



Original article

Changes in the morphology of the Old Town in Głogów (SW Poland) in the post-war period

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ABSTRACT

World War II contributed to significant morphological transformations in many cities across the historical region of Silesia (SW Poland), with Głogów serving as a particularly notable example. The aim of this research was to provide a comprehensive analysis of the morphological transformations of Old Town in Głogów, with particular emphasis on the destructive impact of warfare during World War II and the subsequent stages of reconstruction. The study used the town plan analysis (Conzenian) method and is based on an analysis of cartographic materials, aerial photographs, and other spatial data, and utilised GIS tools. The findings indicate that war destruction constituted a turning point in the urban development of Old Town in Głogów, leading to a radical change in its spatial layout, the gradual de-concentration of traditional buildings, and the introduction of new socio-economic functions. This article presents a phased reconstruction of the rebuilding process, highlights key challenges associated with architectural heritage restoration, and discusses the long-term consequences of these transformations for the contemporary morphology of the city. The impact of the destruction at the end of World War II on the morphology of the study area is still noticeable. In the case of Old Town in Głogów three burgage cycle phases can be distinguished: [1] a phase of building reduction directly related to wartime destruction and the necessity of clearing the area in the 1950s and 1960s, [2] a phase of urban fallow, which persisted in most of the area until the 1980s and 1990s, and [3] a phase of systematic reconstruction of the destroyed urban fabric combined with the revitalization of the street-blocks, initiated in the late 1980s.

KEY WORDS: urban morphology, war destruction, city re construction, burgage cycle phases, Old Town

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1. Introduction

Changes in urban morphology are multifaceted phenomena determined by a variety of internal and external factors. The internal factors relate to urban policy and spatial planning, usually occurring over long periods. In contrast, external factors, such as warfare, natural disasters, or mass migrations, often bring about radical and sudden transformations of the urban landscape. This issue is especially significant in cities with a rich urban history.

Research on the impact of wars on the transformation of the urban fabric and the processes of city reconstruction is an important theme in the literature, particularly developed in the context of European experiences after World War II. Key analyses focus on the reconstruction of German, French, or British cities, where decisions were made to rebuild in either a historical or modernist spirit, often leading to far-reaching changes in spatial structure (DIEFENDORF, 1989, 1993; CLOUT, 1999; BULLOCK, 2002; BRAKMAN ET AL., 2004; CALAME, 2005; LARKHAM, 2016). In this context, studies of the post-

war reconstruction of Polish cities, although often conducted concurrently and inspired by similar challenges, exhibit a distinct specificity. First, the extent of war destruction in many cities was much greater than in Western European cities, often leading to a complete restructuring of spatial layouts. Second, the reconstruction processes were strongly ideologized and subordinated to the prevailing state narratives, which influenced both architectural choices and urban planning decisions.

For cities located in the so-called Recovered Territories in western and northern Poland, events in World War II played a crucial role. Many cities in these regions suffered extensive destruction, often exceeding 50% of their built-up areas (GRABSKI, 1960; LUBOCKA-HOFFMANN, 2019; GAŁĄZKA, 2023). Among the most heavily devastated cities was Głogów, where the Soviet Red Army offensive in February and March 1945 led to the near-total destruction of the pre-war core of the Old Town. This forced city authorities and the local community to make crucial decisions regarding the reconstruction and redefinition of the urban image (CHUTKOWSKI, 1991; BOK, 2017).

The destruction of Polish cities during wartime has been extensively documented in the literature, detailing the scale of damage, the reconstruction process, and the socio-economic consequences (OSIKOWSKI, 1968; KALINOWSKI, 1986; ANDRZEJEWSKI, 1987; LUBOCKA-HOFFMANN, 2004; WNĘK, 2023). A significant number of studies have focused on Warsaw (DZIEWULSKI & JANKOWSKI, 1957; JANKOWSKI, 1990; DUTT & ACHMATOWICZ-OTOK, 1991; CROWLEY, 1994; NIEMCZYK, 1998; CALAME, 2005; DAVIES, 2020). The post-war rebuilding of Polish cities has also been well-documented in urban and historical studies (PRZYŁĘCKI, 1998; JOHNSON 2000; SZMYGIN, 2000; LUBOCKA-HOFFMANN, 2004; MISZEWSKA & SZMYTKIE, 2010, BUGALSKI, 2014; SALM, 2021), particularly concerning reconstruction policies and ideological factors influencing the process (KENNEY, 1997; CZUBA, 2019; SKALIMOWSKI, 2022; LORENS & BUGALSKI, 2023). Additionally, war-related urban destruction in Poland had long-term impacts on society and the economy (PIESOWICZ, 1987; PIWOŃSKA, 2015; MUSIAKA, 2019).

However, relatively less attention has been given to the detailed analysis of morphological changes in cities caused by war damage and subsequent reconstruction. Pioneering research in this area was conducted by MISZEWSKA on selected street-blocks in the Old Town of Wrocław (1993, 1994). Particularly important are studies examining entire

historic districts. MUSIAKA ET AL. (2021) analyzed morphological changes in seven of the largest cities in Poland, categorizing them based on the extent of war destruction. Meanwhile, SZMYTKIE & PAJĄCZEK (2021) and ZIĘTEK & SZMYTKIE (2024) applied Conzenian methods to analyze changes in historic urban complexes (Old Towns) in Wrocław and Kalisz.

This article investigates how wartime events influenced the morphological transformations of Głogów. The primary objective is to present changes in the morphology of the Old Town resulting from World War II. The analysis is based on the study of post-war changes in the built environment within street-blocks. By applying town plan analysis methods (Conzenian method), it was possible to determine the successive phases of the burgrave cycle. The study aimed to answer the following research questions:

1. What were the causes of changes in the morphological structure of Old Town in Głogów?
2. How has the density of built-up areas (building coverage) within street-blocks changed in the post-war period?
3. How have the phases of the burgrave cycle progressed in different parts of the Old Town?

2. Study area

Głogów is a county town located in the North-western part of the Lower Silesian Voivodeship (southwestern Poland) on the Oder River. In 2022, the city had a population of 63,240. The history of Głogów dates back to the early Middle Ages, with a settlement on the northern bank of the Oder possibly existing as early as the 9th–10th century (BOK, 2017). Chronicles from 1010 mention a stronghold located on present-day Ostrów Tumski. The stronghold was part of Poland's western fortifications and served defensive functions. In the 12th century, Głogów gained importance as a ducal seat and a significant religious centre due to the establishment of a collegiate chapter.

In the 13th century, the stronghold and surrounding settlements were elevated to city status under Magdeburg Law. The new city was established on the left bank of the Oder alongside the ducal residence. Due to its location near the German and Czech borders, Głogów became a major trade hub (BOK ET AL., 2010). Until the mid-19th century, the city boundaries remained unchanged, with dense development confined within medieval walls, while suburbs developed outside them as separate settlements.

In the 17th century, fortifications were built around the city, eliminating suburbs on the left bank and restricting natural urban expansion. The first significant changes in the spatial development of the city occurred in the late 19th century with the expansion of eastern defensive fortifications and the creation of a new district. The removal of fortifications facilitated westward urban expansion. Throughout this period, the Old Town remained the political and cultural centre of the city.

By the 20th century, Głogów was included in plans to establish a fortified line along the Oder River as part of Germany's eastern defences (CHUTKOWSKI, 1994). These fortifications were constructed between 1932 and 1939, with work resuming in 1944. During the Soviet offensive, the city was turned into a fortress. The first bombs and artillery shells struck on January 23, 1945, with major battles occurring from February 2. By the time Soviet forces encircled the city on February 14, approximately 30,000 residents had fled. Głogów remained under siege for six weeks until its surrender on April 1, 1945 (LEWICKI, 2008). Heavy bombardment caused significant destruction, with damage estimated at approximately 90% (LEWICKI, 2008).

The study area encompasses the modern district of the Old Town in Głogów. For the purposes of this research, its boundaries were defined as follows: to the south, Wały Chrobrego and Bolesław Krzywousty Streets; to the west, Konstytucji 3 Maja Square and Brama Brzostowska to the north, Nadodrzańska Street; and to the east, the railway line and the park along Piastowska and Rudnowska Streets. The temporal scope of the study spans from 1945 to

2022, covering the period from shortly before the area's destruction to the present. The spatial scope of the study covers an area that largely overlaps with the historical urban layout of the medieval Old Town in Głogów, which was established under German law. Particularly on the eastern, northern, and southern sides, the streets defining the area correspond to the former fortification boundaries or their approximate course. In contrast, the western boundary of the study area was shaped by the street layout developed after World War II, in connection with the reconstruction of the city.

3. Materials and methods

The empirical part of this study is based on the town plan analysis method proposed by CONZEN (1960). This method was divided into three stages. In Conzen's research, the primary unit of analysis was the individual urban plot. However, Polish researchers (KOTER, 1979; MISZEWSKA, 1993, 1994) have focused on entire street-blocks, within which various plots are located. Furthermore, Conzen's method can be applied to an entire set of street-blocks within a study area (SZMYTKIE & PAJĄCZEK, 2022; ZIĘTEK & SZMYTKIE, 2024), which was the approach adopted in this research.

The first stage of the research required the collection of relevant cartographic materials or aerial photographs of the city from different time periods. The specificity of the town plan analysis method necessitates the use of materials with precise building outlines, which to some extent limited the usefulness of available source materials (Table 1).

Table 1. Inventory of cartographic materials used in the study

No	Title	Source
1	Aerial photo of the Old Town and Ostrów Tumski on February 3, 1945	https://polska-org.pl/845003,foto.html?idEntity=6027706
2	Aerial panorama of Głogów on February 7, 1945	https://polska-org.pl/845002,foto.html?idEntity=6027706
3	Map of Głogów and its surroundings, 1966	https://polska-org.pl/8292243,foto.html?idEntity=557212
4	Topographic map, 1:10,000, 1998	https://geoportal.dolnyslask.pl/imap/?locale=pl&gui=new&sessionID=95051
5	Topographic map, 1:10,000, 2013	https://geoportal.dolnyslask.pl/imap/?locale=pl&gui=new&sessionID=95052
6	Topographic map, 1:10,000, 2022	https://geoportal.dolnyslask.pl/imap/?locale=pl&gui=new&sessionID=95053

For Głogów, five cross-sections were adopted:

- The first cross-section relates to the end of World War II. For this analysis, two aerial photographs from February 3, 1945 (Fig. 1) and February 7, 1945 (Fig. 2) were used. These images depict

parts of built-up area shortly before the city's siege by the Red Army.

- The second cross-section is represented by a 1:25,000 scale topographic map from 1965, obtained from the National Geoportal. This map

illustrates the scale of war damage and the state of the building coverage in the Old Town after cleanup operations in the 1950s and 1960s.

- The subsequent cross-sections include topographic maps from 1998, 2013, and 2022, sourced from the Lower Silesian Geoportal. These maps depict the successive phases of the Old Town's reconstruction.



Fig. 1. Aerial photograph of Głogów on February 3, 1945 (<https://polskaorg.pl/845003,foto.html?idEntity=6027706>)

For the purposes of the analysis, a figure (Fig. 3) was created, illustrating the layout of street-blocks based on the street grid of the Old Town district in Głogów as of 2022. The study area was thus divided into 34 blocks, with their numbering starting from the eastern part of the Old Town and progressing westward. The built-up areas identified in the source materials were then digitized into new GIS layers aligned with the existing street grid.



Fig. 2. Aerial photograph of Głogów on February 7, 1945 (<https://polskaorg.pl/845002,foto.html?idEntity=6027706>)

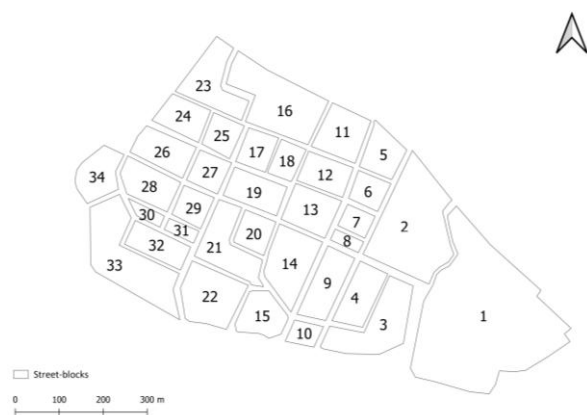


Fig. 3. Numbering of street-blocks in the Old Town of Głogów

The second stage of the research involved calculating the share of building coverage in the Old Town of Głogów across the selected time cross-

sections. Since the collected materials were in scanned form, rectification and vectorization were required. These processes were carried out using ArcGIS software (ArcMap version 10.7.1). Identifying buildings within specific street-blocks allowed for numerical data extraction using the Calculate Geometry tool, which computes the area of previously marked polygons. This data was subsequently used to generate graphs illustrating the differences in urban development changes over the years.

The final stage consisted of analyzing the collected spatial and numerical data, as well as the maps and graphs generated from them. These visualizations illustrated the extent of building coverage of street-blocks in different years, enabling an analysis of the burgrave cycle phases in the Old Town of Głogów.

4. Results

4.1. The scale of destruction and reconstruction concepts for the Old Town in Głogów

The pre-war Old Town in Głogów was characterized by very dense development (Fig. 4). Most quarters featured annexes, and a significant portion of the population was concentrated within and around the Old Town, despite the potential for development expansion beyond the fortifications (CHUTKOWSKI, 1991). The area had an extremely high population density of 467 people per hectare (MONOGRAPHIEN DEUTSCHER STÄDTE..., 1926). Many of the tenement houses were in poor technical condition, and only a few residents from this area were granted the opportunity to move to new housing due to the financial constraints of the municipality.

The military operations of World War II had a dramatic impact on the morphology of the Old Town in Głogów. Damage inventories produced inconsistent results due to difficulties in determining building numbers, the total number of structures, and, in extreme cases, the inability to access certain buildings (CHUTKOWSKI, 1991). The findings indicated that between 74% and 94% of the buildings in the city were destroyed (Fig. 5). In reality, even structures classified as "remaining" were often heavily damaged, such as those missing roofs. The highest survival rate of buildings was observed in the southern part of the historic city centre. Additionally, approximately 70% of the railway and road infrastructure was destroyed. To this day, the consequences of these events are visible in the spatial layout of the city.



Fig. 4. Aerial photograph of Głogów (1935-1940)
(<https://polskaorg.pl/6197691,foto.html?idEntity=548324>)



Fig. 5. Ruins on Grodzka Street in Głogów in 1945
(<https://polskaorg.pl/839702,foto.html?idEntity=6027692>)

In the first post-war years, new residents rebuilt and renovated 128 houses, mainly located on the peripheral districts of the city, where destruction was less severe (WOJTOWICZ & WOJTOWICZ, 1997). Only the outskirts of the Old Town saw construction and renovation efforts. The quarter near Wały Bolesława Chrobrego, tenement houses on Staromiejska Street, and villas on Kuźnicza and Kutrzeby Streets were reconstructed. Several buildings were also restored for public use, including the former Municipal Hospital, the post office on Piotra Skargi Street, and the district court building on Kutrzeby Street. Structures near Fort Gwiazda, on the eastern edge of the Old Town, were repurposed for the State Machine Centre, later becoming the headquarters of PKS (Polish Motor Transport Company).

The first decision to fully reconstruct the Old Town was issued in 1948 by the Municipal National Council (HERMASZEWSKI ET AL., 2010). However, due to limited financial resources, the plan was abandoned (BOK ET AL., 2010). In the mid-1950s, deteriorating technical conditions and ongoing degradation led to a decision to dismantle buildings for brick reclamation. In 1958, the Municipal National Council Presidium designated a conservation protection zone, its boundaries aligned with the remnants of early modern fortifications and Ostrów Tumski. From that time, any spatial planning decisions within 500 m of the designated area required approval from the Provincial Heritage Conservator. Unfortunately, this protection plan was often bypassed under the "Act on the Elimination of War Damages", which permitted the demolition of dilapidated buildings (BOK, 2017). Consequently, historic structures such as the evangelical church "Christ's Ark", the Town Hall tower (Fig. 6), and the

Franciscan monastery complex were demolished. The demolitions left vast undeveloped spaces around the three surviving monuments (Fig. 7).

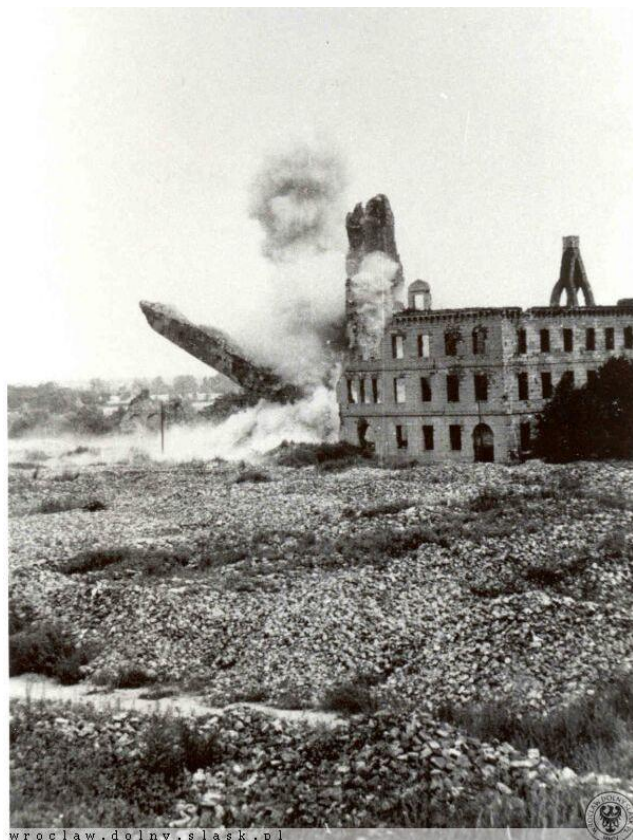


Fig. 6. Blowing up the tower of the Głogów City Hall in 1963 (<https://polska-org.pl/733590,foto.html?idEntity=6027692>)



Fig. 7. The Old Town in Głogów after rubble removal, showing the remains of the town hall and the rebuilt Corpus Christi Church in 1966 (<https://polska-org.pl/733598,foto.html?idEntity=6027692>)

The development of Głogów, driven by the construction of a copper smelter, provided an opportunity to utilize the vacant space left after the demolished Old Town. Its central location and proximity to major transport routes made redevelopment advantageous. In 1967, the first urban concepts developed by Zielona Góra urban planners designated the Old Town as a mixed residential and service area. In 1970, a competition for the redevelopment and planning of the city centre in Głogów was won by Jerzy Gurawski and Marian Fikus, whose design referenced historical elements by incorporating large-scale buildings within the historic street grid. The restored monuments were to be surrounded by green spaces, while high-rise buildings for Legnica-Głogów Copper District (Legnicko-Głogowski Okręg Miedziowy) workers were planned east of the market square. The 1977 spatial development plan proposed a city-wide service centre located in the Old Town and the central district. Reconstruction was scheduled for completion by 1990, with an estimated 5,000 residents.

Despite city-wide expansion, reconstruction efforts by passed the Old Town, where only archaeological excavations were conducted. Over time, it became clear that alternative solutions were needed. In 1980, a new study proposed a redevelopment strategy aiming to recreate the character of the pre-war Old Town. The "Detailed Spatial Development Plan for the Centre – Old Town" from 1981 (Fig. 8) retained the medieval street grid, abandoned high-rise development, and emphasized traditional architectural detailing for tenement houses. However, unlike the pre-war period, annexes were omitted, and more spacious inner courtyards were planned. Medieval fortifications encircling the Old Town were highlighted through the creation of walking areas and the exposure of foundation relics from former churches. The plan included 1,530 residential units with a total area of 82,460 m², sufficient for approximately 4,000 inhabitants. Service facilities such as shops and kindergartens were also incorporated, alongside significant green spaces.

Reconstruction began in 1986 with quarter A-12 (at the intersection of Powstańców Street and Rynek) near the Church of the Body of Christ, followed by tenement construction in the western part of the district along Grodzka Street.



Fig. 8. A 1983 zoning plan for the centre of Glogow (Bok, 2017)

4.2. Changes in the building coverage within street-blocks of the Old Town in Głogów

The built-up condition of the Old Town in early February 1945, just before its destruction by the Soviet Army, represented the peak density of building coverage within street-blocks (Fig. 9). Tenements surrounding the market square and extending eastward along Słodowa, Grodzka, and Balwierska Streets (blocks 13, 17, 18, 20, 24, 25, 27, 28, 29, and 31) exhibited the highest density of built-up areas, exceeding 60% of block coverage. Conversely, the southeastern part of the Old Town featured lower-density blocks (1, 15, 22, 5, and 33), largely due to the long-standing presence of city fortifications.

Post-war clean-up and demolition resulted in a drastic reduction of built-up areas by 1965 (Fig. 10). Nearly the entire northwestern part of the Old Town was devoid of buildings. Temporary structures appeared on previously existing roads due to the Old Town's status as an urban fallow. Reconstruction commenced only in the 1990s, and by 1998, new buildings had emerged in previously empty blocks (7, 20, 26, and 28) along Grodzka Street, Rynek, and Hugon Kołłątaj Street (Fig. 11). The trend continued into the 21st century, with increasing density of building coverage, albeit still far from pre-war levels.

By 2013, substantial redevelopment was evident (Fig. 12). However, nearly half of the street-blocks (15 out of 34) still had less than 20% density of building coverage. Between 2013 and 2022, minimal changes occurred, with only one new tenement built at Plac Solny in block 21 (Fig. 13). The process of the gradual reconstruction of the

Old Town area in Głogów in the post-war period is presented in Figure 14.



Fig. 9. Building coverage of street-blocks of the Old Town in Głogów in 1945



Fig. 10. Building coverage of street-blocks of the Old Town in Głogów in 1965



Fig. 11. Building coverage of street-blocks of the Old Town in Głogów in 1998



Fig. 12. Building coverage of street-blocks of the Old Town in Głogów in 2013



Fig. 13. Building coverage of street-blocks of the Old Town in Głogów in 2022



Fig. 14. Changes in the building coverage of the Old Town in Głogów in the post-war period

4.3. The course of burgage cycle phases in the Old Town of Głogów

Analyzing the average level of building coverage within street-blocks in the Old Town of Głogów in the post-war period (Fig. 15), it can be stated that

just before the end of World War II, it stood at 53.2%, reaching the climax phase. The Soviet Army offensive in February and March 1945 caused significant destruction of buildings in the area, and the average level of building coverage within street-blocks dropped to 7.7% (a decrease of 45.5 percentage points). Based on this, the scale of wartime destruction within the Old Town can be estimated at 85%. Until the 1990s, only a slight increase in built-up areas was observed, reaching 10.8% of street-blocks. The peak increase in building coverage occurred between 1998 and 2013 when it reached 26.6%, maintaining a similar level since then, reaching 27.0% in 2022. It can thus be concluded that the average level of building coverage within street-blocks in the Old Town of Głogów currently reaches only about 50% of the pre-war level.

However, the area of Old Town in Głogów is highly diversified in terms of the scale of war damage and the course of burgage cycle phases. Based on these criteria, the study area was divided into four sub-areas (Fig. 16). The first of these (I) includes four street-blocks located in the eastern part of the Old Town (Blocks no. 1, 2, 3, 4). The next sub-area (II) is concentrated in the northern part of the Old Town, covering Blocks no. 5, 6, 11, 12, 16, 17, 18, 23, 24, and 25. The central sub-area (III) of the Old Town, focused around the Market Square, includes 14 blocks (no. 7, 8, 9, 13, 14, 19, 20, 21, 26, 27, 29, 30, and 31), while the southern area (IV) comprises 6 blocks (no. 10, 15, 22, 32, 33, and 34).

In sub-area I (Fig. 17), a successive decline in building coverage within street-blocks was observed, with a significant drop (by 15 percentage points) occurring only between 1945 and 1965, although relatively lower than in the western part of the Old Town. From 1965 to the present, the decline in building coverage totalled just under 2 percentage points, which can be considered a minor change. Additionally, since 2013, the level of building coverage has remained unchanged, indicating a lack of development changes in the area.

Sub-area II was in the climax phase during the inter-war period, with an average building coverage within street-blocks exceeding 60%. However, the buildings in this area were completely destroyed during World War II, and until the 1990s, sub-area II remained an urban fallow, despite a high level of occupancy in 1945 (Fig. 18). The reconstruction of buildings contributed to an increase in the average level of building coverage within street-blocks to

33.4% in 2013, and it has remained at this level to this day.

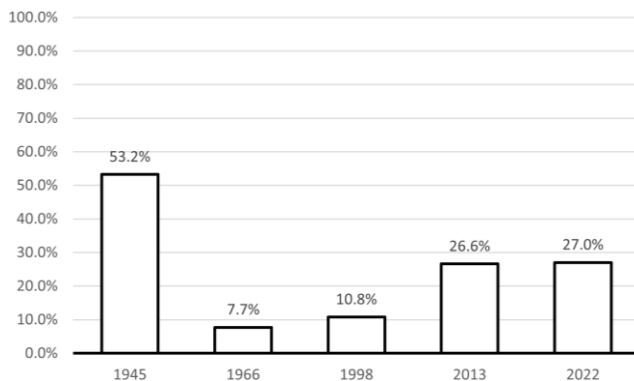


Fig. 15. Changes in the building coverage of street-blocks in the Old Town of Głogów in the post-war period



Fig. 16. Division of street-blocks in the Old Town of Głogów into sub-areas

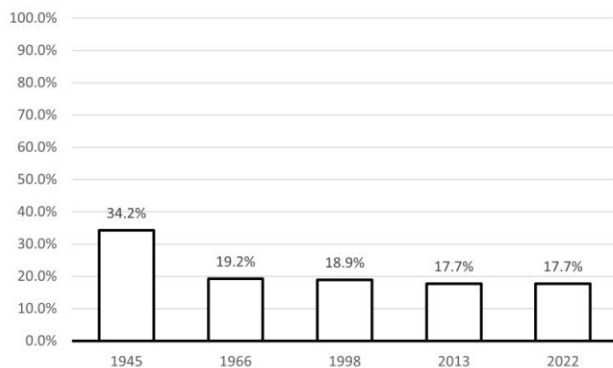


Fig. 17. Changes in the building coverage of street-blocks in sub-area I of the Old Town in Głogów in the post-war period

In the central area of the Old Town (sub-area III), the most significant changes in terms of building coverage were observed during the analysed period (Fig. 19). During the inter-war period, it was in the climax phase, with an average block occupancy of 64%. This part of the Old Town was also heavily destroyed during wartime operations, so that by

1965, the building coverage within street-blocks had dropped to 5.4% (a decrease of nearly 60 percentage points). In subsequent periods, a systematic increase of built-up areas in this sub-area can be observed, reaching 29.1% of street-blocks in 2022.

Sub-area IV exhibited the least change in building coverage within street-blocks (Fig. 20). The highest block occupancy in this sub-area occurred in 1945. Due to war damage, the occupancy level decreased by only 9 percentage points and has remained at a similar level to this day.

The reconstruction of the Old Town in Głogów initially focused on its eastern and southern parts, as these areas had the highest number of buildings that remained in relatively good technical condition (CHUTKOWSKI, 1991). The damage there was less severe, which made preservation or rebuilding feasible. In contrast, the buildings in the western part of the district were in much worse condition. Many of them were demolished, and the materials recovered from these demolitions were used in the reconstruction of better-preserved structures.

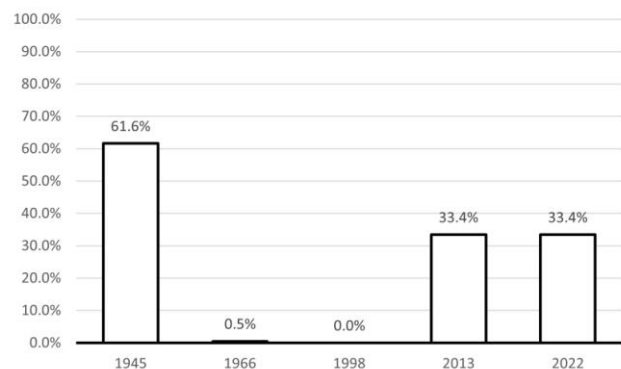


Fig. 18. Changes in the building coverage of street-blocks in sub-area II of the Old Town in Głogów in the post-war period

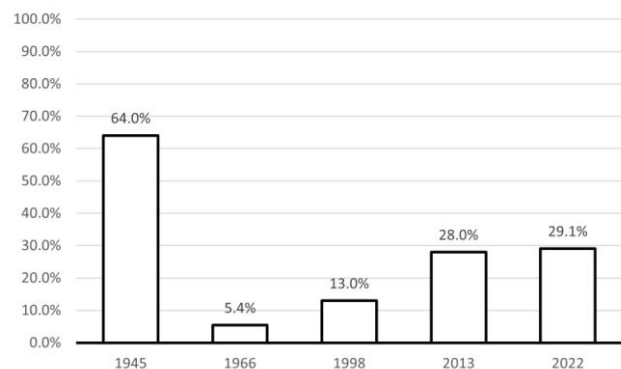


Fig. 19. Changes in the building coverage of street-blocks in sub-area III of the Old Town in Głogów in the post-war period

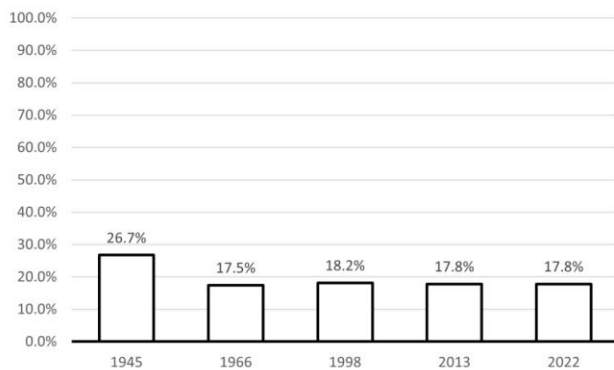


Fig. 20. Changes in the building coverage of street-blocks in sub-area IV of the Old Town in Głogów in the post-war period

5. Discussion

The analysis of morphological changes in the Old Town of Głogów during the post-war period reveals several key aspects related to the reconstruction of cities significantly affected by war damage. The research results indicate the complexity of urban processes associated with the reconstruction of the historical urban fabric and their long-term impact on the spatial structure of the city.

One of the key issues was the almost complete destruction of the pre-war buildings in the Old Town of Głogów. A comparable scale of destruction was observed only in a few other historic urban centres in Poland, such as Warsaw, Gdańsk, and Szczecin (MUSIAKA ET AL., 2021), Elbląg (LUBOCKA-HOFFMANN, 2019), Stargard and Kołobrzeg (ANDRZEJEWSKI, 1987), or Kostrzyn nad Odrą (GAŁĄZKA, 2023). In all these cases, decisions had to be made regarding the approach to reconstruction. While Warsaw and Gdańsk opted for historical reconstruction, Głogów followed a different path, with the rebuilding process being significantly prolonged and inconsistent in terms of urban planning principles. The long period of urban fallow and the adopted concept of Old Town reconstruction in Głogów, to some extent, resemble the retroversion approach successfully implemented in Elbląg (LUBOCKA-HOFFMANN, 2019).

A key factor determining the reconstruction of the Old Town in Głogów was the spatial and conservation policy of the Polish People's Republic (PRL). Initial decisions indicated an intention to completely abandon the historic centre and relocate urban functions to other areas within the city. This was the case in Kostrzyn nad Odrą, where central functions were moved to the so-called New Town (GONDEK, 2015) or in the case of Węgorzewo,

where there has been a complete redevelopment of the spatial layout of the historical part of the city (MUSIAKA ET AL., 2021). However, in subsequent decades, there was a shift in approach, leading to the gradual development of the Old Town in Głogów, albeit following modern urban concepts that differed from the pre-war dense tenement housing. Therefore, in the case of Głogów, one can speak of a far-reaching reinterpretation of the historical spatial layout, resulting from both financial constraints and later modernist concepts.

A comparison of the building states over the years shows that the reconstruction of the Old Town in Głogów was significantly delayed and did not occur in a coherent manner aligned with the previous urban layout. A substantial part of the historical spatial structure was transformed. On one hand, this led to improved living conditions by eliminating over crowded backhouses and creating spacious courtyards. On the other hand, it contributed to the loss of the historical character of the Old Town. The analysis indicates that, in 2022, the average level of building coverage within street-blocks in the Old Town of Głogów was only 50% of its pre-war state. This suggests that the area has not regained its former function as a densely populated city centre. In contrast, in cities such as Kalisz (ZIĘTEK & SZMYTKIE, 2024) or Wrocław (SZMYTKIE & PAJĄCZEK, 2021), where similar studies were conducted, the reconstruction effectively restored the destroyed urban fabric. This situation has significant implications for the social and economic life, as the Old Town of Głogów is no longer as strong a commercial and service centre as it was before World War II.

The relatively low level of development and numerous green spaces suggest that the reconstruction process of the Old Town in Głogów is not yet fully completed, leaving room for further spatial development. The current urban situation indicates the potential for further reconstruction, albeit based on contemporary residents' needs. Local authorities should consider to what extent it is worth referring to the historical character of the buildings and where modern spatial solutions should be implemented. The analysis of past changes can serve as an essential foundation for planning further revitalization efforts, taking into account both historical aspects and the functionality of contemporary urban spaces. The morphological transformation analysis of the Old Town in Głogów provides valuable insights into spatial planning

that could be applied to other cities with a similar urban history.

The analysis of cases such as Głogów, Warsaw, Elbląg, and Kostrzyn nad Odrą reveals a significant relationship between wartime destruction, post-war neglect, and the long-term shaping of urban morphology. These kinds of transformations, despite their local specificity, reflect a broader phenomenon of spatial reconfiguration in Central and Eastern European cities after 1945, particularly in the context of socialist urban heritage and the challenges of post-1989 systemic transformation (STANILOV, 2007; HIRT, 2012). The literature emphasizes that cities with similar histories of wartime damage and postwar reconstruction based on centrally planned models, e.g. Kaliningrad (HEWITT, 2013) or Chemnitz (NASR, 1997; GLORIUS, 2021) often exhibit comparable spatial and social issues, such as fragmented urban fabric, functional mismatches, or symbolic exclusions within the urban space (GRUBBAUER, 2012; SÝKORA & BOUZAROVSKI, 2012). Therefore, although the case of Głogów is grounded in a specific context, it offers valuable insights for a broader understanding of urban dynamics in post-communist countries.

6. Conclusions

The conducted research has shown that the impact of the destruction at the end of World War II on the morphology of the Old Town in Głogów is still noticeable today. The scale of destruction that affected the historical urban fabric necessitated changes in its morphology in the post-war period. As a result of wartime actions, a significant part of the Old Town in Głogów remained an urban fallow for many years. Despite reconstruction efforts, areas that have yet to be developed are still evident, particularly in the northern part of the studied area. The post-reconstruction buildings occupy a smaller portion of street-blocks than before World War II, leaving more space for courtyards or green areas. Moreover, the reconstruction of the Old Town in Głogów did not proceed uniformly or simultaneously, leading to differences in morphological transformations across various parts of the area.

Analyzing the changes in the development of the Old Town in Głogów during the post-war period within the context of the burgrave cycle phases, three characteristic phases can be distinguished: [1] a phase of building reduction directly related to wartime destruction and the necessity of clearing

the area in the 1950s and 1960s, [2] a phase of urban fallow, which persisted in most of the area until the 1980s and 1990s, and [3] a phase of systematic reconstruction of the destroyed urban fabric combined with the revitalization of the street-blocks, initiated in the late 1980s. Different parts of the study area exhibited varying dynamics of morphological transformations. The most significant changes occurred in the central and northern parts of the Old Town, located around the Market Square, Grodzka Street, Powstańców Street, Piekarska Street, and Długa Street. The southern and eastern areas of the Old Town showed the least dynamism, with building density remaining unchanged for a significant part of the analysed period and even decreasing, reaching its lowest level in 2022.

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