

# ILS-IMPULSES

## Trade and Housing – a Tug of War over Densification?

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What is the impact of densification on residential and commercial use in major German cities?

### Overview

- Densification can endanger mixed use
- Tendency to displace craft and trade from inner-city locations
- How can mixed use be designed in the growing city?

Densification and mixed use

Major cities in Germany are struggling with an increasing shortage of development sites. The population growth in recent years and the resulting increase in demand for residential space, as well as the growing need for business space and infrastructure, can only be met by a combination of new and more effective use of land that has already been built on or that has become vacant in the course of structural change. In terms of sustainable urban and settlement development, densification and a mix of uses are also considered to be key to reducing land consumption.<sup>1</sup> Maintaining and developing as many different uses as possible also means upholding the diversity and vibrancy of the city.<sup>2</sup> This is what the guiding principle of the European City stands for, as defined in the Charter of Leipzig since 2007 and continued in its new edition in 2020<sup>3</sup>: European cities should be places with socially and functionally mixed, lively neighbourhoods.<sup>4</sup>

The high demand for space for various uses is reflected in the rising land, real estate and rental prices. The resulting displacement in favour of high-priced new construction projects as well as the price development in the existing stock<sup>5</sup> are increasingly excluding certain groups of residents from (inner) cities due to the lack of affordable housing, among them also key professions such as nursing staff or retail workers. Displacement pressure is also causing trade and commercial enterprises to no longer be able to bear the rising costs of inner-city locations. Therefore, the question of housing affordability is joined by the challenge of an ever decreasing functional mix. These conflicts of use are exacerbating the situation in the inner cities, for example, due to the incompatibility of residential and commercial uses in the classic perimeter blocks and their courtyards. New construction projects currently often refrain from greater functional mixing in order to avoid use or immission conflicts, but also in order not to unnecessarily increase the complexity of investments. Not infrequently this results in the relocation of businesses to peripheral locations. Such in turn may reduce the attractiveness of their workplaces and increase the volume of traffic due to new commuter flows.<sup>6</sup> After all, the change in the nominal ratio of commercial establishments and residences overall can contribute to social and functional segregation. Long commutes to goods and services can, in the long run, reduce the attractiveness and usability of both old and new neighbourhoods. Even this brief description of the conflict potentials shows that densification has a far-reaching impact on cities' character and life.

Commercial and residential development in regards to densification

One prerequisite for an effective planning steering of densification is the knowledge regarding the interrelations between urban functions. Initial results of a pilot study in seven German cities (Berlin, Hamburg, Munich, Cologne, Frankfurt/Main, Stuttgart and Düsseldorf) show the functional change of highly densifying urban areas on a small scale. With the help of square-kilometre-sized grid cells, the study shows how the relation between commercial and residential areas changed between 2005 and 2015. The analysis focuses in particular on measuring the ratio of commercial units to residential units. Highlighted are those spaces, which were particularly characterized by densification commercial or residential use between in 2005 and 2015. In addition to identifying the subareas of a city that have been particularly

affected by densification, the type of intensification of use was also investigated while showing the change in the numbers of commercial units and residential units. A summary of the results is shown in Figs. 1 and 2.<sup>7</sup>

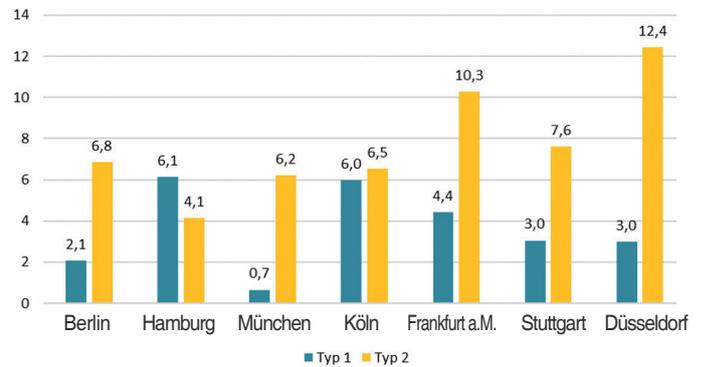
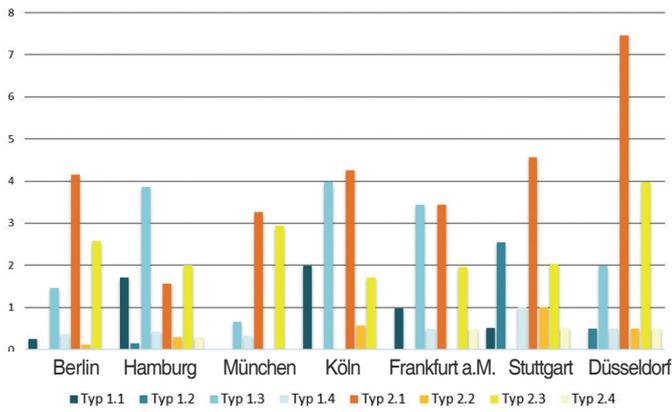


Fig. 1: Share of grid cells with above-average intensification of use, divided into commercial (type 1) and residential (type 2) characterized areas in a comparison of 2005 and 2015.

Urban areas of significant development measures show substantial changes in the mix of commercial and residential uses (Fig. 1). An example of this is the development in Hamburg's centrally located HafenCity, where a large-scale structural change is taking place in favour of residential use. Cologne was also able to mobilize a striking proportion of commercial land for densification during the investigation period. Otherwise, changes have mostly taken place in the areas characterized by residential use; the cities Düsseldorf and Frankfurt/Main are the frontrunners in this respect. Despite their constantly high demand for residential space, Munich and Berlin show a relatively weak development dynamics in areas characterized by commercial use. Also the pace of change within areas characterized by residential use remains weak, and so is the overall densification performance.

In order to understand the development of trade and housing within particular grid cells characterized by a high development dynamics, the changes in the ratio of commercial and residential units have been further examined (Fig. 2). These have not infrequently changed within the densification process. A simultaneous increase of commercial and residential units (type 2.1) is mostly to be found within the densification of compact inner-city settlement areas already characterized by residential functions. This particularly applies in Düsseldorf, where - in addition to the massive mixed-use development at the Rhine riverfront - mixed-use projects along centrally located railway areas as well as on brownfield sites on the outskirts of the city centre have been consequently implemented during the last decades. In Düsseldorf, however, this development is also accompanied by a qualitative change in use within the commercial units: Production and crafts are increasingly being replaced by services.<sup>8</sup> Such a development can be observed both in the established inner-city structures and in new construction projects - a trend that is also likely to be transferable to other cities.

On the other hand, there is a significant increase in the number of residential units and a simultaneous decrease in the number of commercial units in many investigated areas which were initially already dominated by residential use (type 2.3). Both trends



**Gebietstyp 1 = zuvor gewerblich geprägte Gebiete (Anteil Gewerbe > 30%)**

Typ 1.1	+ Gewerbe / + Wohnen
Typ 1.2	+ Gewerbe / - Wohnen
Typ 1.3	- Gewerbe / + Wohnen
Typ 1.4	- Gewerbe / - Wohnen

**Gebietstyp 2 = zuvor stärker durch Wohnen geprägte Gebiete (Anteil Gewerbe < 30%)**

Typ 2.1	+ Gewerbe / + Wohnen
Typ 2.2	+ Gewerbe / - Wohnen
Typ 2.3	- Gewerbe / + Wohnen
Typ 2.4	- Gewerbe / - Wohnen

Fig. 2: Share of grid cells with above-average change in the number of commercial establishments and residential units in relation to the total number of grids, 2005 - 2015.

indicate a location-related weakening of the commercial sector; only rarely could new commercial sites be created in the course of densification (type 2.2). In most other cases, the increase in residential units also dominated (types 1.3 and 2.3). Only in a few of the indicated areas could a reverse trend be observed (types 1.2 and 2.2). These areas were mostly situated outside the inner-city districts, which therefore, among other things, suggests a moving of businesses from the integrated urban core locations to peripheral urban areas. Of minor importance are commercial areas, where both residential and commercial increased and decreased in equal measure (types 1.1, 1.4). Closer examination of these sites mostly indicated a consolidation process of smaller businesses into larger units or other ongoing processes of restructuring.

**Shaping densification**

The initial results of the study on the relationship between densification and a mixture of uses show that the desired balanced mix of uses both in the cities as a whole as well as in individual sub-areas has so far only been achieved to a limited extent. The introduction of the area category „urban area“ (§ 6a BauNVO, German Land Use Ordinance) with the urban development law amendment of 2017 is intended to improve the scope for action to implement integrated urban development and provide an answer to the lack of housing supply in agglomeration areas.<sup>9</sup> The lowering of the immission thresholds, especially for noise levels, aims at a closer coexistence of residential and commercial uses, including the operation of social, cultural and other facilities, so long as the latter do not significantly interfere with residential use.<sup>10</sup> Thus, under certain conditions, residential densification is

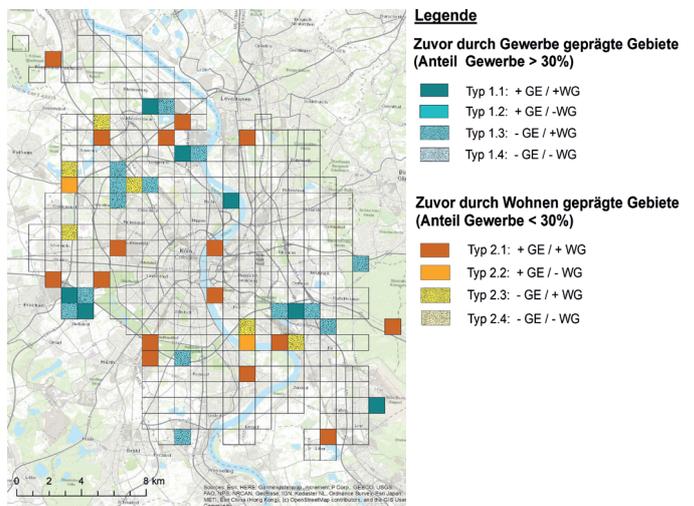
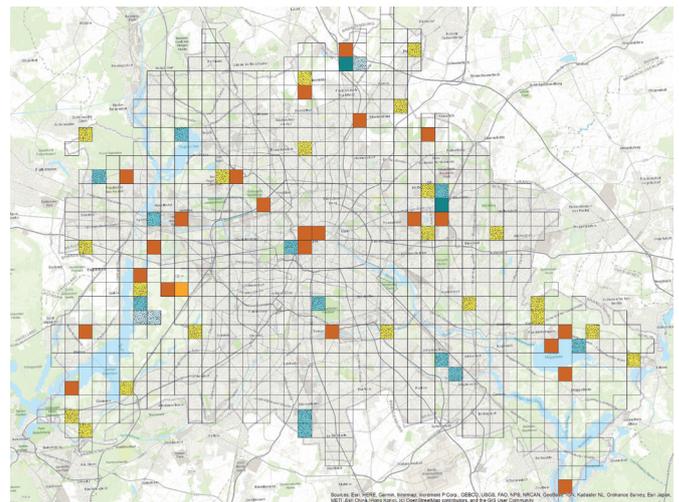


Fig. 3: Grid cells with above-average development dynamics and their development in terms of the ratio of commercial enterprises and residential units in Berlin and Cologne.

also possible in areas dominated by commercial areas. Practice will show whether the use of the new zoning category will rather be put into action in areas dominated by residential areas in order to strengthen the commercial sector, or in commercial areas to strengthen the residential sector. In both cases, it is necessary to pay attention to particular zoning conditions, so that the new urban area zones can contribute to a higher urban density while supporting the mixture of different uses, instead of fostering further displacement.

In view of the planning requirement to avoid conflicts of uses, triggered particular by noise<sup>11</sup>, and at the same time to protect existing commercial uses from displacement, the preservation and promotion of a mix of uses despite the BauNVO remains a balancing act. This applies for the existing mix of commercial and residential uses in the traditional urban block structure in the inner-city building stock as well as in new construction projects. The high significance of the type 2.1, which emerges from the results of the analysis, reveals that even under the pressure of densification and development pressure, at least a quantitative balance of commercial and residential space can be maintained especially where it is embedded in robust inner city urban-like residential structures.

One challenge, on the other hand, seems to be introducing different uses within larger new construction projects in correspondence with their residential use. In addition to planning law requirements, the highly sectoral specialized investment concepts of real estate developers play a significant role. However, the structural requirements are also important for the mix of uses and its conflict avoidance: For a mixed-use city, ground-floor zones in existing neighbourhoods in particular must remain mixed-use in the broad sense, and in new development areas they must be designed for flexible use, including the inner courtyard areas, as it is the case in elder urban structures. nevertheless, new building concepts are challenged by creating environments of mixed of use with protects from multiple disruption and protects especially the housing as much as possible.

This can be achieved even under the conditions of high densities by a vertical and horizontal mix of uses supported by respective built structures. Beyond the perimeter block and its buildings, also concepts that go beyond the „functional mix“ as a spatial coexistence by encouraging a functional interweaving or „merge“ may add user value, increase immission tolerance and prevent use conflicts. Functionally mixed concepts then combine living with working and production, with local support services and distribution of goods, care and medical services, learning and education or social control. They also make it possible, for example, for local craftmanships to take care of buildings at place. As the current developments in the large cities under the Corona pandemic show, urban mix of uses is one of the prerequisites for attractive, inclusive and crisis-resistant urban spaces.

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<sup>7</sup> The data sets of the study were originally determined by „Mikromarketing-System und Consult GmbH“ (microm), processed at RWI Essen and interpreted in cooperation with ILS. The data are socioeconomic

data at grid level (1 km<sup>2</sup>). For the individual grids, values are calculated in terms of the number of houses including pure commercial houses, of houses exclusive of pure commercial houses, the number of commercial establishments and the number of apartments.

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