruments coordinating spatial development, such as integrated territorial investments aiming at coordinated and complex grant funding in agglomeration areas or integrated transport services like Prague integrated transport (PID), there does not seem to be successful inter-municipal coordination in terms of spatial planning. This problem was identified when works on Prague Metropolitan plan has begun and communication at that time between Prague and its neighbouring Central Bohemian region was almost missing. Although a cooperation memorandum was signed it did not seem to have significant effect (Koucký, 2017).

Clash of functional and administrative division

To analyse relation between administrative subdivision and functional organization we have used analysis of commuting flows presented in Annex 3 from its methodological and economic perspective (see). The overlaid map of Czech administrative subdivision and commuting areas show only limited alignment. The map shows division into Regions (middle self-governing unit), municipalities with transferred state powers (ORPs) and municipalities (local self-governing unit).

It seems the most salient clash of administrative and functional subdivision on the upper scale is in case of the Prague agglomeration that spans across two separate regions, the Central Bohemian region and the Prague capital. Unlike other commuting areas where spatial reach outside of its own region is marginal, the Prague agglomeration is in term of population divided into two almost comparable parts with 35% of agglomeration population residing beyond the Prague city limits. From the planning perspective this is a problem that can be hardly addressed if planning should be executed by self-governing powers on one hand and have tools to effectively coordinate spatial development over the whole functional are. The only superior self-governing unit above regions is the national government.

The problem of administrative subdivision and functional relations in the Prague metropolitan region was anticipated already in the initial stage of Metropolitan plan in 2012. Roman Koucký

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argues the Metropolitan plan should actively state vision of metropolitan's region structure and this plan should be a base for further development coordination in the Prague and Central Bohemian region area (Koucký, 2017). Koucký illustrates this situation with present development activity right behind the Prague administrative boundaries. At the same time he claims any initiative from the Prague's side is immediately neglected as 'Prago-centric'.

The detailed table below shows 15 agglomerations with highest absolute numbers of residents living outside of the region where agglomeration core is located. The first column next to agglomeration name lists number of residents living in the region where agglomeration core is located, next column shows number of residents living outside of the core agglomeration region and the last column shows share of residents living outside of the core agglomeration on total agglomeration population. It could be immediately observed the special case of Prague spanning across two regions is the only one in the Czech Republic. Out of all 306 defined agglomerations only two additional ones have more than 10% of their population outside of their core region, and these are relatively small Olešnice and Bystré, both with less than 3,000 inhabitants in the whole agglomeration. Although in Brno agglomeration approximately 12,000 inhabitants live outside of South-Moravian region, it is only 1.7% of the agglomeration's population.

From these results might be concluded the regional subdivision potentially fails to coordinate agglomeration development only in case of Prague where significant share of agglomeration population reside outside of the core agglomeration region. For other agglomerations than Prague spanning over multiple regions is rather exceptional and does not seem to be severe. In these cases in terms of functional organization there are regional governments as the first superior self-governing units.

Figure 6: Agglomerations spanning over regional borders

Agglomeration name	Population in the agglomeration core region	Population outside of the core agglomeration region	Share of agglomeration population outside of the core agglomeration region [%]
Praha	1 241 664	671 066	35.1
Brno	712 019	12 148	1.7
Hradec Králové	155 884	7 274	4.5
Mladá Boleslav	117 528	3 758	3.1
Mariánské Lázně	21 336	1 858	8
Vrchlabí	18 962	1 847	8.9
Přerov	71 618	984	1.4
Tábor	69 409	654	0.9
Roudnice nad Labem	24 126	596	2.4
Česká Kamenice	5 750	456	7.3
Bystřice pod Hostýnem	13 444	446	3.2
Jičín	33 482	436	1.3
Olešnice	2 497	429	14.7
Pacov	7 920	400	4.8
Bystré	2 297	355	13.4

In the second step of the analysis same methodology was used to assess what share of population of each agglomeration is located within the core ORP and what share is located outside of it. In the table below are shown 30 agglomerations with the highest absolute numbers of residents living

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outside the agglomeration core ORP. As in the previous part of the analysis the table is led by Prague with same values that is caused by same delineation of regional and ORP borders in the Prague case. Prague is followed by Brno, Ostrava and Pilsen (Plzeň) where more than 100,000 agglomeration residents live outside of the core ORP. In Brno and Pilsen the share of population outside the core ORP is approaching one half, while Ostrava is close to Prague with approximately one third. Furthermore, more than 10,000 inhabitants are living outside of the agglomeration core ORP in 15 agglomerations while majority of them are regional capitals.

This analysis shows ORPs are not conveniently defined to safeguard coordinated agglomeration development as they do not completely cover agglomeration areas in case of larger cities (regional capitals) or smaller towns serving wider areas (Mladá Boleslav, Žďár nad Sázavou). At the same time two thirds of all agglomerations are completely within one ORP. Despite most of agglomerations located only within one ORP are typically the small ones, there are exceptions such as Chomutov (almost 80,000 inhabitants in the agglomeration) or Děčín (68,000). The heterogeneity in relations between agglomeration boundaries and ORP borders most likely requires to define agglomerations for the purpose of spatial planning separately. This could be done at the regional level as it was shown previously agglomerations do not cross regional borders with the exception of Prague where the coordination of Prague and Central-Bohemian region is necessary.

Figure 7: Agglomerations spanning over ORP borders

Agglomeration name	Population in the agglomeration core ORP	Population outside of the core agglomeration ORP	Share of agglomeration population outside of the core agglomeration ORP [%]
Praha	1 241 664	671 066	35.1
Brno	378 965	345 202	47.7
Ostrava	329 961	192 185	36.8
Plzeň	184 871	163 224	46.9
Zlín	99 218	57 798	36.8
Olomouc	160 686	45 339	22
Karlovy Vary	68 839	36 438	34.6
České Budějovice	154 786	33 034	17.6
Třinec	52 653	22 375	29.8
Pardubice	120 018	22 008	15.5
Opava	93 237	19 393	17.2
Mladá Boleslav	102 866	18 420	15.2
Hradec Králové	144 998	18 160	11.1
Žďár nad Sázavou	41 435	16 981	29.1
Liberec	136 576	16 535	10.8
Jablonec nad Nisou	53 796	7 535	12.3
Jihlava	98 138	7 125	6.8
Přerov	67 444	5 158	7.1
Šumperk	62 594	4 881	7.2
Frýdek-Místek	83 303	4 563	5.2
Mohelnice	18 526	3 309	15.2
Domažlice	24 668	3 176	11.4
Valašské Meziříčí	41 935	2 962	6.6

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Agglomeration name	Population in the agglomeration core ORP	Population outside of the core agglomeration ORP	Share of agglomeration population outside of the core agglomeration ORP [%]
Česká Lípa	51 525	2 328	4.3
Frenštát pod Radhoštěm	19 079	2 193	10.3
Písek	46 339	2 081	4.3
Mariánské Lázně	21 336	1 858	8
Vrchlabí	18 962	1 847	8.9
Kolín	56 830	1 689	2.9
Klatovy	42 233	1 626	3.7

This analysis of clash administrative and functional subdivision was done for the purpose of analysing the problem and its severity. The functional agglomerations defined in this analysis are not intended to be directly used as units for spatial planning for several reasons. First of all the analysis is based on 2011 Census data that are the only one publicly available data containing national-wide commute flows. Secondly the estimation of agglomerations is done a-priory given the parameters are the same for the whole Czech Republic without considering local specifics. Thirdly, we did not restrict the minimum size of an agglomeration and for that reason some estimated agglomerations might be below the efficient size for which agglomeration-wide planning should be done. Due to these reasons we believe this methodological approach is a good initial step that should be followed by individual consideration of each agglomeration done both at the central and local levels.

Although the agglomeration-scaled planning seems to be crucial when addressing needs of contemporary settlements they are uncommon even internationally. At this moment there are only 11 metropolitan or inter-municipal plans in OECD countries (OECD, 2017a).

1.5. Actors and stakeholders in spatial planning

Specific issues regarding the roles, involvement, rights and responsibilities of various actors in the spatial planning system are analysed in this chapter. Overall most of stakeholders see current roles and responsibilities appropriate. This might be actually not driven by conformity with the current system, but rather the unavailability of any better system or a general reluctance to change.

If there is one group of stakeholders that were repeatedly mentioned as impeding spatial planning processes and following rather individual intentions these are environmental protection associations that have several opportunities how to block projects ranging from Development principles through municipal spatial plans, EIA consents to spatial permits or during the judicial review.

In the stakeholders' opinion survey the cooperation between actors and stakeholders obtained average grade slightly below 3. Also the volatility of responses within each group of stakeholders is not significant. Grades worse than average are given by representatives of the academic sector. Conversely the best rating is given by ministries, national agencies and regional permitting authorities. In the interviews it turned out that authorities on the national level are generally fine with current modes of communication as it is given by law and they do not see much need to cooperate beyond the requirements of law. This contrasts with view of other stakeholders who are closer to local decision-making who often see current ways of cooperation given by law as unsatisfactory and promote local-specific methods of participation or would be willing to adjust rights of parties involved in the process.

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Figure 8: Stakeholders' opinion on cooperation between actors and stakeholders in spatial development
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

As interviews and supplementary surveys targeted most relevant groups of stakeholders it is possible to analyse their overall view of spatial planning system. All survey answers for an individual respondent are averaged and then average for each group of stakeholders is calculated. The results are plotted below. The overall averaged grade from the whole survey is slightly above 3 with standard deviation 0.6. Averages for all survey questions reveal relatively narrow range of answers. The most negative were investors and developers with grade around 3.9. The best grade 2.5 was given by regional permitting authorities and is followed by companies preparing land use plans with 2.7. It is worth noting the variation between grades of NGOs and ministries and national agencies is very low, therefore these groups seems to be relatively homogeneous and on average rating the spatial planning system better than average. On the other side there are academic sector, regional authorities and municipalities and other stakeholders that are in terms of responses not homogeneous groups.

Figure 9: Stakeholders' overall rating in the survey
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

Self-governing and state transferred powers

The dual system of self-government and state powers in the Czech spatial planning possess several problems. Here when referring to spatial planning we include spatial permit into the process as well because it might be considered as the final step of the process of deciding about the spatial development that is within competencies of self-government. In principle the role of procurer (representative of the state powers) in the process of spatial plan procurement should be guidance through the process of drafting, discussing and approving the plan. The interviews has shown this is not always the case and relations between procurer and municipal self-governances are

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complicated. Examples were for instance procurer's reluctance to accept unconventional planning solutions desirable by municipality, delaying the procurement process or rather protecting state's intentions in the area instead of protecting local intentions. It was said municipalities could be pushed to solutions preferred by state planning authorities and they might give up to ease and speed up the process although they would otherwise choose a different approach.

National-level administration and to some extent regional-level administration sometimes see local governments not having appropriate expert administration to deal with issues in spatial planning. State administration is in this case very reluctant and cautious in terms of attributing more decision making powers to local governments because they are afraid local governments would fail to evaluate public and private interests and make optimal decisions. This seems to partly arise from inadequate competencies division between the 3 levels of governments. If the principle of subsidiarity is implemented well the agenda managed by local governments should not significantly interfere into the different agenda of upper level government. It was also mentioned in the interviews the state powers believe to have more expertise that does not necessarily is true and also even if it is true state administration experts might lack knowledge of local affairs and might not evaluate well the overall local situation. It was said there is no significant need for different expertise on municipal, regional or national level. The difference should be in scales and agendas the planning and governments are responsible for.

Common arguments provided by the state authorities why local municipalities should not be completely responsible for the spatial planning includes risks related to short political cycle, lobbying and low institutional capacity of many municipalities due to their small size. While short political cycle indeed possess potential risks due to instability in case of unwise spatial development and frequent representation changes, it could on the other hand help successful municipalities develop and grow faster and maintain stable successful political representation. The argument of fragmented municipal government is also valid, but if small municipalities were offered an option to take complete responsibility of spatial planning they might be willing to create inter-municipal consortium to commission spatial plan together and share its costs. The inter-municipal cooperation rather than municipal merger was mentioned during interviews as potential response to the Czech municipal fragmentation.

One manifestation of struggles between current state-transferred powers and municipal self-governing powers arise when a municipality face urban planning problems that are hard to tackle with conventional planning instrument and municipalities commission an urban planner who proposes a spatial plan extraordinary within current planning practice. It seems these conflicts are prevailing in the Czech planning discipline, because for instance already Sitte wrote about regulations: "The desire to limit planning to the minimal amount is nothing else than demonstration of distrust against those who are responsible for it." he then develops argument that it is not possible to produce a good plan through bureaucratic process and express it in following hyperbole: "Even under assumption that each and every employee of municipal building authority has suitable abilities, knowledge, experience from foreign countries and required qualification, artistic talent and imagination needed for successful urban plan design, they would anyway not be all together in a bureaucratic organization able to produce anything else but dull, pedantic thinking with a taste of dust covering administrative files" (Sitte, 1995, p. 81) (translated by authors).

Vulnerability of the spatial planning process to obstructions

The participation and the extent to which various stakeholders can enter spatial planning processes is of significant importance. While the majority of stakeholders agree on importance to hear all relevant voices in spatial planning and development permitting processes, there is not a consensus on what should be the other rights of stakeholders besides the right to speak up.

It was mentioned in the interviews some stakeholders opposing development are willing to exploit any opportunity to slow down or completely stop such a project and unfortunately the Czech process of spatial planning and development permitting offer many chances for such an intervention. In this context it was said a party fighting against any private or public project

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typically bears very limited costs and therefore even low chances of stopping or slowing down bring them some net benefit while for the investors of the project these delays and unpredictable processes increase their costs significantly. This seems to be another result of inadequate sustainability assessment as raised objections are not evaluated in terms of possible costs and are not compared with benefits of the project in question. It was also mentioned there exist cases when several stakeholders blocked major developments due to marginal or formal objections and the system was unable to deny that objections despite delays caused high public or private losses.

Participation and individual rights protection

Public participation in spatial planning on the broader level seems to be not easy. As more stakeholders in the interviews agreed the general public is not so much interested in the main scope of spatial plan that is general spatial development framework of the settlement. Most of participants from general public are interested in regulations of their plots that is often not the target of the public participation events. That might be one reason why Roman Koucký claims: "Discussions do not work in the Czech Republic" (Koucký, 2017, page 35) as the expectations of participants and planners do not meet. Also a specific problem regarding participation is timing given by the Building Act that proposes the first hearing with the public already when the plan is drafted. This difficulty was mentioned during the process of the Prague Metropolitan plan preparation as there was no opportunity to publish the plan prior the public hearing without violating the Building Act (Koucký, 2017).

Preparation of spatial planning documentation, its consultation and discussions about new projects often uncover lot of conflicts between stakeholders. For instance Roman Koucký mentions insults in the press and defamations in the middle of 2016 when initial versions of the Metropolitan plan were submitted to the City hall department of spatial planning (Koucký, 2017). Some participants during the interviews reported there is a wide atmosphere of distrust when stakeholders exploit any opportunity to protect their interests without much considerations what are implications towards other stakeholders involved.

Some participants in the interviews pointed on the problem there is a necessity to properly reply to every raised objection and especially in case of thousands of objections to spatial plan this might significantly delay the process. On the other hand other participants claimed it is possible to overcome this issue by aggregation similar objections into bundles and reply to them collectively.

Participation in spatial planning and construction approval processes is frequently motivated by protection of own property rights. The motivations for opposing new projects with potential negative effects on local neighbourhoods in the environment without appropriate compensation mechanism are obvious. For some projects the effects on area in close proximity are ambiguous. For instance literature is unclear whether new residential construction in a neighbourhood has a positive or negative effect on value of neighbouring properties. Generally it seems the effect is more likely positive, but there are cases of specific projects that have negative effect. The results of this analysis done on Prague data are inconclusive (IPR Praha, 2018c).

Motivations for resisting new development might be also driven not by value preservation and loss avoidance, but also by willingness to increase value of own property. For instance Glaeser, Gyourko and Saks argue the rising opposition towards new development on Manhattan might be related to rising share of homeowners compared to decreasing share of renters over time. They argue the motivation of renters is rather to allow more construction because it would keep real estate prices as well as rents low while the motivation of homeowners is opposite as they are motivated to resist new construction that due to low supply increase the value of their property and therefore their wealth (Glaeser, Gyourko, & Saks, 2005b). Similarly it is argued citizens might choose anti-growth policies and it might be efficient for them until large number of other citizens decide to do it as well so they collectively impede economic growth (Schragger, 2016). It seems for this reason policies need regional or nationwide coordination to mitigate these inefficient outcomes that arise in framework of game theory.

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Academia and education

The stakeholders in general share view there is lack of education about spatial development and urban and spatial planning on all education levels that among others causes low awareness about spatial planning. It was noted many people are even not aware the agenda of spatial planning exists.

The problem of education in spatial planning begins already at primary and secondary level of schooling. It was mentioned as most of people have never been educated about the goals and principles of spatial planning they might not know how to approach it when they are in the role of elected representative and they are decision-maker or they take part in the participatory process. The related mentioned issue was that low awareness of spatial planning might be one of cause why many stakeholders start with their objections to development in the stage of spatial or building permit, because they were not aware of fact such kind of objection might be relevant more in the process of procuring spatial planning documentation and not in the process of spatial or building permit.

Regarding integrating strategic and spatial planning it was pointed out the education of professionals in these disciplines might be not wide enough to allow both groups of experts to cooperate. While for instance experts in spatial planning who have technical background might struggle with abstract multi-disciplinary character of strategic documents and their interpretation into as implications towards spatial planning documentation, experts in regional growth and geography might do not understand enough spatial dimension in regional development and might not enough emphasize spatial part of the plan. This mutual lack of understanding of professional behind strategic and spatial planning might be partly responsible for their practical separation.

The unsatisfactory education of spatial planners was mentioned several times during interviews. This issue could be then divided into more sub-problems. First, it was mentioned that the current education predominantly focused on architecture and spatial planning has not enough emphasis and separate spatial planning training such as separate masters' level could prepare future professionals better. Particular mentioned was the problem of missing experts with an education background known in western countries as urban planning that combines knowledge from geography, sociology, economics, urbanism, policy-making and law. Such an educational program seems to be missing in the Czech Republic now.

As a related problem the lack of professional experience of some authors of spatial planning documentation was mentioned. It was argued that the general quality of planning documentation prepared by larger planning companies is good and the quality is not sufficient in the case of authors who predominantly focus on architecture and spatial planning is the minority of their output. Nevertheless this opinion was rather from the state administration side and does not seem to be shared among all stakeholders.

Quantitative research comparable with research in the developed western countries is scarce in the Czech Republic[10]. That does not only limit education of experts in the field, but also limits provision of country-specific research results that could be taken into account during the policy-making process. Along the research in spatial development there is also lacking undergraduate and graduate level literature on spatial and urban economics, especially introducing quantitative approaches and empirical analytical techniques. Although a wide body of literature is available in English it does not seem it is frequently used.

1.6. Spatial planning processes and documents

Czech planning legislation is based on a traditional and long-lasting continuous approach. However, due to the complication when adopting new or changing current plans, the processes are long and exhausting. The processes are very complex and cause problems to the procurers especially with

[10] The results of research projects are listed at: http://www.uur.cz/default.asp?ID=4994

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assessing objections and later judicial review. The third aspect to be taken into account is that spatial planning instruments are often affected by regular changes of political representations.

This chapter analyses the identified issues of preparing spatial planning documents and its processes.

Documentation procurement processes

As was already mentioned, when drafting spatial planning documentation there is not any specific documentation that would in detail define what should be the sustainable development goals of the local development that should be reflected in the spatial plan and that would become the baseline to assess whether the spatial plan meets these requirements. Such a role could have for instance a strategic plan or might be in detail given in the task for the spatial plan approved by the municipal council, but it is not compulsory. Moreover even if such a framework is a-priori given there is no instrument that would make state authorities protecting public interests to follow these requirements stated by the municipal government when they assess the spatial plan and provide their obligatory statements.

During the interviews stakeholders agreed it is better to initially clarify what the municipality development goals should be. To prepare even a brief strategy was mentioned as a good approach on how to start with the spatial plan if there is not yet any formalised vision on future development. Roman Koucký claims he prefer when a spatial plan is commissioned with a more detailed task. As an example he described the experience from some cities where the first the spatial plan study was done and it became part of the spatial plan commission by the municipal council (Koucký, 2017). The initial step for a spatial plan study or preparation of a strategic plan is also a good opportunity for initial participatory events to capture local perception of a future development.

The process of commenting spatial planning documentation that is still in draft form largely relies on the assumed paper-form of commenting. Although the documentation might be provided in the digital format, according to the interviews it is typically in the pdf and not in spatial data that is much easier to handle (according to the law data have to be in digital vector format). In this respect it is expected it would be very beneficial to move the whole process digital and online via national geoportal.

Although not all stakeholders see it as a problem the extreme amount of objections typically submitted when spatial plans of large cities are prepared seems to impede spatial planning processes, especially as all objections must be answered.

Several stakeholders also pointed out there are some repetitive actions done in spatial planning processes and following building permitting processes and some requirements are very similar for instance in EIA and spatial permit processes or between spatial permit and building permit processes. Also the need of EIA consent for some low-nuisant uses such as residential, office or retail uses seems to be inappropriate as capacities for these uses are commonly already given by the spatial plan and therefore local acceptance of such development should be already secured by the spatial planning documentation.

Current spatial planning documents

The system of spatial planning in the Czech Republic is hierarchical with 3 levels: national, regional and local. Formally the system is robust and from this perspective correct. The problems arise in definition of plans on each level, their tasks and distinct competencies, because there is a lack of vertical cooperation in comprehensive planning and regional planning is weak (Tosics, et al., 2010). Especially some problems such as sub-urbanization are almost not considered on any appropriate level of spatial planning.

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According to the law current Czech spatial planning system on the municipal level requires functional zoning and also formal regulation such as built-up typological form, but zoning prevails in the planning practice. On the other hand it seems it does not allow to employ other tools that are otherwise in the competencies of municipalities, such as program of public space revitalization, management of public space program and other urban design tools that might be of a significant importance to local residents and businesses. Similarly there are some scarce spatial economic instruments within municipal competencies that are not projected in the spatial plans as well, such as parking fees or planned city centre tolls. In overall, the spatial planning system requires only one segment of spatial planning objective and does not easily allow to regulate others that might be of even higher importance given local circumstances.

The prevailing problem on the municipal level is theoretically assumed two-level system of plans. The legislative regulation assumed conceptual spatial plans for the whole municipality followed by detailed regulation plans used for decision-making. In practice detailed regulation plans are rarely prepared and most of decision-making is based on spatial plans. This practice lead to allowing spatial plans to be more detailed and rather conceptual framework has turned into overregulated document that must be frequently changed to comply with intended projects.

Another problem of the Czech spatial planning legislation is how requirements of the higher-level documentation are enforced in the lower level documentation. For instance Principles of spatial development are obligatory for the municipal zoning plan[11]. Although a better solution is found when preparing city zoning plan, it cannot be applied if it is not aligned with the higher-level documentation (Koucký, 2017). The possibility to adjust upper level documents when a better solution is found when elaborating on more detailed plans was largely acceptable by many stakeholders, but there were some who opposed this principle.

National and Regional level documents

The Spatial policy and Development principles are in general accepted and are said to have a rather minor problems. It seems the most salient issue of Development principles is its practical inability to manage supra-municipal development and therefore manage suburbanization. The problem of suburbanization and building-up free land was repeatedly named as a problem in the Czech spatial planning.

It was also mentioned the parallel system of spatial and strategic planning on the national and regional level is redundant as both of these levels treat development in more conceptual way and spatial strategies are more relevant to them. This argument seems plausible and merging these policies together and integrating them with mobility planning, public services provision and regional development subsidies would be probably more efficient.

This public policy merger could be accompanied by another proposal raised during interviews towards more distinct planning authorities. While currently the upper levels of government propose general planning goals the lower planning documents have to implement them in their planning documentations. The different model is based on concentration of competencies on the level relevant to the character of the planned feature. In that model for instance planning of the national infrastructure is within competencies of national government, planning of the agglomeration development distribution is on the regional level and development form and amenities provision is on the local level. This model would require more detailed competencies division, but could help with planning and building investments of national importance.

Spatial plans

It is discussed in other chapters that the spatial plans in the Czech Republic according to the regulation given by the Building Act and more detailed implementing decrees are largely focused on functional zoning as it could be seen on the sample of the 1999 Prague spatial plan shown

[11] There is the exception for Prague, where change to the municipal plan can run simultaneously with change to the regional plan (§ 8 of the Building Act).

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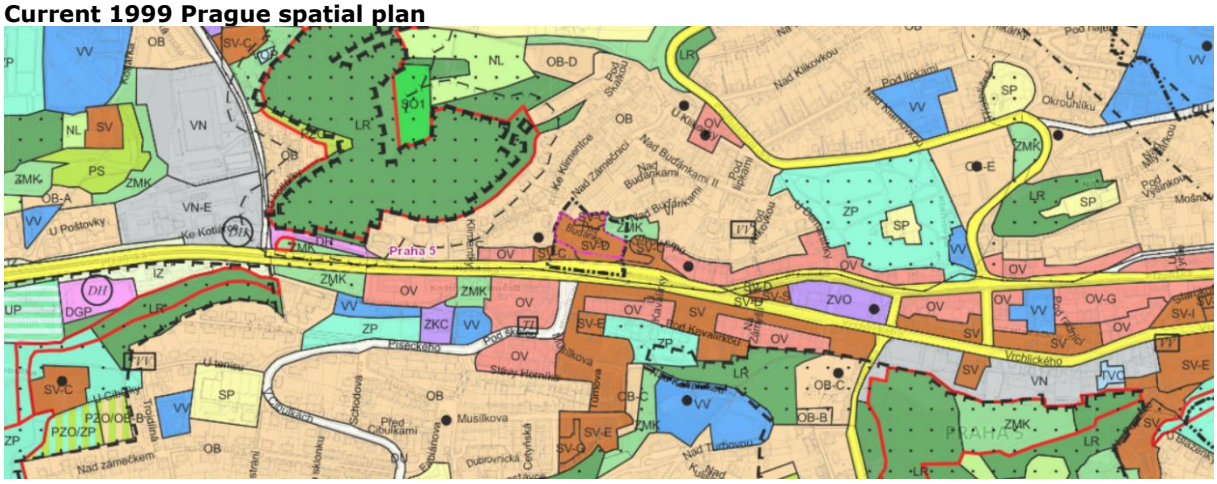
below. For instance Koucký claims the planning is moreover outdated, too much restrictive and does not allow enough flexibility that is required and that plans should be more flexible, be less regulative and discussion about individual projects should take place in the process of zoning permit. While the spatial plans are overly regulative in land-use function they are very weak in terms of regulating urban form. Regulation of public spaces should for instance include definition of build-able blocks, requirements for the ground floor and rough build-able volumes. The remaining should be left for the zoning permit (Koucký, 2017; Koucký, 2019).

Functional zoning could be inefficient in many aspects, for instance it might decrease the value of property without compensation if too restrictive regulation in terms of maximum land use intensity is proposed on some plot. Another source of inefficiencies might arise from zoning inappropriate functional uses in an area. For instance if somewhere is an existing factory and zoning plan zones its land as industrial. But it might be the case the area where factory is located could be more profitably used for a more intensive residential development, but residential development is not allowed according to current rules in industrial zones. Therefore the industry is likely to remain in the place because the optimal utilisation is not possible due to an inappropriate spatial plan. This is partly caused by not considering the opportunity costs of land that is likely to increase in cities and therefore press land-uses towards more profitable and intensive over time. These dynamics does not seem to be frequently reflected in spatial planning. Another issue arise from too much detailed and fragmented functional zoning. For instance there is probably no reason to separately zone public amenities and their provision could be better secured by controlling ownership over building where they are provided with property rights. Actually zoning some land or buildings for particular uses might became an obstacle even for a public sector. For instance if it wants to redevelop part of its school's plot for subsidised municipal housing it would need to change the spatial plan.

Current 1999 Prague spatial plan



Regulation plans

The general perception of regulation plans among stakeholders is poor. Most of stakeholders do not believe it is possible to meet all necessary requirements to propose reasonable regulation plan that will be adopted. Although the type of regulation given in the regulation plan seems to fit existing needs most of municipalities are likely to lose motivation to prepare more spatial planning documentation after they experience a struggle with commissioning an obligatory spatial plan.

Frequent objection towards current regulation plans is the need to obtain full agreement of affected land-owners and authorities protecting public interests. This is a common objection towards regulation plans despite complete agreement of affected landowners is not required by the Building Act. Nevertheless it seems that processes related to the commission of regulation plan are perceived negatively and made the regulation plan uncommon tool in spatial planning. It is also said to be extremely complicated not only to obtain agreement among land-owners, but also agreement among various representatives of public administration is unlikely. Although there exist mechanisms to overcome conflicts between state authorities municipalities are reluctant to

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commission regulation plans. On top of that some stakeholder doubts whether large coverage of cities with regulation plans is even feasible within reasonable time-frame. City of Prague has already experienced one unsuccessful attempt to commission overall regulation plan 100 years ago. State regulation board appointed after the first world war lead works on Greater Prague regulation plan that was already drafted by 1929, but was not approved by 1938 due to slow pace of plans' discussion and board's pressure to deliver the plan in high detail (Brůhová, 2017). The lengthy preparation and authorisation of detailed plans is also mentioned by Koucký who claims it took 50 years to prepare them in Vienna. Moreover within current Czech legislation the requirements for elaboration of regulation plan must be given already in the zoning plan that limits its applicability (Koucký, 2017).

According to the survey among stakeholders in the spatial planning the efficiency of current legally binding documents, such as development principles, spatial plans or regulation plans is slightly below 3. In this question variation both between and within stakeholders' groups are not large with the exception of the academic sector with standard deviation over 1.5. The efficiency of plans is positively rated by companies preparing land use plans. The worst rating is given by investors and developers and both local and regional permitting authorities.

Figure 10: Stakeholders' opinion on binding planning documents efficiency
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

Non-binding documents

There is an agreement that non-binding strategic documents are not very efficient in spatial planning as they are not obligatory. On the other hand, the generally non-binding instrument of spatial study is well received. Many stakeholders admit the spatial study has actually filled the vacancy left by regulation plans and is used to supplement their role. Stakeholders who are in charge of preparing spatial planning documentation appreciate the planning study is not completely binding and allows further adjustments if some particular building has reasonable needs to deviate from the regulation proposed by the study. On the other hand, some representatives of state authorities criticised this vagueness.

In the stakeholders' survey, non-binding documents received relatively good rating by companies preparing land-use plans, regional permitting authorities and other stakeholders and relatively worse rating by the academic sector, local permitting authorities and investors and developers. This confirms attitudes revealed during interviews that more flexible documents are slightly more preferred by actors directly involved in the development while authorities are more reluctant to use them.

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Figure 11: Stakeholders' opinion on non-binding planning documents efficiency
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

EIA, SEA and TIA documents

The perception of environmental impact assessment, strategic environmental assessment and territorial impact assessment varies significantly both between and within groups of stakeholders. There is a general view that the special sub-processes reserved for environmental assessments are not systematic and they undermine the principle of sustainable development as they systematically bias decisions towards overly environmentally-protective. Many stakeholders see SEA assessment as redundant because, as they pointed out, it does not provide any additional information above the information provided by the state authorities protecting public interests and see the SEA just as a delay. On the other hand, it was mentioned that SEA provides opportunity to discuss the planning documents with public that is otherwise not included in other processes, but this feature does not seem to justify its presence in the process.

EIA process is on the other hand seen as relatively useful. Finally the territorial impact assessment seems to be so rare that there is not much experience with it.

The stakeholders' rating show significant variations between groups and also within groups. While the academic sector, companies preparing spatial plans and local permitting authorities give poor ratings around 4, investors and developers, construction companies and NGOs are rather positive with grades below 2.5. Very interesting result is a high variation between ministries and national agencies as standard deviation in their answers was around 1.3.

Figure 12: Stakeholders' opinion on EIA, SEA and TIA efficiency
Bars represent mean values, dots median values, ticks one standard deviation from the mean and number of respondents is given at the base of each bar

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National regulative decrees

Spatial development is besides spatial planning documentation regulated by many sectoral laws and decrees while most of them are not within competencies of the Ministry of regional development. In the following part some problematic identified regulations are listed.

Among several decrees implementing the Building Act are No. 501/2006 Coll. On general requirements of land-use and No. 268/2009 Coll. On technical requirements of construction (the city of Prague has an exception and has its own building code). These two national regulations are considered to lag behind regulation common in other European countries (Kohout, Štáfek, Tichý, & Tittl, 2014). They especially mention the problem the current regulation is still largely considering issues of industrial cities such as public health or overcrowding that are not of primary importance now and at the same time they cannot address emerging problems such as suburbanization and spatial dispersion. The attention is paid to definition of detached house in the Czech regulation. Authors claim the current definition does not meet needs of various typology of individual living, especially due to requirements on setbacks, land-use intensity and floor count and parking.

For instance the decree No. 501/2005 Coll. requires that no building, unless it is a row housing typology, could be closer than 2 meters (in Prague 1.5 meters) from the edge of a plot. Although the requirement could be adjusted based on local character the experience shows offices do not accept argumentation when proposed character of new neighbourhood would justify such exception (Kohout, Štáfek, Tichý, & Tittl, 2014).

For the apartment residential development prevailing problems are requirements on direct sunlight provision, requirements on natural light and capacity of parking. Very problematic seems to be Section 14 of the decree No. 268/2009 Coll. that explicitly states: „When protecting buildings from outer noise, especially caused by transportation, urban planning solutions must be preferred to solutions protecting individual buildings…". This requirement was for instance cited in statement by regional public health office to Lázně Bohaneč zoning plan proposal presented before in this analysis to not allow zoning some otherwise attractive plots for residential use.

1.7. Economic instruments

In this chapter current or past economic instruments used in the spatial planning are briefly discussed as well as current state of fiscal system. Among the economic instruments could be included any tools that are using market powers to either incentivize or disincentivize residing or new development in some location or activity related to residing in some location. These instruments are for example development fees, impact fees that apply to new development, land appreciation taxes and betterment levies that are typically intended to capture property value differentials caused by public investments, differentiated local fees to reflect differences in public amenities provision across locations, property and land taxation that could have more objectives such as redistribution, promotion of optimal land-use or capture of public investments, air rights markets to protect some areas from development, tax breaks or subsidies to promote development on desirable places. Spatial development is also affected by economic instruments imposed in other policy-making sectors, such as provision and charging for motorway use, city tolls and parking payments and to a lesser extent different policies for detached housing and apartment housing or different treatment for renters and homeowners as these categories have significantly different representation in core cities and suburban areas.

Current economic instruments

Commonly considered economic tools are intended to share costs on new infrastructure provision between developers and public sector. As Maier, Řezáč and Jablonská (2019) show this practice is relatively common in EU countries. These fees seems to be justifiable when some parts of cities or regions have sufficient level of public amenities (schools, public spaces), but new development is extending to greenfields. In these cases participation on infrastructure provision makes greenfield development more costly and as a result more redevelopment in the already built-up environment

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should be seen. Conversely when these fees are not related to local amenities provision and they are uniform they seem to be more like a fix development fee and most probably is better not to include additional instrument and rather for instance increase VAT on new development that is likely to have similar effect. However, these instruments may not produce the desired effect without the proper settings.

Currently there is a limited range of options how municipalities can conclude a contract with developer to co-finance site development. They could either use development contract that have to be combined with a regulation plan or they can conclude an agreement according to the Civil Code[12] (Maier, Řezáč, & Jablonská, 2019).

According to the Section 66, articles 2 and 3, letter f) of the Building Act the municipality or region might condition issue of the regulation plan by concluding agreement on plot subdivision or by concluding development contract to participate on public infrastructure investment costs. The possibility to conclude the development contract only together with regulation plan makes it very hard to use. Moreover it might disincentivise landowners to agree with regulating their land with regulation plan because then their land might become subject to the future development contract that might be not beneficial for them.

Following the Civic Code might provide the municipality the option of concluding other kinds of contracts, but it cannot be required within the building permitting process.

Other economic instruments are even less used and often limited by the national government. Property taxes are low and not spatially differentiated, parking fees are low and together with tolls are regulated by national government. Similarly tourist fees are low and also regulated by national government. In overall the linkages between fiscal planning and urban planning are poor (OECD, 2018a). There exist programs for brownfield redevelopment but they are managed either by MRD or Ministry of Trade and Industry and none seems to promote urban brownfields into mixed-used high-density urban districts and nor cities have their programs to incentivise building in already built-up areas.

Historical perspective

Problems of current spatial planning and development are also to some extent attributed to lack of economic instruments that would orient new development to desirable locations using for instance differentiated property taxation, local fees for amenity provision or development fees. Other set of tools aims at easier land management via public option for land acquisition or some kind of expropriation to unify otherwise fragmented areas that are indeed for new development. Surprisingly these are recurring topics in the Czech urban planning discussion. They were not an issue during the communist regime between 1948 and 1988 as private property was suppressed and market mechanism was replaced by planned economy. But discussion about the role of economic instruments in spatial planning could be traced back to the time of the First Republic between 1918 and 1938.

For instance Emanuel Hruška in 1930‘s proposed to finance construction of Nusle bridge[13] with a loan that would be repaid with tax revenues from differentiated property tax zones along [currently called] avenue 5. května (Hruška, 1934). This proposal has a very good economic reasoning. When the major transport infrastructure is to build real estate property along the new street towards the city center increase in its value and the tax intends to capture this value increase. These kind of tools are currently called generally ”land value captures” as their objective is to capture benefits of public investments and use it to finance or co-finance these improvements. Besides its positives towards sustainability of public budgets another advantage of the proposed Nusle bridge value

[12] Act no. 89/2012 Coll.
[13] Nusle bridge connects medieval New Town with Pankrác plain over the relatively wide and deep valley of Botič stream. Although the Pankrác plain is asscessible both from east and west, the direct north connection towards the city center effectively improves its accesssibility. The bridge was actually bulit at the turn of 1960’s and 1970’s.

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capture mechanism proposed by Hruška is overcoming the public goods underprovision problem. Large infrastructure projects are very costly and their impact, such as in case of Nusle bridge, are relatively localised so in the case of ordinary financing through public budgets it might be politically not beneficial to start such a project as most municipal voters will only bear the costs of it while only a limited number of voters will have a significant net gain.

The problem of land management in spatial development is for instance discussed in double interview with Pavel Janák and Karel Teige that took place in 1934. Janák claims the problems of great cities would be eased if cities have land, its development and appreciation under their control. He adds the existing planning tool of regulation plan cannot solve problems cities are facing and calls for much stronger position of the cities themselves. Teige continues with extension of right to expropriate land in public interest. He claims expropriation for adequate remedy should be possible not only in cases of road and rail construction, but also in case of residential housing construction, especially in case of municipal construction (Janák & Hnídková, 2009).

Currently there are frequent calls for more common use of regulation plans. Despite these plans could significantly improve development of the urban form, these plans most probably would not solve all problems we are facing in urban development as Janák came to this conclusion almost a hundred years ago when regulation plans were a common planning tool, but other tools that would for instance help with municipal land acquisition were also missing.

Taxation and fiscal autonomy

Increasing fiscal autonomy could fulfil more policy objectives, but one of the main interests in this study is the efficient spatial development. The Czech Republic has the lowest fiscal autonomy among all OECD countries as local governments collect 1.2% of the whole tax collection. The taxation of properties is also low compared to other countries at 0.7% of total tax revenues compared to 3.3% of OECD average. Property taxes also account for smaller share on sub-national governments' revenues. In the Czech Republic they contribute with 2% while the average of OECD countries is 9% (OECD, 2016).

Low importance of property tax revenues and the way it is calculated could be one of causes of low willingness for urban development. As the revenue from property tax is relatively low municipalities might see tax benefits from new development not reaching costs of the development. Among costs must be included all costs on the side of public sector but also political costs related to common opposition of local residents towards new development. Related problem is calculation of the tax itself independent of property value. Public investments into local improvements as well as some new private developments increase value of existing properties (IPR Praha, 2018c). When property taxes are not derived from the property values then municipality is not motivated to increase the value of overall housing stock either by new development, by investment into public amenities that capitalizes into property values or by allowing new development in the most desirable locations such as in the proximity of capacity public transit.

While transferring a higher share of tax collection from other taxes to property taxes would, when properly implemented on the local level, help for more efficient spatial development, its implementation seems problematic due to the low political support as an increasing share of property taxation on tax revenues was already recommended by OECD in 2006, 2011 and in 2016. Another political limit could be seen on the local level, because local governments might be reluctant to increase property taxation that is seen nowadays when most of municipalities do not impose property taxes above the minimal level (OECD, 2016).

There are also potential drawbacks of fiscal autonomy. If some desirable public services such as schools are financed through property taxes it might lead to inequalities as poorer municipalities will provide worse services and people would tend to move to rich neighbourhoods. As a response, rich municipalities will try to impose restrictive regulations to drive property prices up to make living there unaffordable for relatively poorer households (Duranton & Puga, 2015). Therefore when considering more fiscal autonomy it must be assessed what services and amenities will be provided

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by what level of government and on what geographical scale the fiscal rules will be managed to prevent competing between municipalities within agglomeration.

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2. Analytical summary

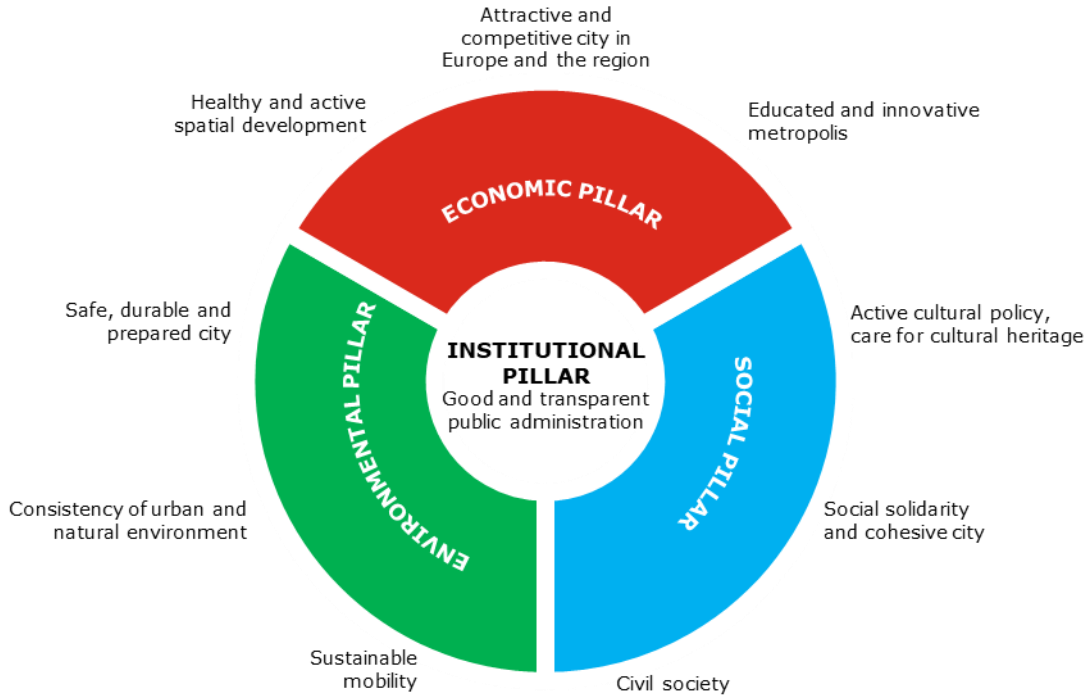
2.1. Disparities assessment

The disparities assessment follows the concept presented by Maier (2012) who describes disparity as an activity that leads to imbalance between pillars or within pillar of sustainable development. In other words it is an activity that exploit resources and values in some area beyond some threshold that would be considered as sustainable. We depart from this concept and evaluate which disparities in spatial development could be caused by various policies and instruments in spatial planning or outside of the spatial planning system but with direct effects on spatial development.

We are following the implementation of this disparity assessment concept on urban spatial development done by IPR Praha (2017) and mentioning some disparities they have found that are relevant on the national scale. They organize various issues in the Prague spatial development into 4 pillars of sustainable development and then divide the economic, social and environmental pillar into 9 more focused areas. Although this sustainable development topics organization was developed for the case of Prague based on the Prague Strategic Plan, 2016 update, we consider it to be generally applicable for assessing disparities in spatial development in any scale from a small municipality to a large metropolitan region of national or global importance.

This concept of disparities is intended to show possible drawbacks of otherwise desirable policies motivated by sustainable development goals. As it turns out many well-intended policies have some negative effects on sustainability goals.

Figure 13: Sustainable development diagram
According to IPR Praha (2017)



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Deloitte.

Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
Spatially extensive heritage protection Social pillar • The aim is to preserve qualities or architecturally coherent localities	Social pillar • Heritage protection often refuse to add new layers of contemporary architecture into the protected environment and therefore reduces cultural heritage created by current generations (Koucký, 2008) • Limiting growth in high amenity cities leads to rise in real estate values severely affecting housing affordability (Glaeser E. , 2015) Economic pillar • Limiting growth in large and competitive urban economies will limit economic growth due to unexploited potential of urbanization economies (Hsieh & Moretti, 2019) Environmental pillar • Limiting growth in cities leads to larger built-up footprint (Bertaud & Brueckner, 2005) consuming more agricultural land and to longer commutes producing more pollution
Housing affordability regulation in the form of rents ceilings and similar instruments Social pillar • Provide sufficient affordable housing	Social pillar • Overall inaffordability could increase as those who do not find regulated rent must accept even higher market rent, decide to buy or due to missing housing opportunities leave the city or do not move there Economic pillar • Decreasing property owners' return decrease incentives to provide more housing and in the long term housing provision is lower lowering also economic output Institutional pillar • Incentivised housing in fact offers this good at lower price than is market level, therefore demand will be always higher than supply. It might be complicated to fairly select those who qualify for subsidy and those who do not
Protect local amenities with new development constraints Social pillar • Secure current quality of local services and amenities for local residents	Social pillar • Overly restrictive regulation in desirable location might lead to property prices increases followed by rent appreciation and gentrification. Economic pillar • If opportunity costs in a locality are not considered this could be inefficient. In many cases allowing new development and investing in amenities will deliver a more efficient outcome
Regional development subsidies and subsidies for amenities provision in unproductive regions Economic pillar • Promote local job opportunities and desirability to stay in the region Social pillar • Reduce negative effects of depopulation and abandonment • Reduce negative effects of regional differences in quality of life and amenities provision	Economic pillar • Subsidising people to stay in unproductive regions decrease overall economic potential that would be otherwise achieved if people move to more productive places.

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Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
Transport infrastructure improvements between core cities and suburban areas Economic pillar • Provide more reliable, comfortable and shorter commutes from a suburban area to the core city	Economic pillar • Incentivising commuting leads to more dispersed settlement more costly to service Environmental pillar • Easing commuting is actually an incentive that moves urban structure equilibrium towards more dispersed settlement with higher energy needs for commuting and therefore carbon footprint (Hudeček, Dlouhý, Hnilička, Leňo Cutáková, & Leňo, 2018) and higher land consumption
Provide unpolluted and silent living environment with urbanistic solutions rather than technical solutions Environmental pillar • Provide in each residential place favourable silent and unpolluted environment inside and outside of buildings	Social pillar • Limiting poorer households to choose less environmentally favourable places that otherwise offer for instance very good proximity to jobs leading to segregation of the poor to the outskirts • Causing urban fragmentation and loss of quality habitable urban spaces Economic pillar • Limiting otherwise attractive locations from optimal development Environmental pillar • Unnecessary press on development in yet undeveloped areas
Protect local undeveloped and agricultural land Environmental pillar • Improve local environmental stability such as capturing particulate matter, water absorption and ecosystem provision for local fauna and flora • Provide green open space amenities for urban residents	Social pillar • Limiting growth in high amenity cities leads to rise in real estate values severely affecting housing affordability (Glaeser E. , 2015) Economic pillar • Limiting growth in large and competitive urban economies will limit economic growth due to unexploited potential of urbanization economies (Hsieh & Moretti, 2019) Environmental pillar • Limiting growth in cities leads to larger built-up footprint (Bertaud & Brueckner, 2005) consuming more agricultural land and to longer commutes producing more pollution
Emphasis on one form of spatial planning, mostly endorsing functional zoning Institutional pillar • Easier regulation, standardization, monitoring and evaluation due to inhibition of individual specifics • Easier assessment of plans due to their unification	Social pillar • Possibly inability to capture and promote cultural values in an area within universal planning framework Institutional pillar • Inability to address real planning issues that might arise in a given area
One universal process and requirements on spatial planning documents for all municipalities Institutional pillar • Comprehensive and clear process across the whole republic	Institutional pillar • Current system is very lengthy and cumbersome in larger municipalities, especially in regional capitals and similarly large cities

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Deloitte.

Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
Spatial planning authority over area delineated by administrative subdivisions Institutional pillar • Simple assignment of competencies and responsibilities over given area using existing self-governing and state institutions	Economic pillar • Limited coordination between individual municipalities complicates investments in project of agglomeration importance Environmental pillar • Problems of excessive commuting might arise if attractive municipality restrict growth but provides desirable jobs Institutional pillar • Agglomeration-wide planning is harder to constitute
Spatial permit process governed by state-transferred powers Institutional pillar • The aim to provide expert independent decision-making role	Economic pillar • Higher projects' refusal rate due to low motivation of decision-makers to find a way how to allow projects Institutional pillar • Questionable legitimacy of decision-maker not derives from local general elections
Division of decision-making power between functionally organized authorities protecting public interests Institutional pillar • Easy delineation of rights and competencies in the functionally organized ministerial hierarchies	Economic pillar • Overall inefficiencies caused by uniform requirements imposed on objectively different settlements Institutional pillar • Inability to negotiate locally optimal solution
Low fiscal autonomy of municipalities Institutional pillar • System is relatively easy to design that does not require high expertise on local level to create custom-made systems • System prevents major failures and is resistant against volatilities caused by political cycle Social pillar • Universal level of services is provided	Economic pillar • Successful municipalities might not enjoy enough of their tax contribution to promote even more investment and growth therefore municipalities are not motivated to create new job opportunities and increase local capital Institutional pillar • Very low fiscal autonomy might be too much redistributive and therefore unfair
Municipalities' high reliance on subsidies for investment Institutional pillar • Upper level government could target areas of intervention that it want to support Social pillar • Investments could more evenly compensate differentials in spatial development	Institutional pillar • Municipalities are disincentivize to do long-term planning because their investments are reliant on national programs and not on their real needs
System of taxes and fees that does not take into account the differences of local public services provision costs Institutional pillar • System easier to design, implement and maintain	Economic pillar • Inefficiencies arise as households and firms are motivated to move to areas of their preference not taking into account costs to provide services to them there as they pay uniform fees and taxes (suburbias require more services per resident (IPR Praha, 2016)) Institutional pillar • System is unfair towards agents serviced at lower costs who are subsidizing those who reside at high-cost areas

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Planning tool and its goal within the sustainable development framework	Negative effects of the planning tool on goals within the sustainable development framework
System does not charge taxes to offset negative externalities emerging from land use Institutional pillar • System easier to design, implement and maintain	Economic pillar • Uncharged activities with negative externalities, such as driving in central cities, causes excessive costs to other agents Institutional pillar • In principle the system is unfair as those who are negatively affected are not compensated
Individual rights protection against inappropriate losses in the name of collective gains Institutional pillar • To protect private property and collective property against inappropriate losses	Economic pillar • Binary decisions whether some development does or does not affect others' rights and therefore is approved or not possess large overall losses due to an inability to exploit opportunities and compensate actors for their individual losses • Considering all potential rights' alienations in spatial planning processes or in court reviews prior final decision significantly delays development and decrease supply elasticity of new construction

2.2. Problems and recommendations summary

In this section all problems identified in the analysis are summarized into several thematic groups. Each group describes identified problems from a particular point of view. But in reality most of these problems are jointly interconnected and therefore some issues reappears in more than one group. Each problem is first described and in the second part conceptual response to that problem is proposed. **As this is still an analytical document proposed solutions have to be taken as first draft proposals. The first reason is the analytical part does not yet present the intended depth of the spatial planning system reform that will be drafted in the next stage. As a consequence some of the proposed actions will not be later involved for instance for being beyond the reform scope. The second reason why it is important to consider these proposals as a draft is due to the lack of their mutual coordination.** The proposal of coherent spatial planning system reform will be subject of the next phase.

Lack of coordination between actors and issues in spatial planning

Limited possibilities to enforce some spatial development goals from top to down
Vertical coordination

Problem description

Although the Czech spatial planning is formally divided into three levels of national, regional and local levels, vertical coordination is not optimal and fails in some aspects. In general the condition of subsidiarity in many cases is not met as inappropriate levels of governments intervenes into issues beyond their expected competencies. For instance municipalities might block planning, construction or improvements of infrastructural project of national importance such as motorways, waterways or railways. On the other hand stage government through its tight regulation and state authorities protecting public interests intervenes into very local issues that could be dealt on the local level without interferences from the national or regional level of government. Among these for instance noise limits, heritage protection or spatial development policies could be considered.

Some issues in spatial development are almost not dealt with at all. Such an example is for instance suburbanization, energy efficiency and carbon footprint. These issues belongs to the

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supra-municipal level but current development principles elaborated on the region level does not seem to have tools and ambition to deal with these problems.

Although the national and regional planning is focusing predominantly on planning essential transport and technical infrastructure, the results are mediocre. Most of stakeholders who are not directly involved in regional planning are dissatisfied with planning and construction lengths.

It is also seen as a problem that municipalities are often seen as subordinate to regional and state government. This seems to be against the subsidiarity principle. All levels of government in fact should be responsible for their distinct competencies. This should not reject the principle that some issues must be coordinated on upper level of government and lower levels have to comply. A system of financial incentives that would allow a system not to be too much restrictive and rather motivating is missing.

Recommendations for planning proposal

All policy-making regarding spatial development or having uneven effects in space should be assessed in terms of its spatial reach and spillovers and based on this assessment responsibilities of national, regional and local governments should be adjusted to meet the criterion all decision making is being done at the lowest appropriate level.

The national-level planning should have a stronger position in planning nation-wide infrastructure of all types.

Regional-level planning, especially based on functional urban areas or travel-to-work areas, should obtain more competencies to motivate individual municipalities to comply with regional-level sustainable development objectives. Especially financial incentives to follow upper-level planning documentation should be introduced to achieve desirable spatial development outcomes.

Lack of inter-municipal coordination and asymmetric problems and needs of municipalities with respect to their size

Horizontal coordination

Problem description

Czech municipalities are asymmetric in several dimensions. Many issues arise from highly various size of Czech municipalities that all have to comply with nation-wide legislation. Also some regions are highly attractive and need to manage the growth while others are likely to manage their steady-state. It turns out one-size-fits-all approach does not address well this heterogeneous environment.

Czech administrative subdivision is extremely fragmented into 6,500 self-governing municipalities with majority of them with very low population that does not allow efficient management. Due to low institutional capacity are some agendas moved to ORP offices with state transferred powers.

Fragmented subdivision into self-governing municipalities and lack of inter-municipal spatial development coordinating planning tools causes spatial misallocation between core cities and their suburban hinterlands as suburban settlements are more likely to support new development while they do not have to bear its costs because they rely on services provision by the core municipalities.

This problem could be seen also as a failure to implement subsidiarity principles, because some problems such as suburbanization and related problems are affecting the whole agglomeration functional areas but decisions that affect these issues are done on too small level of individual municipalities that leads to inefficiencies in spatial development.

Recommendations for planning proposal

Municipalities mergers are highly unlikely due to their political unpopularity. Therefore some form of intermunicipal cooperation is needed. Intermunicipal coordination on one hand makes units of

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sufficient size to provide basic services such as kindergartens, schools, public administration office, community cultural centre and social care centre. At the same time the intermunicipal consortium would keep its self-governing nature as it would be governed by elected officials from individual municipalities in the consortium.

Special cases would be agglomeration consortia that would be responsible for agglomeration planning that is essential for mitigating suburbanization and stimulating sustainable growth. The delineation of agglomeration intermunicipal consortiums would require both guidance and support from regional government and local negotiations.

Formation of municipal consortiums could be promoted for instance by state incentives in the form of subsidies to supra-municipal amenities provided only to inter-municipal consortiums. Intermunicipal consortiums of size at least 5000 inhabitants seem to be appropriate scale for spatial planning and elementary amenities provision.

Inference of other regulation

Cross-profession coordination

Problem description

Despite not based in the Building Act or its implementation decrees some other regulations such as noise and pollution limits effectively limit new development in areas that would otherwise most likely be socially optimal to develop despite their lower appealingness.

Protection of public interests specified in acts is being done by robust and wide system of national authorities. Their statements in both spatial planning and building permitting are obligatory and there is no entity that would revise whether change in land-use brings more overall benefits compared to current situation despite the change in land-use would negatively affect some public interests.

Consistent view of many stakeholders including representatives of state and local administration is overrepresentation of environment protection that among others have its own process of EIA and SEA consent and as a result public interest of environment protection dominate over economic, social and institutional pillars of sustainable development.

Another significant inferences into efficient sustainable development are from public health requirements, especially on direct sunlight provision and noise protection. Both of these requirements are more easily met in less dense urban settlements that are on the other hand less sustainable in general. Requirements on sunlight provision were for instance abolished in last update of Prague building code that is in opinion of some stakeholders from other cities seen as well designed regulation that should serve as an example for nation-wide regulation.

Additionally specific problems limiting sustainable urban growth arise from heritage protection regulation, transportation regulation and fire prevention regulation.

The common feature of these regulation inferring into goals of sustainable regional development is that values they protect are not assessed and evaluated in each individual case of planning documentation proposal or construction project proposal. This leads to refusal of proposed solutions that negatively affect some of public interests, but achieve an overall positive social effect.

Recommendations for planning proposal

Creation of governmental expert board is recommended. This board should contain representatives of wide range of experts on urban planning and regional development, urbanists, sociologists, social geographers, anthropologists, economists and spatial economists, environment protection experts, environmental economists, heritage protection experts, mobility experts, public health and sanitation experts. This board should supervise analysis and assessment of sectoral regulation

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inferring into spatial development and they should propose revision of current regulation to promote goals of sustainable development.

Most severe cases of imbalance in public interests protection should be assessed and modified. Negative effects on publicly protected interests should be always considered relative to positive effects of considered planning document or project.

Assessment of impacts on private and public interests caused by land-use changes and selection of optimal option and appropriate compensations. Assessment should be done according to statements of state authorities likely in the SEA and EIA processes.

Lack of comprehensive coordination of planning documents and information

Information coordination

Problem description

The most salient problem regarding form of spatial planning documentation is currently its scatteredness across various national and sub-national agencies and lack of connectedness. Some instrument in the form of state geoportal is mostly missing.

The prevailing paper-based nature of spatial plans and their procurement is obsolete. The law should assume the spatial plan is some form of regulative data model that does not necessarily have to be representable in the printable paper form as it is rather system of layers of various information with different regulativness and stability over time. Also the procurement and publication of the plan for public hearings and comments should be done digitally to make the whole process more efficient and accessible.

The lack of standardization is not seen as a problem uniformly but rather only by some types of stakeholders, likely state authorities or authorities on the regional level. On the other hand many stakeholders see potential more binding standardization of spatial plans as threat to quality spatial planning.

What stakeholders agree on is standardization of underlying data types used in spatial plans but not necessarily standardization of plans themselves.

Some stakeholders also see as a problem lack of materials that would help them with every-day decision-making. They lack for instance handbooks that would describe step by step how to deal with model decision-making problems.

Recommendations for planning proposal

In general regarding spatial plans standardization few categories of functional use (up to some 6) and urban typology could be introduced and required as obligatory layers of the spatial plan.

There should be national geoportal linking to all involved institutions and projecting all spatial data on one place. It should provide general definition of main functional and typological categories that provide consistent information about national intended land use. Standardization should focus on planning documentations' data structure.

The national geoportal should also provide place for viewing and commenting prepared documents and should be an interface to collect data about values, problems and intended projects (similar GIS system was developed by IPR Praha (IPR Praha, 2017b)) in the country with structured accessibility from general public to state authorities. Works on this project have been already initiated.

More intensive methodological help from the Ministry and regions towards local decision-making authorities should be provided.

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Unbalanced competencies and responsibilities

Role of self-governing and delegated powers

Problem description

The current system accommodates the execution of state delegated powers within municipal self-governing administration. Besides well documented systematic bias there are also conceptual questions at which stage of spatial planning and spatial development process should be limited municipal self-governing powers and to what extent should the process be steered by state delegated powers.

Spatial planning is defined as a domain of municipal self-governing powers and this seems to be shared among developed world as a part of subsidiarity principle. At the same time zoning permit is thought as a final step of spatial planning process, the moment when it is decided whether some development is fulfilling objectives of the municipal spatial development strategy and therefore should largely be the responsibility of municipal self-governing powers that is currently not the case. There might exist a risk of increased corruption potential if the decision-making power is delegated to self-governing powers, but on the other hand local governments have their political responsibility and if their governing do not meet public expectations they risk not being elected again, unlike non-elected state administration officials. Nevertheless there is an evidence of reducing municipal self-governing powers due to the prevalent corruption and its transition to the state level in the second half of the 19th century in the US as discussed by Schragger (2016).

There arise several problems. First of all the spatial plan is assumed to be detailed enough to give very clear instructions on what is and what is not acceptable in any location and under these assumptions the zoning permit should confirm or reject compliance of a project with spatial plan. In reality the detail of spatial plan is not sufficient to easily decide whether project complies with zoning plan or not and many objections could be raised. In these cases the process does not anymore fulfil character of simple administrative consent anymore, but rather negotiations about the parameters of the project itself. These negotiations about land-use should be led by body that represents local public interest, is interested in socially optimal development and have legitimacy and responsibility to make a decision. All these conditions are met by self-governing powers on appropriate self-governing level with their legitimacy and responsibility coming from general elections.

The prevailing problem of spatial permit being processed by state-delegated powers is the reluctance to try to achieve solution that would bring most of benefits to the local population[14]. Even when not taking into account the weak position of building permitting office relative to state administration offices protecting public interests, building permitting offices are not motivated to make decisions that on one hand might be disbeneficial for some, but very beneficial for many, because they do not have any specific interests about local development because they are subordinated to the state administrative powers and not locally elected representation. As mentioned in interviews by some stakeholders officers sometimes are afraid of making decisions and it is easier for them rather to negate projects and base their opinion on some negative statement issued by one of the state office protecting public interests.

Recommendations for planning proposal

The zoning permit should be limited to issues of local spatial development as the last step of spatial planning and therefore may be predominantly governed by the self-governing powers. The zoning permit process should mainly consider proposed building capacities such as floor areas, number of units or jobs, functional use when applicable, proposed volumes and its fit into the local built-up context and consider how public and private interests will be affected by the project. As a part of the spatial consent compensations towards involved stakeholders should be set. The compensations should compensate for externalities caused by the project. Typical case is

[14] Local in terms of subsidiarity principles, therefore taking into account whole area and population significantly affected by a given project.

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compensation for increased requirements for public infrastructure investments that would be received by local government. If a new project significantly affects value of neighbouring property, such as new transport infrastructure, property owners should be directly compensated for their losses by project owner. Less common is reverse situation when additional fee charged by local government for specific new amenity provision, such as investment in a new transit line in a property vicinity or for floods protection. Methods and extent of compensation should be given by the spatial plan or detailed documentation.

Actors protecting public interest

Problem description

The current legislation does not enhance necessity to negotiate optimal solution in each individual case because sectoral state agencies are not motivated to find mutually acceptable solution as they do not directly benefit from regional development and there is no way how they could trade in negotiation process.

Some public interests are not protected in the system of spatial planning and zoning permit or position of actors protecting competing public interests is significantly stronger. Such an example is for instance lack of protection of interest in economic development that typically manifests as a new construction in spatial development. While in market oriented economy individual projects are typically initiated by profit-maximizing firms they could not be allowed either in stage of urban planning or zoning permit if any of public interest protection agency finds the project to negatively affect public interest it protects no matter what positive effects the project could bring.

It was frequently observed that the current position of the environmental protection in the spatial development processes is excessively strong and actually limiting optimal sustainable development. On the other hand some aspects of environmental sustainability are currently not considered at all, such as energy requirements and carbon footprint of various forms of settlements that should be taken into account when facing global climate change.

Similarly it seems there is a systematic imbalance between the public interest of heritage protection and public interest of economic development on one hand and public interest of extension of heritage with contemporary layers of built environment. The arguments for economic development largely follow those in the Annex 5. In the second case there is currently obviously missing representative of public interest that would promote contemporary additions to inherited cultural values as it is discussed for instance in Koucký (2008).

Another public interest not represented in the process of spatial development is for instance interest on affordable housing.

Recommendations for planning proposal

It seems statements of all authorities protecting public interest in the process of procuring spatial plan and in the process of spatial permit should be non-binding. Both of these processes should be governed solely by the local level of government by their administrations. The possibility of unlawful decision of the government in cases of spatial planning or projects permitting is possible, but would be reviewable at court and in case of confirmed unlawful decision local government would have to compensate those whose rights were alienated.

Additionally the set of actors bringing their perspectives about the effects of planning proposals and projects on sustainable development could be extended to capture the whole width of goals of sustainable development. Based on analyzed missing actors representing public interests Chamber of Architects, Chamber of Commerce, local social care institutions and stakeholders from cultural management should be included. As conflicts between public interest naturally arise they should be assessed to find the optimal social-utility maximizing outcome.

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Human resources problem at spatial planning and building permitting authorities

Problem description

The spatial planning and development permitting agenda turned to be much more oriented to law with severe extension decisions' justifications. It was mentioned the current requirements by the agenda are beyond experts whose background education is not law. As a result the agenda is turning to be more formal rather than contextual.

Also it seems the problem at offices is not in low abilities or education of officers, but rather low motivation. This seems to partly arise from extremely scattered decision-making competencies where no agent has ultimate power to decide, responsibility to defend his decision and appropriate reward for making right decisions. In such environment no one is motivated for better performance as there is no leading agent of the process motivated do make the best possible decision.

Recommendations for planning proposal

This problem would probably be partly overcome by moving decision making in spatial planning and spatial permitting into competencies of municipalities and making them the leader of the process.

Lack of tools that would promote desirable development

Objectives and tools of spatial planning

Problem description

The current spatial planning system assumes there is an optimal solution when all relevant aims and protected values are not affected. This seems to be rooted in the modernists' assumption of common shared values and preferences about optimal housing that could be met by provision of standardized prefabricated settlements on city outskirts that meet all objectively given regulations. It is important to mention modernists did not include among their requirements for instance commuting time and other amenities people might value. If the problem is analyzed within the consumer behavior framework it is clear households are willing to trade some sub-optimal features of housing unit, such as noise or lack of sunlight, for some other good they value more, for instance proximity to cultural institutions, shopping or jobs. Especially if we are thinking of heterogeneous agents many suboptimal housing units (in the modernists' perspective) might be preferable to the optimal ones. The requirement for some objectively given standard fails when intensive urban development is considered as many stated and publicly protected values are mutually exclusive. But as we see on residential property prices central districts of Prague that hardly meet modernists' requirements for good living environment are still preferred to prefabricated settlements with vast provision of open space, free air and sunlight.

Also current system of spatial planning is still largely oriented on functional zoning and despite it allows complementary planning tools such as built-up form typology or land-use intensity it inherently assumes functional zoning will be present in spatial plans. There might arise circumstances where functional zoning is not relevant or could be regulated by very few functional types and instead main subject of regulation could be maximal intensity of land use in the form of height or floor area ratio regulatives.

Recommendations for planning proposal

As the current paradigm is plurality and diversity the spatial planning system should be very open to finding consensus among all stakeholders involved in the local, regional and national development and allow them to take any regulatory measure to manage spatial development within their territory they find useful given their local circumstances.

It seems the spatial planning system should offer relatively open toolbox of possible regulation mechanism that could be mutually combined to meet needs of individual municipalities. Among these tools are several groups of regulatives: functional zoning, land-use intensity regulation, property fees and taxes on land, structures and their function including fees on new development,

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and mobility policy. These tools could be further standardized to some extent to be measurable and comparable between municipalities.

Separation of spatial, strategic and fiscal planning

Problem description

Spatial planning in the broader understanding is in the Czech Republic fragmented between strategic planning, spatial planning and then another sectoral planning with major spatial impacts such as transport planning. Fiscal planning is largely missing as Czech municipalities and regions have very low fiscal autonomy and are dependent on state transfers and subsidies.

The dual character of current spatial and strategic planning brings several drawbacks. On the national and regional levels two parallel systems seem unnecessary while at the municipal level both plans are rarely aligned. While spatial planning is extremely constraining in terms of land use it does not have any tool that would ensure any planned project would be realized. Besides potential phasing there are no links to the timeframe of planned projects and no information about intended financing and overall expected costs of planned projects.

As the spatial planning is very rigid, there is a rare following step of spatial development, more active role of municipalities or regions on land market or joint development in the form of public-private partnerships.

Possibly one reason why municipalities are reluctant to take part into joint spatial development might be besides cumbersome legislative regulations that municipalities do not directly benefit much from new development. Besides local employment new development has probably most significant contribution to the public budgets through VAT that is collected nationally and all municipalities get only given share. Therefore as new development possess some political difficulties as local electorate rather oppose new development, the new development is not perceived under current system as a net benefit for local communities.

It was also identified that a low willingness for long-term planning might be caused by the current system of national and EU subsidies when municipalities are rather trying to adjust their priorities to existing subsidy programs than prepare projects they truly need and find financing later.

Another reason for low willingness towards new development is low share of property taxes on overall tax collection and on local budgets. Additionally weak relation to property value is a problem. Due to these factors local governments are not so much motivated to promote new development and increase value of existing buildings because it does not increase their tax revenues unlike in cities in other countries where intentionally some public investments might be done to increase value of properties and capture this increase via property taxes.

Problem of underutilized land was also mentioned. Currently land taxes are so low it is worth waiting and not developing even well located land in already developed parts of cities.

Besides property taxation there are also other tools that might become useful for managing spatial development that are currently either unavailable or regulated on the national level. Among these are parking fees, urban road tolls, tourist fees or local fees for publicly provided services. These tools are intended to be a part of spatial planning documentation for instance as spatially delineated areas where these tools are supposed to be implemented. The implementation itself could follow after the plan’s adoption according to a more detailed project implementation documentation.

Recommendations for planning proposal

Increase of the share of tax collection from property tax and transfer of competencies to municipalities regarding tax rates should be considered. Also tax rates should be differentiable with respect to location or type of property to become one of spatial planning and management tool. Increasing fiscal autonomy would also have to be accompanied by definition what services are

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provided uniformly are paid for by national or regional authorities and what services are solely within local competencies and are financed via municipal budget. If such property tax autonomy is enacted it would require coordination on the agglomeration level. Coordination does not necessarily means there must be a uniform rate, but clear definition of what services are provided for own citizens and not for others from different municipalities within agglomeration must be for instance clarified.

As the property tax would be increased other taxes should be lowered to keep overall tax rate unchanged. Additionally to restore opportunities for municipalities long-term planning of the amount of sources through subsidies should be decreased and instruments promoting local economic activity should be introduced. An example could be fraction of locally collected VAT. This fraction could be given parametrically for various regions to reflect worse economic conditions on one hand and to still make the environment motivating for economic growth on the other.

To motivate for appropriate efficient land utilization well set two-tier property tax should be used. As OECD notes higher emphasis on taxing land rather than built structures motivates for denser efficient land use (OECD, 2017b).

On the regional and national level should be spatial and strategic branch of planning merged together into single document with its strategic part and then spatial planning part focusing on spatial projection of selected features within competencies of state or region.

On the municipal level spatial planning should be together with other public policies subordinated to the strategic planning and serve as an implementation regulation of goals defined in the holistic strategic planning. This definition would more tightly connect spatial planning to other areas of sectoral planning typically considered to be within strategic planning. These areas are for instance mobility planning (being broader than transport infrastructure planning in current spatial planning), housing policy and public amenities provision. All these plans would be additionally linked to the fiscal plan and projections.

Inappropriate detail in documentations of given scale

Problem description

The possibility of current digital technology allows to zoom-in in any spatial planning documentation even to the scale of individual lots. This causes problems especially in cases of larger cities spatial plans and regional principles of spatial development that both should deal with general issues of wider area composition and should not be limited by details to be considered in the subordinate planning documentations.

Inadequate emphasis on considering detailed problems in some areas distract planners' attention from important issues that should be dealt with in the wider scale, such as problems of suburbanization and development expansion, related problems of technical infrastructure and public services provision and mobility requirements.

The extensive level of detail of spatial plans covering the whole area within the municipal administrative limits seems to be inefficient, especially taking into account that many details that were intended to be solved in the planning documentation are again raised during the EIA consent, zoning permit process and sometimes in the building permit process as well.

The perceived role of spatial plans was a conceptual framework for the municipal development and actual decision-making was supposed to be done according to the detailed regulation plans. Instead zoning plans have become very detailed as they have become dominant document used in spatial permit decision-making.

Recommendations for planning proposal

The scale of individual lots should be considered in planning documentation below the spatial plan such as in spatial studies, regulation plans or similar planning documentation. It seems reasonable

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to distinguish in spatial plan stabilized areas where large structural changes are not expected and desirable and development and transformation areas where major changes are expected and desirable.

The detail of the spatial plan should be generally consistent and regulation of development and transformation areas should be largely parametrical, such as defining gross built-up floor areas, height limits, requirements on urban typology and public spaces, expected number of housing units and jobs opportunities and requirements of public services. These parametric definitions should be accompanied by monetized expected public and private investments. Besides definition buildable and unbuildable areas, stabilized, development and redevelopment areas the spatial plan should also plan city-wide infrastructure projects and other projects of city-wide importance. The plan would primarily define whether in particular location detailed planning documentation as a foundation for decision making should be elaborated or would provide general tasks to be fulfilled in context-based decision making and for that reason would not have character of individual decision and may be issued as a general decree.

Detailed regulation in the form of spatial study, regulation plan or similar tool should be done for all delineated development and transformation areas while they could be prepared together with the spatial plan or later on. The aim is to provide all transformation and development areas with a more detailed planning documentation that would coordinate development of the given area. Detailed regulation plan may be issued as a Measure of general nature.

The distinction between stabilized and development and transformation areas should be done also in following construction permitting process. While in case of stabilized areas zoning permit would take place because compliance of the project with its local context must be assessed, in case of transformation and development areas the spatial consent would be skipped as more detailed requirements would be given in the detailed spatial planning documentation. In case of missing detailed documentation in development and transformation areas the zoning permit process would take place and would be decided whether it is possible to allow given development not to limit future development potential of the area.

Missing agglomeration spatial plan

Problem description

The analysis has shown suburbanization is a universal problem of almost all Czech agglomerations and there seems be no tool that would be able to tackle it. Upper level documentations on regional level are typically focused narrowly on transport, technical and environmental infrastructure while missing conceptual framework of functional agglomeration area development, amenities provision and lack tools that would incentivize municipalities to follow an agglomeration development framework.

Also there is currently no appropriate administrative subdivision that would fit functional urban areas as they were defined in the analysis based on the commuting patterns. Most of functional urban areas do not cross regional boundaries, but they frequently cross ORP boundaries that might be thought as a suitable unit for agglomeration spatial coordination level.

When there are no economic incentives to prioritize more desirable places for development new development will simply occur at places where developers maximize their profit as a standard consequence of the free market. Therefore even if some municipality do not want to significantly develop and define only a modest amount of buildable land that is easy to develop it could be expected that it will be developed soon. Then the land owners might demand to change the spatial plan as buildable land runs out. According to the §55, article (4) of the Building Act[15] new buildable land could be defined with the change of spatial plan if it is proven there is a need to do so. But it is unclear on what spatial scale the need should be assessed. For instance Zlín region intends to coordinate the issue on the regional level, but generally only municipal area is considered.

[15] Act no. 183/2006 Coll.

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Although individual municipality might truly exploited all its buildable land, there might be still a lot of vacant land in the rest of the agglomeration.

The rapid extension of urbanized areas into previously undeveloped land is negatively perceived by majority of stakeholders in the system of spatial planning possibly also due to the fact there currently is not any planning tool that would be able to regulate it.

As was already mentioned in the previous section one of main reason is extreme municipal fragmentation and missing planning authority on the appropriate level to be able to coordinate supra-municipal development.

Although current development principles could potentially serve as a coordination plan for agglomeration development it appears they fail this role. It seems the Building Act does not clearly defines what competencies belong to what level of government.

Recommendations for planning proposal

Development principles should delineate agglomerations on the area of region, especially in areas where excessive suburbanization occurs. This should be done by regional government in tight cooperation with municipalities within proposed agglomerations. A specific situation is apparent in the case of Prague, where agglomeration boundaries should be delineated by the Ministry in cooperation with the Prague, Central Bohemian region and municipalities within the proposed agglomeration.

The role of the agglomeration plan should be to coordinate agglomeration development, especially in terms of its relation between core city and its suburbs. To fulfil this role the attention should be paid to size of new development capacities, its linkages to public transport and road network, integrated transport policy in the agglomeration and public amenities provision. All of this could be related to local tax rates.

It is expectable that major tensions will arise between core municipalities and suburban settlements. Important precondition to resolve this struggle is common goal and opportunity to trade something in negotiations. In general motivation for overall growth in the agglomeration should be shared as it increases local tax returns. Core cities are typically not against growth of suburban settlements unless it causes them severe traffic congestions. Therefore core cities would likely push suburban settlements towards capacity public transit or condition it by presence of intermodal changes such as park&ride facilities. Suburban municipalities might be reluctant to give up development opportunities, but they might face extension and pricing up parking in central cities or starting congestion charging that is not desirable for suburban municipalities. Therefore both sides would have space for negotiating a reasonably balanced agglomeration development plan.

It must be borne in mind that simple more restrictive policies towards suburban development would impede suburbanization, but at costs of overall higher property values. Therefore integrated agglomeration development must disincentivize suburban sprawling in undesirable locations and locate suburbias in the proximity of existing or new high-capacity public transit and promote easier development in core cities and utilize their land as pragmatically as possible.

Missing development coordination plan

Problem description

Currently there is not a clear and common process on how to manage the development of larger sites generally larger than 5 hectares when coordination between land-owners, developers and public sector is essential. This coordination is even more necessary when it comes to brownfield re-developments in cities.

These sites are frequently fragmented in terms of their ownership that impede or completely stop possible re-development, because there are currently no commonly used instruments to either

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merge ownerships and provide each owner his or her share on total area or expropriate land for a fair market value.

As spatial plans are mostly dealing with zoning functional use for relatively large areas, they are not elaborated in detail of development plans that used to be common prior to World War II. Without detailed regulation, such as delineation of public and private space, building fronts and building volumes including dominants, new development often fails to create coherent urban space, well connected to existing urban structure and interconnected with other developments built by different developers.

When coordinating development itself with necessary public services investments, for instance public transport, pre-school and school facilities, there are not given standard guidelines whether or how municipalities and developers should share public budgets costs that arise with new development. Although there exist instrument of planning contracts it cannot be easily implemented to make participation public amenities expenditures related to new construction obligatory.

Overall, prevailing problems and perceived uncertain outcomes of brownfield redevelopment lead for instance in Prague to leaving many of re-development brownfield sites under building ban (Útvar rozvoje města, 1999) since 1999 when it was enacted in the zoning plan to protect these sites from fragmented unorganized construction although it was expected soon after 1999 detailed plans will be produced.

Recommendations for planning proposal

When proposing development and transformation areas such as they are defined for instance in the Metropolitan plan (IPR Praha, 2018b) there should be an option for municipality to intervene in existing ownership either via option for land acquisition, land merger or expropriation for fair market value. The optimal scenario would probably contain all these options to fit all individual cases while leaving option not to use any of them when land ownership structure does not limit development potential.

Some of these sites might have very special site specifics as, for instance in case of large urban brownfields, they are frequently located in areas with major transport or technical infrastructure or they have extraordinary development potential of some kind that is of regional or national importance. To fully develop these potentials that might require significant and long-term public investments there should exist process how to involve regional or national government that could issue special legislation to overcome existing barriers in within existing regulation, pledge future finance assistance, safeguard the project against possible changes in local political preferences and help to create and moderate project consortium. Specific forms of municipal, regional and national government cooperation together with other involved stakeholders were used for instance in Amsterdam's Zuidas[16] project starting in mid 1990's (Majoor, 2007) or public-private partnership in Amsterdam's Ijburg project starting also in 1990's. It is also said the role of central government is getting more important in large-scale urban development projects that are commonly part of national strategies. While municipality typically initiate the project, national government can pledge funding and intervene in negotiations with private stakeholders. Because relations in the projects are more complex, there is even more important need for making clear leadership in the project process management (Lecroart & Palisse, 2007).

To clarify public budget costs on new development in development and transformation areas based on the proposed densities and public amenities estimates of these investment and current costs should be included in the spatial plan and developers would be obliged to either pay given contribution or provide services in that amount. The size of contribution would be derived from

[16] „Zuidas is the largest urban development project in the Netherlands, strategically located halfway between Schipol airport and central Amsterdam. At first imagined as a business district, it is now planned as mixed-use development on top of a major transport hub. It's future success relies on the major players's capacity to steer, finance and give life to a complex and risky project" (Majoor, 2007, p. 60).

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costs of local amenity provision and would take into account intended subsidization of preferred development locations over less preferred ones.

Missing compensating mechanisms for planning outcomes

Problem description

Current spatial planning system does not use compensating mechanisms when land or property value is affected by proposed plan or project. The only exception is converting developable land into undevelopable under supplementary conditions of project initiation.

This causes major problems. On one side there is motivation for land speculation as differences between developable and undevelopable land are high as well as speculations with land use intensities given by spatial plan and potential plan changes. This negatively affects property market as potential increase in value by speculation capitalizes into land values. The other side of opposition towards projects causing net loss to some agents. If there is no compensation mechanism that would offset losses caused by some project the only way how to protect value of property is to completely resist proposed project.

Both of these cases lead to social inefficiencies that could be mitigated with appropriate compensating mechanisms.

Recommendations for planning proposal

The most straight-forward way how to disincentivize land speculation is instrument called Land Value Increment Tax. This tax is applied on Taiwan and taxes value increment of land since last sale adjusted for inflation. The tax rate is progressive and ranges between 20% and 40% (Deloitte, 2019a). As a result as gains from increased value of land are considerably taxed it should prevent land speculation. It is up to question how this tax could be implemented in the Czech context to fulfil its role. Similar tool would be fee for changing zoning plan to increase value of land.

In case of compensation mechanism two general approaches could be taken: either compensations negotiated for each individual case of compensations based on the national or regional guidelines. The second case seems to be much more feasible as for all planning and projects' preparation size of compensations are known that is beneficial both for planning authority and developers. Secondly individual negotiations are very costly and most likely these transaction costs would overcome the compensation itself.

Insufficient public awareness, involvement and education

Experts' education

Problem description

Several issues regarding experts' education were raised. First of all there is educational gap between education of experts in current spatial planning who have commonly rather technical background and experts in strategic planning who have rather geography or other social sciences background. Misunderstanding between these two groups of expert might be one side of the problem of insufficient linkage between both branches of planning. Especially experts known in other countries as urban planners are missing in the Czech Republic.

Other commonly raised comment is insufficient education in spatial planning among experts coming from the architecture schools who have only limited schooling in spatial planning as school curricula put more emphasis on architecture although some architecture faculties provide special programs in spatial planning.

It was also said in practical spatial plans drafting some authors do not submit sufficiently good outputs. Although it was admitted this might be caused by generally low awards and tough competition this does not justify low quality of outputs. Anyway if there are any doubts regarding

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professional quality of planning documentation the Chamber of Architects has is obliged to asses such an issue.

Recommendations for planning proposal

It seems new more integrated holistic approach to spatial planning will require soon experts in urban planning as this education is defined in other western countries. It is unclear from which background it should rise, either architecture and spatial planning, social geography, policy making or economics. In any case such a program should contain all of previously mentioned disciplines together with law and public administration.

In case of problematic quality of spatial plans local governments hiring spatial planning professionals should be aware the authorized professionals must meet criteria given by regulation and if they believe the work the submit does not meet given criteria they should raise objection and let the issue assess.

Low awareness of spatial planning and its importance

Problem description

Citizens and to some extent politicians not often fully aware of complexity of spatial planning, its goals, tools and processes. This low awareness has various mostly negative impacts on spatial planning and development as more abstract goals of spatial planning is complicated to turn into appealing political program. On the other hand partial goals of spatial planning, such as environment protection, are without wider context used to justify political opposition for instance in case of new construction.

Recommendations for planning proposal

As it was mentioned in interviews the most important is to be open towards public and promote spatial planning as important public policy with its complex implications. More stakeholders mentioned Prague CAMP (Center for architecture and municipal planning) as an example of good practice worth to follow.

Secondly, spatial planning should be discussed already at primary or secondary schools because many citizens will at some point come into the contact with it.

Both of the above mentioned recommendations are discussed in Architecture and Building Culture Policy of the Czech Republic.

Lack of participation in suitable part of process and documents

Problem description

Public participation and associations involvement in spatial planning and spatial permitting processes is seen as very complicated although most of stakeholders admit public involvement is important. It seems prevailing processes cannot promote involvement of public in the right time and to the right extent.

In the case of spatial plans public hearing seems to be too late and scale of spatial plan is too abstract for the majority of stakeholders who want to predominantly discuss individual plots.

The necessity to answer all objections to spatial plan during its procurement seems not to be reasonable, although it is possible to answer similar objections collectively.

Recommendations for planning proposal

Public participation should be required, but should be less formalized and take part in different parts of the process. As optimal seems to conduct participation prior elaboration the spatial plan when task given by strategic plan or directly by local government is detailed.

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Deloitte.

Later on public opinion might be collected about key possible solutions to help plan's processor and local government to choose the desirable one. At the end objections towards the proposal should be collected and independent expert should assess which are relevant to be considered and answered and which ones are irrelevant.

Low public trust in spatial planning and institutions

Problem description

It was said trust in institutions in the Czech Republic is low and similarly there is not so much high status of public officers who work in the administration. Unfortunately the disrespect of officers is commonly encouraged by elected representation that claims officers are blocking their propositions.

Besides low trust towards institutions there is also low trust among all the stakeholders involved in the process and they are exploiting all opportunities to gain the most they can no matter at what costs imposed on others.

Recommendations for planning proposal

It seems the only way how to overcome this unsatisfactory state is to promote more communication between stakeholders to clarify their intentions and provide ground for possible negotiations to satisfy all parties involved to some extent as well as inform all stakeholders in advance about the process of planning documents drafting and stages when they could make comments or raise objections and how these inputs will be considered.

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3. List of abbreviations and technical terms

CBD	Central business district in the monocentric city concept (Fujita, Urban economic theory: land use and city size, 1989)
CSU	Czech Statistical Office
DG – REFORM	The EU Commission's Directorate-General for Structural Reform Support
EIA	Environmental impact assessment
MRD or the Ministry	Ministry of Regional Development of the Czech Republic
ORP	Municipalities with extended powers / Obce s rozšířenou působností
POU	Municipalities with authorized administration / Obce s pověřeným úřadem
SEA	Strategic environmental assessment
SLDB 2011	2011 Census / Sčítání lidu, domů a bytů 2011
Spatial development principles	Binding spatial planning documentation on the regional level / Zásady územního rozvoje
Spatial plan	Binding spatial planning documentation on the municipal level / Územní plán
Systematic bias	Explained in detail in 1/ Systémová podjatost
TIA	Territoral impact assessment
VAT	Value added tax

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4. Bibliography

Ahlfeldt, G. M., Nitsch, V., & Wendland, N. (2019). Ease vs. noise: Long-run changes in the value of transport (dis) amenities . *Journal of Environmental Economics and Management, 98*.

Anas, A. (2012). Discovering the efficiency of urban sprawl. In N. Brooks, K. Donaghy, & G.-J. Knaap, *The Oxford Handbook of Urban Economics and Planning* (pp. 123-149). Oxford University Press.

Auguie, B. (2017). gridExtra: Miscellaneous Functions for "Grid" Graphics. *R package version 2.3*.

Aulík, J., & Fišer, J. (2015). Transformační území. In J. Jehlík, & F. Landa (Ed.), *Metodika zadávání územních plánů* (pp. 33-41). České vysoké učení technické - Fakulta architektury.

Bache, S. M., & Wickham, H. (2014). magrittr: A Forward-Pipe Operator for R. *R package version 1.5*.

Barr, J. M. (2016). *Building the skyline: The birth and growth of Manhattan's skyscrapers.* Oxford University Press.

Behrens, K., & Robert-Nicaud, F. (2015). Agglomeration theory with heterogeneous agents. In G. Duranton, J. V. Henderson, & W. C. Strange, *Handbook of Regional and Urban Economics* (Vol. 5A, pp. 171-245). Elsevier.

Bertaud, A., & Bertrand, R. (1995). *Cities without land markets: location and land use in the socialist city.* The World Bank.

Bertaud, A., & Brueckner, J. K. (2005). Analyzing building-height restrictions: predicted impacts and welfare costs. *Regional Science and Urban Economics, 35*(2), 109-125.

Birk, M. A. (2019). measurements: Tools for Units of Measurement. *R package version 1.4.0*.

Bivand, R., Keitt, T., & Rowlingson, B. (2019). rgdal: Bindings for the 'Geospatial' Data Abstraction Library. *R package version 1.4.6*.

Black, S. E. (1999). Do better schools matter? Parental valuation of elementary education. *The quarterly journal of economics, 114*(2), 577-599.

Blair, G., Cooper, J., Coppock, A., Humphreys, M., & Sonnet, L. (2019). estimatr: Fast Estimators for Design-Based Inference. *R package version 0.20.0*.

Boháč, O. (2018, 29 September). Dobrá zpráva pro Prahu: Experti vidí lepší budoucnost podobně jako politici. Central Group . Retrieved May 3, 2020, from https://zpravy.aktualne.cz/domaci/dobra-zprava-pro-prahu-experti-vidi-lepsi-budoucnost-hlavnih/r~d655c478bd7b11e88782ac1f6b220ee8/

Brander, L. M., & Koetse, M. J. (2011). The value of urban open space: Meta-analyses of contingent valuation and hedonic pricing results. *Journal of environmental management, 92*(10), 2763-2773.

Brooks, N., Donaghy, K., & Knaap, G.-J. (2012). *The Oxford Handbook of Urban Economics and Planning.* Oxford University Press.

Brueckner, J. K., & Singh, R. (2020). Stringency of land-use regulation: Building heights in US cities. *Journal of Urban Economics*.

Brůhová, K. (2017). *Praha nepostavená.* Česká technika - nakladatelství ČVUT.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Combes, P. P., Duranton, G., Gobillon, L., & Roux, S. (2010). Estimating agglomeration economies with history, geology, and worker effects. In *Agglomeration economics* (pp. 15-66). University of Chicago Press.

Crane, R., & Weber, R. (Eds.). (2015). *The Oxford handbook of urban planning.* Oxford University Press.

Česká komora architektů. (2019). *Vyjádření ČKA k návrhu paragrafového znění stavebního zákona a souvisejících právních předpisů v rámci rekodifikace veřejného stavebního práva.* Retrieved April 11, 2020, from https://www.cka.cz/cs/media/prilohy/191204-vyjadreni-cka-k-navrhu-paragrafoveho-zneni.pdf/@@download

České stavební standardy. (2020, January 31). *Cenové ukazatele ve stavebnictví*. Retrieved from České stavební standardy.

Dekkers, J. E., & van der Straaten, J. W. (2009). Monetary valuation of aircraft noise: A hedonic analysis around Amsterdam airport. *Ecological Economics, 68*(11), 2850-2858.

Deloitte. (2019a). *International Tax: Taiwan Highlights 2019.* Deloitte.

Deloitte. (2019b). *Property index.* Deloitte.

Dragulescu, A. A., & Arendt, C. (2018). xlsx: Read, Write, Format Excel 2007 and Excel 97/2000/XP/2003 Files. *R package version 0.6.1*.

Duany, A., Speck, J., & Lyndon, M. (2010). *The Smart Growth Manual.* Mc Graw Hill.

Duranton, G., & Puga, D. (2004). Micro-foundations of urban agglomeration economies. In V. Henderson, & J. F. Thisse, *Handbook of regional and urban economics* (Vol. 4, pp. 2063-2117). Elsevier.

Duranton, G., & Puga, D. (2015). Urban land use. In *Handbook of regional and urban economics. Vol. 5* (pp. 467-560). Elsevier.

Fialová, I., Čechová, K., & Kunešová, D. (2015). Územní plány EU. In J. Jehlík, & F. Landa (Ed.), *Metodika zadávání územních plánů* (pp. 145-174).

Fischel, W. A. (1987). *The economics of zoning laws: A property rights approach to American land use controls.* JHU Press.

Fujita, M. (1989). *Urban economic theory: land use and city size.* Cambridge university press.

Fujita, M., Thisse, J.-F., & Zenou, Y. (1997). On the endogeneous formation of secondary employment centers in a city. *Journal of urban economics, 41*(3), 337-357.

Gabaix, X. (1999). Zipf's law for cities: an explanation. *Quarterly journal of economics, 114*(3), 739 - 767.

Gehl, J. (2012). *Města pro lidi.* (K. Blažek, & B. Blažková, Trans.) Partnerství.

Glaeser, E. (2015). Foreword. In P. C. Cheshire, M. Nathan, & H. G. Overman, *Urban Economics and Urban Policy: Challenging Conventional Policy Wisdom.* Edward Elgar Pub.

Glaeser, E. L. (2008). *Cities, agglomeration, and spatial equilibrium.* Oxford University Press.

Glaeser, E. L. (2011). *Triumph of the City.* Pan Macmillan.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Glaeser, E. L., & Gyourko, J. (2008). *Rethinking Federal Housing Policy: How to Make Housing Plentiful and Affordable.* Aei Press.

Glaeser, E. L., Gyourko, J., & Saks, R. (2005a). Why is Manhattan so expensive? Regulation and the rise in housing prices. *The Journal of Law and Economics, 48*(2), 331-369.

Glaeser, E. L., Gyourko, J., & Saks, R. E. (2005b). Why have housing prices gone up? *American Economic Review, 95*(2), 329-333.

Graham, D. J. (2009). Identifying urbanisation and localisation externalities in manufacturing and service industries. *Papers in Regional Science, 88*(1), 63-84.

Greenberg, J. A., & Mattiuzzi, M. (2020). gdalUtils: Wrappers for the Geospatial Data Abstraction Library (GDAL). *R package version 2.0.3.2*.

Gyourko, J., & Molloy, R. (2015). Regulation and Housing Supply. In G. Duranton, J. V. Henderson, & W. C. Strange, *Handbook of Regional and Urban Economics* (Vol. 5B, pp. 1289-1337). Elsevier.

Gyourko, J., Mayer, C., & Sinai, T. (2006). Superstar cities. *NBER working paper 12355*.

Gyourko, J., Saiz, A., & Summers, A. (2008). A new measure of the local regulatory environment for housing markets: The Wharton Residential Land Use Regulatory Index. *Urban Studies, 45*(3), 693-729.

Hána, P., & Makovský, L. (2019). Český rezidenční trh v širším kontextu. *Stavebnictví*(01-02), 44-46.

Hansen, J. L., Formby, J. P., & Smith, W. J. (1996). The income elasticity of demand for housing: evidence from concentration curves. *Journal of Urban Economics, 39*(2), 173-192.

Harvey, D. (2007). *A Brief History of Neoliberalism.* Oxford University Press.

Hein, L., Van Koppen, K., De Groot, R. S., & Van Ierland, E. C. (2006). Spatial scales, stakeholders and the valuation of ecosystem services. *Ecological economics, 57*(2), 209-228.

Henry, L., & Wickham, H. (2019). purrr: Functional Programming Tools. *R package version 0.3.3*.

Henry, L., Wickham, H., & Chang, W. (2019). ggstance: Horizontal 'ggplot2' Components. *R package version 0.3.3*.

Hijmans, R. J. (2019). geosphere: Spherical Trigonometry. *R package version 1.5.10*.

Hnilička, P. (2012). *Sídelní kaše, otázky k suburbánní výstavbě kolonií rodinných domů.* Host.

Holmes, T. J., & Lee, S. (2010). Cities as Six-by-Six Mile Squares: Zipf's Law? In E. L. Glaeser, *Agglomeration Economics* (pp. 105 - 131). The University of Chicago Press.

Hruška, E. (1934). *Dopravní síť v krajinném řešení.* Státní tiskárna v Praze.

Hrůza, J. (2014). *Svět měst.* Praha: Academia.

Hsieh, C.-T., & Moretti, E. (2019). Housing constraints and spatial misallocation. *American Economic Journal: Macroeconomics, 11*(2), 1-39.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Hudeček, T., Dlouhý, M., Hnilička, P., Leňo Cutáková, L., & Leňo, M. (2018). *Hustota a ekonomika měst.* ČVUT - Masarykův ústav vyšších studií, Institut plánování a rozvoje hlavního města Prahy, Pavel Hnilička Architekti, s.r.o.,.

Cheshire, P. C., Nathan, M., & Overman, H. G. (2015). *Urban Economics and Urban Policy: Challenging Conventional Policy Wisdom.* Edward Elgar Pub.

IPR Praha. (2014). *Územní plán hlavního města Prahy, Metropolitní plán, Koncept odůvodnění.* Institut plánování a rozvoje hlavního města Prahy.

IPR Praha. (2016). *Ekonomická udržitelnost města: analýza ekonomických dopadů Strategického plánu hl. m. Prahy, aktualizace 2016, úvodní studie.* IPR Praha. Retrieved May 9, 2020, from http://www.iprpraha.cz/ekonomickaanalyza

IPR Praha. (2017a). *Expected negative externalities and public budgets costs depending on 2 zoning plans scenarios.* Institut plánování a rozvoje hlavního města Prahy.

IPR Praha. (2017b). *Územně analytické podklady hl. m. Prahy, 2016.* Institut plánování a rozvoje hl. m. Prahy.

IPR Praha. (2018a). *Pražské stavební předpisy 2018 s aktualizovaným odůvodněním.* Institut plánování a rozvoje hlavního města Prahy.

IPR Praha. (2018b). *Územní plán hlavního města Prahy, Metropolitní plán, Návrh k projednání dle § 50 stavebního zákona.* Institut plánování a rozvoje hlavního města Prahy.

IPR Praha. (2018c). *Vplyv novej výstavby na ceny okolitých nehnuteľností a spokojnosť rezidentov.* Institut plánování a rozvoje hlavního města Prahy.

Jacobsová, J. (1975). *Smrt a život amerických vekoměst.* (J. Solperová, Trans.) Odeon.

Janák, P., & Hnídková, V. (2009). *Obrys doby.* Nakladatelství Arbor vitae.

Janata, M. (2016). *Velkoměsta v 19. a 20. století - křižovatky změn.* Zlín: Archa.

Jehlík, J. (2016). *Rukověť urbanismu.* Ausdruck Books.

Kahn, M. E., & Walsh, R. (2015). Cities and the Environment. In *Handbook of regional and urban economics* (Vol. 5A, pp. 405-465). Elsevier.

Kassambara, A. (2019). ggpubr: 'ggplot2' Based Publication Ready Plots. *R package version 0.2.3*.

Kim, A. Y., & Ismay, C. (2019). moderndive: Tidyverse-Friendly Introductory Linear Regression. *R package version 0.4.0*.

Kohout, M., Štáfek, F., Tichý, D., & Tittl, F. (2014). *Můj dům, naše ulice: individuální bydlení a jeho koordinovaná výstavba.* Zlatý řez.

Kohout, M., Tichý, D., Tittl, F., Kubánková, J., & Doležalová, Š. (2016). *Sídliště, jak dál?* České vysoké učení technické. Fakulta architektury. Ústav nauky o budovách.

Koucký, R. (2006). *Elementární urbanismus.* Zlatý řez.

Koucký, R. (2008). *Úřad kreátora.* Zlatý řez.

Koucký, R. (2017). *Metropolitní rozhovory - Roman Koucký 2012/2016.* Institut plánování a rozvoje hlavního města Prahy.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Koucký, R. (2019). *Metropolitní rozhovory II - Roman Koucký 2017/2018.* Institut plánování a rozvoje hlavního města Prahy.

Kratochvíl, P. (2015). *Městský veřejný prostor.* Zlatý řez.

Krejčová, N. (2014). *Komerční suburbanizace Prahy.* Plzeň: Aleš Čeněk.

Krizek, K. J., & Levinson, D. M. (2012). Access. In R. Weber, & R. Crane, *The Oxford Handbook of Urban Planning* (pp. 166-180). Oxford University Press.

Kumar, M., & Kumar, P. (2008). Valuation of the ecosystem services: a psycho-cultural perspective. *Ecological economics, 64*(4), 808-819.

Kurvinen, A., & Saari, A. (2020). Urban Housing Density and Infrastructure Costs. *Sustainability, 12*(2), 497.

Lázně Bohdaneč; SURPMO; Koutová, Alena. (2013). *Lázně Bohdaneč spatial plan.* Retrieved April 11, 2020, from Pardubice web pages: http://www.pardubice.eu/urad/radnice/uzemni-planovani/uzemne-planovaci-dokumentace-obci/seznam-obci/lazne-bohdanec/up-lazne-bohdanec/

Le Corbusier. (1973). *The Athens Charter.* (A. Eardley, Trans.) New York: Grossman Publishers.

Lecroart, P., & Palisse, J.-P. (2007). Large-scale urban development projects in Europe: what lessons can be learnt for the Île-de-France Region? *Cahiers de l'AURIF*(146), 5 - 28.

López-de-Lacalle, J. (2019). tsoutliers: Detection of Outliers in Time Series. *R package version 0.6.8*.

Mahy, M., Alexander, C., Neis, H., Anninou, A., & King, I. (1987). *A new theory of urban design* (Vol. 6). Center for Environmental Struc.

Maibach, M., Schreyer, C., Sutter, D., Van Essen, H. P., Boon, B. H., Smokers, R., . . . Bak, M. (2008). *Handbook on estimation of external costs in the transport sector.* Ce Delft.

Maier, K. (2005). *Hospodaření a rozvoj českých měst 1850 - 1938.* Praha: Academia.

Maier, K. (2012). *Udržitelný rozvoj území.* Grada.

Maier, K., Felcman, J., Klápště, P., Řezáč, V., Šindlerová, V., Vorel, J., & Vozáb, J. (2015). Procesy. In J. Jehlík, & F. Landa (Ed.), *Metodika zadávání územních plánů* (pp. 305 - 357).

Maier, K., Řezáč, V., & Jablonská, L. (2019). *Spoluúčast privátního sektoru na veřejných výdajích.* Ústav prostorového plánování FA ČVUT v Praze.

Majoor, S. (2007). Amsterdam Zuidas: ambition and uncertainties of a large scale mixeduse urban development. *Cahiers de l'AURIF*(146), 60 - 68.

Mayer, C. J., & Somerville, C. T. (2000). Land use regulation and new construction. *Regional Science and Urban Economics, 30*(6), 639-662.

Melichar, J., & Kaprová, K. (2013). Revealing preferences of Prague's homebuyers toward greenery amenities: The empirical evidence of distance–size effect. *Landscape and Urban Planning, 109*(1), 56-66.

Melichar, J., Vojáček, O., Rieger, P., & Jedlička, K. (2009). Measuring the value of urban forest using the Hedonic price approach. *Regional Studies, 2*, 13-20.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Necula, C., Ibragimov, M., Valetka, U., Bobeica, G., Radu, A. N., Mukhamedkhanova, K., & Radyna, A. (2010). *City size distribution dynamics in transition economies. A cross-country investigation.*

Nellthorp, J., Bristow, A. L., & Day, B. (2007). Introducing willingness-to-pay for noise changes into transport appraisal: An application of benefit transfer. *Transport reviews, 27*(3), 327--353.

Nelson, J. P. (1982). Highway noise and property values: a survey of recent evidence. *Journal of transport economics and policy*, 117-138.

OECD. (2012). *Redefining "Urban", A New Way to Measure Metropolitan Areas.* Paris: OECD Publishing.

OECD. (2016). *OECD Economic Surveys: Czech Republic 2016.* Paris: OECD Publishing.

OECD. (2017a). *Land-use Planning Systems in the OECD, Country Fact Sheets.* Paris: OECD Publishing.

OECD. (2017b). *The Governance of Land Use in the Czech Republic: The Case of Prague.* Paris: OECD Publishing.

OECD. (2018a). *OECD Environmental Performance Reviews: Czech Republic 2018.* Paris: OECD Publishing.

OECD. (2018b). *Rethinking Urban Sprawl, Moving Towards Sustainable Cities.* Paris: OECD Publishing.

Parkhomenko, A. (2018). *Housing supply regulation: Local causes and aggregate implications.* University of Southern California, Technical Report.

Pebesma, E. (2018). Simple Features for R: Standardized Support for Spatial Vector Data. *The R Journal*, 439-446.

Pebesma, E. (2020). lwgeom: Bindings to Selected 'liblwgeom' Functions for Simple Features. *R package version 0.2.1*.

R Core Team. (2000). R language definition. *Vienna, Austria: R foundation for statistical computing*.

Redding, S. J., & Turner, M. A. (2015). Transportation costs and the spatial organization of economic activity. In G. Duranton, & V. J. Henderson, *Handbook of regional and urban economics* (pp. 1339-1398).

Rizzi, L. I., & de Dios Ortúzar, J. (2015). Valuing transport externalities. In C. Nash, *Handbook of research methods and applications in transport economics and policy* (pp. 93-111). Edward Elgar Publishing.

Roback, J. (1982). Wages, rents, and the quality of life. *Journal of political Economy, 90*(6), 1257-1278.

Robinson, D., & Hayes, A. (2019). broom: Convert Statistical Analysis Objects into Tidy Tibbles. *R package version 0.5.2*.

Roca, J. D., & Puga, D. (2017). Learning by working in big cities. *The Review of Economic Studies, 84*(1), 106-142.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Santamaría, C. (2018). Small Teams in Big Cities: Inequality, City Size, and the Organization of Production. *Unpublished*.

Schragger, R. (2016). *City Power: Urban Governance in a Global Age.* Oxford University Press; 1 edition.

Sitte, C. (1995). *Stavba měst podle uměleckých zásad.* (V. Buriánek, Trans.) ABF.

Song, Y., & Stevens, M. (2012). The Economics of New Urbanism and Smart Growth: Comparing Price Gains and Costs between New Urbanism and Conventional Developments. In N. Brooks, K. Donaghy, & G.-J. Knaap, *The Oxford Handbook of Urban Economics and Planning* (pp. 503-521). Oxford University Press.

Spinu, V., Grolemund, G., Wickham, H., Lyttle, I., Constigan, I., Law, J., . . . Vitalie. (2011). Dates and times made easy with lubridate. *Journal of Statistical Software*, 1-25.

Tosics, I., Szemző, H., Illés, D., Gertheis, A., Lalenis, K., & Kalergis, D. (2010). *National spatial planning policies and governance typology.*

UNESCO. (2005). *Vienna Memorandum.* Paris: UNESCO.

Útvar rozvoje města. (1999). *Praha.eu*. Retrieved April 14, 2020, from Územní plán sídelního útvaru hlavního města Prahy: http://www.praha.eu/jnp/cz/o_meste/magistrat/odbory/odbor_uzemniho_rozvoje/uzemni_planovani/uzemni_plan/index.html

Walker, A. (2019). openxlsx: Read, Write and Edit XLSX Files. *R package version 4.1.0.1*.

Wei, T., Simko, V., Levy, M., Xie, Y., Jin, Y., & Zemla, J. (2017). R package "corrplot": Visualization of a Correlation Matrix. *Statistician*, 316-324.

Wickham, H. (2007). Reshaping Data with the ´reshape´ Package. *Journal of Statistical Software*, 1-20.

Wickham, H. (2016). *ggplot2: Elegant Graphics for Data Analysis.* New York: Springer-Verlag.

Wickham, H. (2017). tidyverse: Easily Install and Load the 'Tidyverse'. *R package version 1.2.1*.

Wickham, H. (2019). stringr: Simple, Consistent Wrappers for Common String Operations. *R package version 1.4.0*.

Wickham, H., & Bryan, J. (2019). readxl: Read Excel Files. *R package version 1.3.1*.

Wickham, H., & Henry, L. (2019). tidyr: Tidy Messy Data. *R package version 1.0.0*.

Wickham, H., Francois, R., Henry, L., & Müller, K. (2019). dplyr: A grammar of data manipulation. *R package version 0.8.3*.

Wickham, H., Hester, J., & Francois, R. (2018). readr: Read Rectangular Text Data. *R package version 1.3.1*.

Willis, C. (1995). *Form Follows Finance.* Princeton Architectural Press.

Wright, K. (2018). corrgram: Plot a Correlogram. *R package version 1.13*.

Wright, W. C., & Eppink, F. V. (2016). Drivers of heritage value: A meta-analysis of monetary valuation studies of cultural heritage. *Ecological Economics, 130*, 277-284.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Zeileis, A. (2004). Econometric computing with HC and HAC covariance matrix estimators.

Zeileis, A., & Grothendieck, G. (2005). zoo: S3 Infrastructure for Regular and Irregular Time Series. *Journal of Statistical Software*, 1-27.

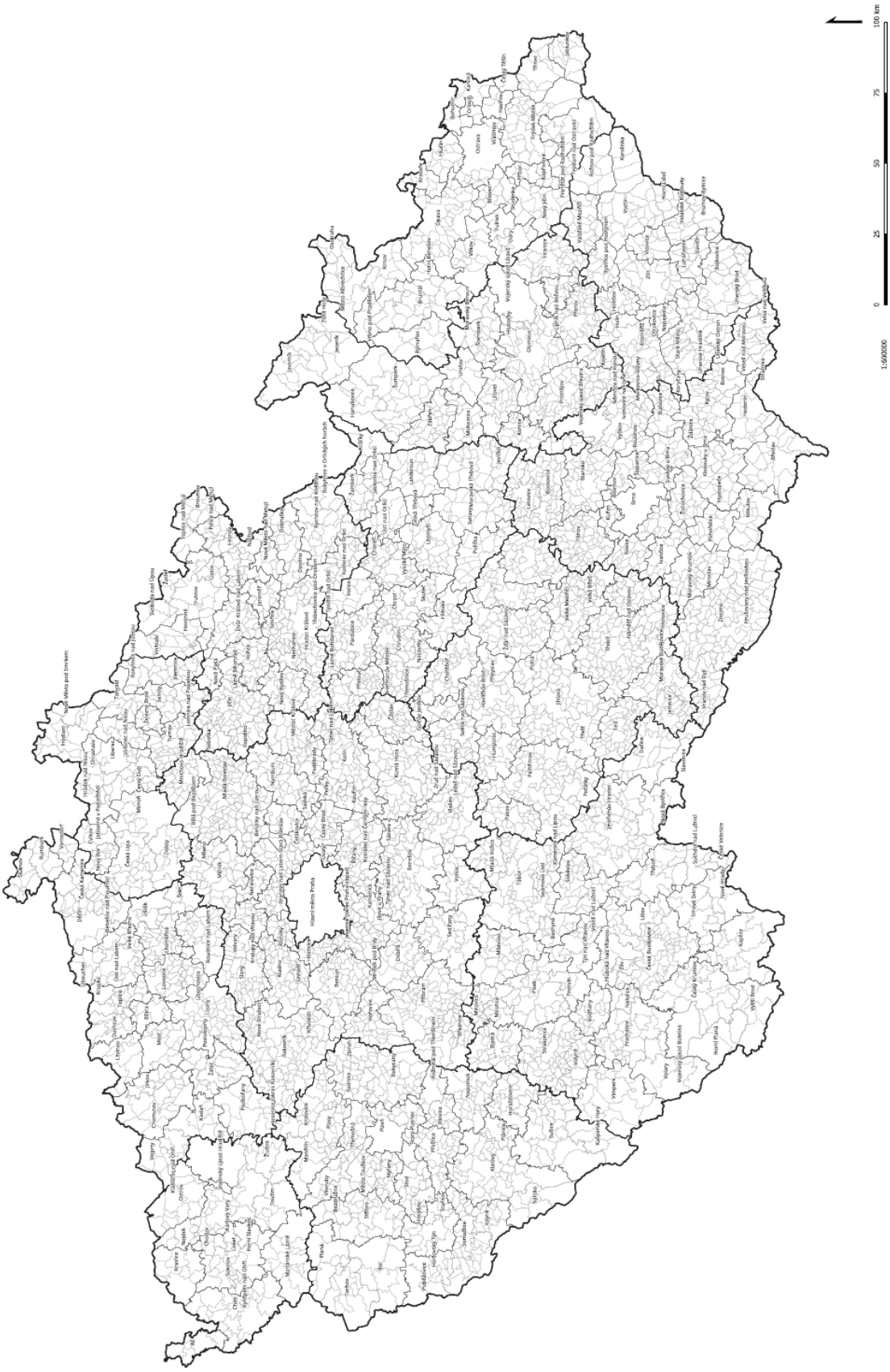
Zeileis, A., & Hothorn, T. (2002). Diagnostic Checking in Regression Relationships. *R News*, 7-10.

Zídek, Z. (2017). Případová studie Lipno nad Vltavou. *Rozvoj cestovního ruchu a územní plánování* (pp. 40-42). Ústav územního rozvoje.

Spatial Planning Analysis was carried out with funding by the European Union via the Structural Reform Support Programme and in cooperation with the European Commission's DG REFORM, contract number: SRSS/SC2019/150

Deloitte.

5. Administrative subdivision map



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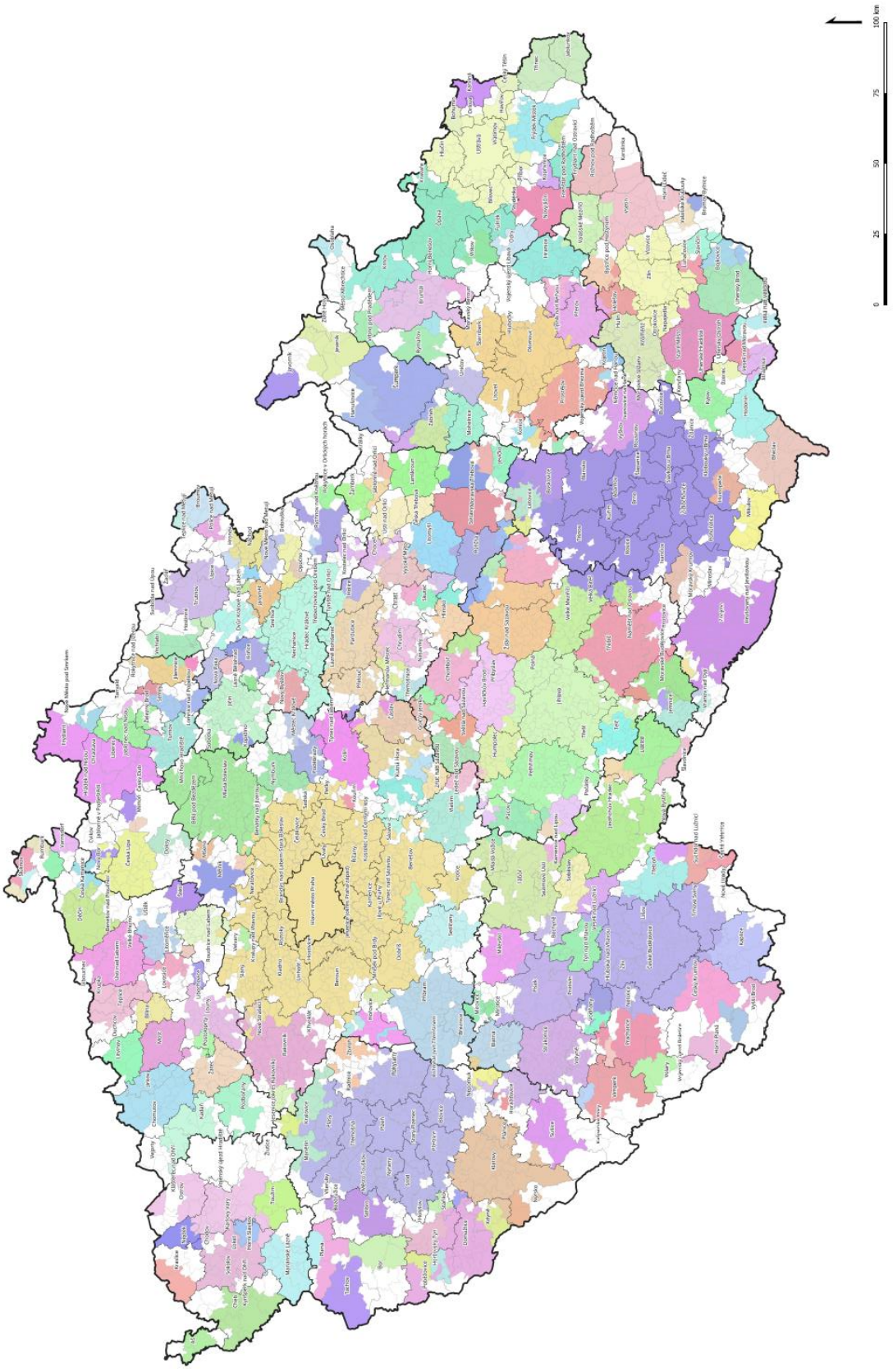
Deloitte.

6. Administrative and functional subdivision map



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