Justyna Martyniuk-Pęczek, Olga Martyniuk, Tomasz Parteka

ENTREPRENEURSHIP NESTS IN A POLISH EDGE CITY

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С

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INTRODUCTION

The last two decades in Poland have been a period of both a dynamic development of the small and medium-sized enterprise sector and a transformation of the city surrounding zones. This development began during the economy transformation after 1989. Population migration and movement of economic entities away from central cities resulted in development of territorial structures within some Polish suburban areas, defined as entrepreneurship nests. This may mean that economic activity of these inhabitants may be higher than that of the central-city residents. What is more, it seems to be a distinguishing feature of the Polish suburban areas, compared to the suburbanization areas of other Western European countries or the United States.

The topic of the relationship between suburbanization processes and the development of small and medium-sized enterprise (SME) sector derives from the Authors' work on a scientific project entitled *Creation* of entrepreneurship nests in the Tri-City Metropolitan Area. Analysis of the spatial and economic relations of the SME sector, financed by the National Science Center¹ – contract number UMO-2013/09/B/HS4/01175.

The scientific aim of the project was to determine the impact of the local SMEs' development on the suburbanization processes in selected suburban areas, on the example of the Tri-City Metropolitan Area (TMA²). The study on the relationship between the level of SMEs' economic activity and the suburbanization processes, on the example of the TMA, can be described as continuation and deepening of earlier research in the field of urban planning [Lorens 2005], sociology [Kajdanek 2012], economic geography [Beim 2009] and regional development, with regard to the process of suburbanization.

The innovative nature of the study lies in the attempt to answer the question of how SME-sector entities affect the form of metropolis functioning, resulting in a model of a Polish edge city, propounded by the Authors, which is based on development of entrepreneurship nests.

The literature on business economics often emphasizes the local nature of SME-sector entities as well as the strong social and economic ties with the place of business. This gives rise to a close relation between the sector's development and the local and regional development. Higher level of economic development increases the competitiveness of the local system, which becomes a factor in further economic development, causing an increase in the number of jobs, an increase in the inflow of tax revenues (including income tax, real estate tax) to local budgets, and affecting the standard of living in a given region [Masik 2010]. In economic research on the a given region's attractiveness for enterprises, attention is more often paid, however, to the effectiveness of fiscal or employment-related solutions, without analyzing the requirements associated with spatial development, which - as the results of the research presented in the study show - may affect development of economic activity in a given location. The studies presented in the publication are thus of innovative nature, with regard to the Polish research area.

¹ NCN [original in PL: Narodowe Centrum Nauki] is a government agency, supervised by the Ministry of Science and Higher Education, set up in 2011 to support basic research in Poland.

² Tri-City Metropolitan Area consists of three cities in Pomerania, Poland: Gdańsk, Gdynia and Sopot, including minor towns in their vicinity.

RESEARCH METHODOLOGY

The study on the relationship between suburbanization processes and the dynamics of entrepreneurship development was carried out by an interdisciplinary research team in the years 2013-2017. Prof. Tomasz Parteka, Ph.D., D.Sc. was the project manager, Associate professor, Justyna Martyniuk-Peczek, Ph.D., D.Sc., Architect was the main project developer of the urban part of the study, while Assistant Professor Olga Martyniuk, Ph.D. was the main project developer of the economic part. The team was additionally composed of Grzegorz Pęczek, Ph.D., D.Sc., Architect and Anna Gierusz, MA. The project also involved experts, who cooperated with the research team: Gabriela Rembarz, Ph.D., D.Sc., Architect, Ewa Majerowska, Ph.D., Dr. Magdalena Gostkowska-Drzewicka, Ph.D., MSc. Eng. of Architecture Hanna Obracht-Prondzyńska. The work carried out as part of the research grant also involved diploma theses supervised by Msc Eng. of Architecture Katarzyna Russek and Msc Eng. of Architecture Martyna Szymczak, defended at the Architecture Faculties of the Gdańsk University of Technology and the Sopot University of Applied Sciences.

The primary methodological assumptions involved application of the widest possible spectrum of various techniques, research tools and data sources, with a pursuit for comparative verification.

The subject of the research, in spatial terms, were the municipalities of the Pomeranian Voivodeship, located in the Tri-City Metropolitan Area (TMA), characterized by the highest dynamics of the suburbanization process. The study covered the TMA area (Fig. 1), which constitutes an important element within the functional and spatial structure of the Pomeranian Voivodeship and is the most important economic and social center of Southern Baltic. The area's delimitation was adopted in accordance with the assumptions of *The 2009 Spatial Development Plan for the Pomeranian Voivodeship*³ [orig-



Fig. 1. The TMA agglomeration area

Source: own cartographic elaboration based on the 2009 Spatial Development Plan for the Pomeranian Voivodeship [original title in PL: *Plan zagospodarowania przestrzennego województwa pomorskiego* 2009, p. 144].

inal title in PL: *Plan zagospodarowania przestrzennego* województwa pomorskiego z 2009 r.]⁴

The metropolis has been described as a unit composed of:

- the agglomeration center, composed of central cities: Gdańsk, Sopot, Gdynia;
- the functional area of the agglomeration, consisting of the cities of Pruszcz Gdański, Rumia, Reda, Wejherowo, Tczew, the urban-rural municipality of Żukowo and the rural municipalities

³ For the purpose of linguistic calrity, titles of the documents cicted have been translated into English. Original Polish titles are provided in square brackets.

⁴ In March 2017, the wording "Gdańsk – Gdynia – Sopot Metropolitan Area (GGS MA)" [original in PL: Obszar Metropolitalny Gdańsk – Gdynia – Sopot (OM G-G-S)] was used in the announced *Spatial Development Plan for the Pomeranian Voivodeship*. This term refers to the current delimitation of the metropolis, which is much wider (it includes 21 cities, 28 municipalities and 8 districts located not far from the Tri-City). For the purpose of this work, the Authors decided to use the term TMA(Tri-City Metropolitan Area) to denote the original structure covered by the study. In some cases, however, the term GGS MA is used to refer to area in a broader context.

of Pruszcz Gdański, Kolbudy, Szemud, Wejherowo, and Kosakowo;

the agglomeration surroundings that make up the cities of Hel, Jastarnia, Puck, Kartuzy, Władysławowo, and rural municipalities: Puck, Luzino, Przodkowo, Kartuzy, Somonino, Przywidz, Trąbki Wielkie, Pszczółki, Suchy Dąb, Cedry Wielkie, Stegna, Tczew (cf. Plan zagospodarowania przestrzennego wojew-ództwa pomorskiego, Gdańsk 2009).

The TMA is located in the Pomeranian Voivodeship, where the number of SME-sector enterprises per 1000 inhabitants is higher than the average in other Polish provinces [The 2013 Polish Agency for Enterprise Development Report].

The research subject, in the economic aspect, were the micro, small and medium-sized enterprises (the SME sector) located in all municipalities of the TMA (32 territorial units). Detailed analyses and qualitative studies were carried out in six municipalities of the TMA (Pruszcz Gdański, Kolbudy, Żukowo, Kosakowo, Szemud, Kartuzy), placing special emphasis on two entrepreneurship nests – Chwaszczyno and Straszyn⁵.

An entrepreneurship nest is understood by the project Authors as an area of economic activity higher than its average level in a given metropolitan area.

The SME entities surveyed were divided into three groups, depending on the number of employees:

 microenterprises – entities with 2–9 employees (excluding self-employment);

⁵ Selection of the municipalities and towns for the study has been explained in detail in the description of the research stages.



Phase I. Preliminary studies

Fig. 2. Research scheme

Source: own graphic elaboration.

- small enterprises entities with 10-49 employees;
- medium-sized enterprises entities with 50–249 employees.

The National Business Register – REGON (as of 31.12.2012) – was selected as the survey frame for SME enterprises.

The research work carried out as part of the project was divided into three main phases, in two areas simultaneously – the spatial and the economic (Fig. 2).

Phase I. Preliminary studies, the objectives of which included:

- identification of the TMA municipalities with the highest dynamics of suburbanization process;
- identification of the municipalities with the largest quotient of SME and entrepreneurship-nest localization within the TMA, as well as definition of the structural features of SME enterprises in sub-urban areas and in central cities of the TMA.

The intensity dynamics of suburbanization processes was determined using migration and construction-activity indicators. The following migration indices were used:

- influx ratio (IR) the ratio of the number of registered residents to the total number of the population living in a given area;
- outflux ratio (OR) the ratio of the number of register-outs to the total number of the population living in this area;
- net migration rate (NMR) the difference between the influx ratio and the outflux ratio;
- mobility ratio (MR) percentage of the population that changed their place of residence.

The data used to determine the migration rates was obtained from the Central Statistical Office, the so-called Local Database and the Marshal's Office of the Pomeranian Voivodeship.

Figure 3 graphically presents the spatial distribution of the migration ratios – the 1 to 5 layout shows municipalities with the highest net migration rate.

In order to assess construction activity, data was obtained from the TMA municipal offices of the Pomeranian Voivodeship. The analysis included the following:



Fig. 3. The TMA migration balance in the years 2002–2012 Source: own cartographic elaboration.

- the number of new residential buildings completed;
- the number of new service, industrial and utility buildings completed, in relation to the number of the existing utility buildings.

The analysis covered the years 2008–2012.

On this basis, municipalities were selected, in which the highest dynamics of suburbanization processes was observed (Fig. 4).

The research method adopted is burdened with such objective deficiencies as:

- with regard to migration ratios no registration requirement, the possibility of owning several apartments;
- with regard to construction activity indicators postponement of competed buildings registration resulting from property taxation.

As analysis of the literature on the subject, however, shows that these two groups of indicators, despite their limitations, are most commonly used in studies on suburbanization processes.

A list of economically active suburban areas was developed based on a location quotient (Florence's

index). The source data for estimation of the location quotient was the information obtained from the Central Statistical Office, the so-called Local Database and the provincial Statistical Office in Gdańsk.

The suburban zone rankings developed as a result of the research on suburbanization and economic activity were then collated. The suburban zones, for which the location quotient and the intensity of suburbanization processes were the highest, were subject to research in further stages of the project (Pruszcz Gdański, Kolbudy, Żukowo, Kosakowo, Szemud, Kartuzy).

To **identify entrepreneurship nests** within the suburban areas examined, first, the number of the SME-sector enterprises registered in 138 towns located in six selected municipalities was determined based on the data obtained from the provincial Statistical Office in Gdańsk. In the entire group of towns, Straszyn and Chwaszczyno stood out in terms of the number of registered entities. The location quotient calculated for these towns was higher than the average for all TMA municipalities



Fig. 4. Results of the ranking analysis of the suburbanization-process dynamics in the TMA Source: own cartographic elaboration.

	All TMA	All TMA Central cities			Municipalities			
	administrative units	Sopot	Gdańsk	Gdynia	without the central cities	Selected municipalities (6)	Chwaszczyno	Straszyn
Average	0.7854	1 5025	1.0717	1.0640	0.7428	0.8818	1 2270	1 2700
Median	0.7768	1.0649	0.7435	0.9115	1.5578	1.3709		

Table 1. Location of	uotient in the	TMA. ce	entral cities a	nd entre	preneurship	nests
Tuble 1. Location c		11111, 00	untitul citiles a	na chuc	preneursinp	110505

Source: own elaboration based on the data from the provincial Statistical Office in Gdańsk and the Local Database.



Fig. 5. Phases in the process of entrepreneurship nest identification in the TMA Source: own graphic elaboration.

(except for the city of Sopot) and the towns in selected municipalities. Consequently, the Authors recognized Straszyn and Chwaszczyno as entrepreneurship nests. Synthetic results of the location quotient analysis for the TMA, the central cities, selected municipalities and entrepreneurship nests are summarized in Table 1.

The manner of entrepreneurship nest identification in the TMA has been synthetically illustrated in Fig. 5.

Phase II. Proper research, the purpose of which was to recognize the cause-and-effect relationship between the economic and spatial phenomena examined. This phase was divided into individual parts:

- part 1 analysis of the spatial structure of the entrepreneurship nests;
- part 2 qualitative study of the entrepreneurs in selected municipalities;
- part 3 comparative analysis of the architectural forms of spatial development within the entrepreneurship nests.

PART 1 – ANALYSIS OF THE SPATIAL STRUCTURE OF ENTREPRENEURSHIP NESTS

Spatial study and analyses were used to determine the relationship between the development of suburbanization processes and the localization of SME-sector enterprises in these areas.

The following aspects were analyzed (Fig. 6):

- external links;
- spatial development and land use the existing (transportation and functional) conditions;
- the planning layer, including analysis of the Study of the conditions and directions of municipal spatial development⁶ [original title in PL: Studium uwarunkowań i kierunków zagospodarowania przestrzennego gminy];
- the changes planned in the structure of the transportation systems, included in the development strategies at municipal, voivodeship and national levels (e.g. the route of the Metropolitan Beltway);

⁶ A document drawn up for the entire municipal area, specifying the spatial policy and the local development principles.



Fig. 6. The procedure for spatial study of entrepreneurship nests Source: own cartographic elaboration.

• the building structure and the urban forms.

Proper graphic representation of data constitutes an important factor facilitating the perception of that data; thus, the results of spatial analysis have been developed and presented using a geographic information systems (GIS).

Based on the results of the first stage of the research, i.e. the map of SME-sector enterprise allocation in the key cities, urban analyses were carried out on the current and the future – the planned – state of spatial development. At this point, urban indicators were analyzed with regard to entrepreneurship nests.

PART 2 – QUALITATIVE STUDY OF ENTREPRENEURS IN SELECTED MUNICIPALITIES

Study of the SME-sector enterprises were conducted using Computer-Assisted Telephone Interview (CATI) questionnaires. The sample was randomly chosen from a database of the SME-sector enterprises registered in the municipalities selected in the preliminary study (3518 entities in total)⁷. Selection of the entities for the sample was of a purposeful-random nature⁸. Segmentation of the enterprises in the research sample was stratified by municipality, town and the size of entities. The sample consisted of the main sample and a reserve sample, in the event of failure to obtain information.

The structure of enterprises, with regard to their size, was established in the survey as follows:

- microenterprises (number of employees: 2–9) –
 83.7% of the entities surveyed (210 enterprises);
- small enterprises (number of employees: 10–49) 14.3% of the entities surveyed (36 enterprises);
- medium-sized enterprises (number of employees: 50–249) 2% of the entities surveyed (5 enterprises). Majority of the surveyed were entrepreneurs from the Pruszcz Gdański municipality (25.9% of the companies, i.e. 65 enterprises). The smallest group followed and the standard st

of the surveyed was identified in the Kartuzy municipality (10.0%, i.e. 25 enterprises). Detailed distribution

⁷ The database was prepared by the provincial Statistical Office in Gdańsk.

⁸ The enterprise reserve, in case of an additional draw, was 10%.



Fig. 7. The structure of the enterprises surveyed by localization

Source: own elaboration.

of the enterprises, depending on their localization, is presented in Fig. 7.

33 of the surveyed entities were localized in the entrepreneurship nests identified, including 18 units in Chwaszczyno and 15 units in Straszyn.

Among the 251 entities covered by the survey, three types of enterprises can be identified with regard to their legal form:

- legal entities 63 entities,
- organizational units without legal personality 94 entities,
- natural persons conducting business activity 75 entities.
- 19 of surveyed entities did not specify their legal form. In terms of the type of business activity, the largest group of enterprises in the research sample were entities from:
- section G wholesale and retail trade, repair of motor vehicles, including motorcycles – 26.4% of the surveyed enterprises;
- section C industrial processing 18.3% of the surveyed enterprises.

To interpret the answers obtained, descriptive statistics, correlation analysis and taxonomy were used.

Analysis of the data obtained from the qualitative research allowed, among others, identification and prioritization of the economic, spatial and social factors affecting the decision to undertake business activity in suburban areas.

PART 3 – COMPARATIVE ANALYSIS OF THE ARCHITECTURAL FORMS OF SPATIAL DEVELOPMENT WITHIN THE ENTREPRENEURSHIP NESTS

With regard to characteristic cases and the forms of SMEs' economic activity in the areas examined, 33 on-site verifications were carried out (18 in Chwaszczyno, 15 in Straszyn) in order to identify the forms of spatial development.

The following urban planning parameters were taken into account in the analysis:

- plot area;
- percentage of construction / the area of construction;
- building height, measured by the number of overground floors;
- the size of the biologically active surface;
- building intensity.

Phase III. Summary of the results and preparation of the spatial research-model

Having identified the conditions for establishment of entrepreneurship nests in suburban areas and determined the typology of SME-sector enterprises (especially the type of business), it was possible to:

- describe a Polish spatial model of an edge city;
- indicate the development orientation of entrepreneurship nests;
- create a spatial model of enterprise development stimulants for the SME-sector in suburban areas.

The mutual relations described were divided into those stimulating development of suburban areas as well as those stimulating development of local SME-sector enterprises.

1. THE ESSENCE OF CONTEMPORARY SUBURBANIZATION

1.1. THE CONCEPT OF SUBURBANIZATION

The concept of suburbanization comes from the Latin *suburbium* – suburb – and signifies the space beyond city boundaries. Suburbs are the peripheral districts of large cities, suburban areas – the towns adjacent to city borders.

Owing to many years of research [Wood 1958; Fishman 1990; Webber 1998; Champion 2001; Gillham 2002; Gottdiener et al. 2011] on the topic of suburbanization, it became possible to show the characteristics of this phenomenon – natural for the processes of city development, common and mass on a global scale, but also having individual characteristics, depending on the socio-economic-cultural context.

Suburbanization in the 21st century is a **global phenomenon** [Clapson, Hutchison 2010]. Within the scope of urban planning and social sciences, this subject has been gradually deepened in various studies, as indicated by analysis of bibliographic databases (e.g. WoS)¹ [Harris 2010]. Many publications [Gillham 2002; Bruegmann 2006; Clapson, Hutchison 2010; Nuissl et al. 2007; Stanilov, Sýkora 2014] emphasize the individual nature of this phenomenon, which is influenced by local, cultural, economic and political aspects.

Suburbanization is a **natural process** associated with the development dynamics of contemporary urban structures. Van den Berg [L. van den Berg 1982 as per: Klaassen et a. 1981] distinguished the following stages of urban development:

- the urbanization phase associated with an increase in the urban population, with its maximum concentration in the city center and in the surrounding districts;
- the suburbanization phase rapid spatial development of the city, a decrease in the city-center population, with a simultaneous increase in the suburban-area population;
- the de-urbanization phase a state in which the number of inhabitants in the central areas of the city begins to decrease so much that the overall population of the entire urban center decreases, while the number of people in the areas around the city, but not belonging to it, increases;
- 4. the re-urbanization phase renewed, most often free flow of people to the central area, usually inspired by actions on the part of authorities, aimed at reviving and rebuilding the central city areas [Słodczyk 2003].

¹ WoS (*Web of Science*) is an online search engine for citation and research. It allows analysis of a given research area in a global context, provides access to many databases related to interdisciplinary research, which allows in-depth exploration of specialized subdivisions in a given scientific discipline.



Fig. 1.1 . Dynamics of agglomeration development Source: own elaboration based on [Słodczyk 2003].



Fig. 1.2. Dynamics of agglomeration development Source: own elaboration based on [Klaassen et al. 1981].

The development phases propounded are based on the direction and the pace of the population migration between the city core and its external zones. The tendency to search for a place of residence in a nearby area rather than in the city center is the key element distinguishing this process.

Lorens [2005] noted that contemporary suburbanization should be considered in three spatial contexts: within the internal administrative boundaries of the central city (**internal suburbanization**), **in the suburban zone** and within the commute area. He referred to the process of suburbanization outside the central city as **external suburbanization**. Lisowski and Grochowski [2007] additionally formulated the significance of developing this process in a by-phase breakdown:

- urbanization of suburban areas, associated with the movement of people and businesses from the city to suburban areas;
- 2. spatial decentralization of the population and businesses, with two separate organisms: the central city and the suburban zone;

3. the big-city development phase, consisting in the growth of the population and businesses taking place faster in the suburban area than in the central city.

Suburbanization is also an individualized phenomenon². Global-scale research [Clapson, Hutchison 2010] indicated the individualized nature of this process, shaped on the basis of the dynamics of socio-political-economic-cultural transformation processes. In the literature on the subject, many concepts have arisen around the concept of suburbanization, such as: a spread city, a slurb, an ex-urb, an edge city, and urban sprawl. It seems that in order to fully understand these concepts and their specificity, it is necessary to analyze Anglo-American studies on the development of cities and their suburbs in these countries. The scale and the dynamics of spatial development in the peripheries of the cities in Great Britain and the US led to the defining of this process. Only on this basis it is be possible to define and describe this phenomenon in Poland.

1.2. EVOLUTION OF THE AMERICAN SUBURBANIZATION

The Anglo-American model of suburbanization is characterized by several significant development stages, which have been conditioned by economic and political factors [Clapson, Hutchison 2010]. In urban planning, the beginning of suburbanization process can be traced to the turn of the 19^{th} and the 20^{th} centuries. The housing model proposed by E. Howard [Howard 1902] – the so-called *Garden City* – was an alternative to the then model of housing for the emerging middle class (officials, entrepreneurs, politicians). The support for the process of planning new housing units entailed the rapid development of the public transportation system (development of the rail system). New ideas of building a high-quality residential environment were quickly adopted

² Individualization of suburbanization refers to a process with unique, individual features characterizing a given area.

in the United States as *garden suburbs* and *railroad cities* [Stern et al. 2013]. First projects of this type, such as Forest Hills Gardens or Riverside, emerged [Brush 1911]. Figures 1.3 and 1.4 show the planned urban layout of the American garden city Forest Hills, where the main public space, with social infrastructure, is located around the railway station.

The vision of a suburb, a house with a large garden, with full social infrastructure and proximity to rural landscape, and, on the other hand, with quick access to the city, owing to the possibility of traveling by tram or train, has become an idyllic image of the residential form at the beginning of the 20th century in the United States and Great Britain. In both countries, the first suburbs were designed for the middle and the wealthy classes [Fishman 1987; Stern, Massengale 1981].

Further development of the suburbs in both countries was also significantly impacted by political conditions. In Great Britain, as a result of the pro-social programs developed to provide a healthy working environment for the working class, the *Housing and Town Planning Act* [Clapson 2003] was adopted in 1919, which provided municipalities with subsidies for construction



Fig. 1.3. Plan scheme of the first American garden city *Forest Hills*

Design by N. Rogowska, based on Brush 1911.



Fig. 1.4. The Forest Hills train station Design by N. Rogowska, based on Brush 1911.

of housing and subsidized social homes, allowing construction of such outside the city boundaries. The rebuilding of cities after World War II supported the policy of "dispersion" [Clapson, Hutchison 2010] along the network of public rail transportation.

The state policy in the United States also favored expansion of suburbs, but it was conditioned by other presumptions. The first American suburban housing estates, called *railroad suburbs* (e.g. Forest Hills or Riverside³), were erected in the vicinity of train stations. In the US, however, railway investments were not subsidized from the state budget, but were private investments. Taxes were allocated for expansion of roads and highways, since such infrastructure was considered by American authorities as priority public investment [Martyniuk-Pęczek 2005]. Figure 1.5 shows the road and highway expansion plan for the Washington agglomeration in 1910, within a 6.5 mile radius (about 10 km) from the center, with a very dense network of streets⁴.

The development of automotive industry and the business strategy of mass production, developed by the owner of Ford⁵, played the key role in American suburbanization [Gottdiener et al. 2011, p. 126]. Car sales in the United States have grown rapidly since the 1920s. In 1940, 200 cars were registered for every 1000 inhabitants [Muller 1981]⁶. Availability of this means of transportation meant that developers were no longer dependent on rail transport and could locate investments in other areas. In this way, housing estates began to be filled with undeveloped spaces dispersed amongst the rail corridors. [Gottdiener et al. 2011].

The process of American suburbanization was further strengthened by the reform of the American mortgage system in the 1930s - after the great crisis. This reform was caused by the sudden decline in the value of real estate⁷, as a result of the crisis, which caused more than half of the mortgage loans to be threatened with late payment of installments [Jackson 1985]. At that time, under the National Housing Act, the Congress established the Federal Housing Authority (FHA), which offered government mortgage guarantees8. This led to reduction of interest rates and widespread use of the mortgage system. The process was additionally supported by the activities of the Federal National Mortgage Association⁹. American policy of exiting from the great crisis was largely based on expansion of cities, which was emphasized during the Industrial Arts Exposition of the National Alliance of Art and Industry [Graham 2016]. A vision of a city of the future, designed by F.L. Wright, was presented during this exhibition.

Broadacre City did not look like a city, but as fragments of a midtown and a small town, scattered throughout mostly flat landscape. Buildings, located far apart, were almost lost amongst the vineyards, rows of fruit trees, forests and arable fields. Agricultural landscape was covered with a grid of separate household areas,

³ Riverside – located in the Chicago metropolis – has become an icon of early American suburbs for the middle class. Designed in 1898 by an American landscape architect F. Law Olmsted in accordance with the idea of a garden city, it was to become an ideal example of combining rural landscape and modern transportation technology to provide access to additional social services. This suburban neighborhood not only expressed the avant-garde urban thought; designs of unique houses were also implemented here by the elite of the then architects, including F. L. Wright, J.L. Silsbee, L.H. Sullivan, W. Drummond, W.L. Baron Jenney.

⁴ This distance is comparable with the current conventional border of Gdańsk suburbanization – covering the areas past the Tri-City Beltway: Gdańsk-Osowa, Gdańsk-Matarnia, Gdańsk-Rębiechowo, towns: Kolbudy, Straszyn, Chwaszczyno, Banino etc.

⁵ Ford's idea was to create a product that would be common, widely available and cheap enough for every factory employee to afford buying a car. In this way, production typification was introduced, expressed, for example, by the use of only one available car-body color.

⁶ In 2014 there were 519 cars per 1 000 inhabitants in Polandi.e. 1.9 persons per car; in the United States. 0.83 people per car. Source: http://wskaznikizrp.stat.gov.pl; http://www.newsweek.pl [accessed: 20.07.2017].

⁷ Jackson calculated that the value of real estate fell, on average, by 20% [Jackson 1985, p. 191].

⁸ Gottdiener et al. believe that this is the moment when the US government went from indirect economic participation to direct subsidies for enterprises [Gottdiener et al. 2011, p. 127]. The attempt to save the construction industry was also an attempt to save the banking sector.

⁹ As part of Franklin Delano Roosevelt's *New Deal* program, homeowners were allowed write off the interest rates on mortgage loans. Consequently, this led to increased interest in owning homes rather than renting them [Gottdiener et al. 2011].



Fig. 1.5. Analysis of the road and highway expansion plan for Washington in 1910 Source: own cartographic elaboration based on materials No. G3850 1902.W4-Library of Congress Geography and Map Division Washington.

small manufacturing plants and laboratories as well as larger buildings housing schools, a church, a small university and a hospital. Near the fields and the ponds, isolated blocks of flats were situated, while public utility facilities were located elsewhere. Along one of the edges of the mock-up model, a multi-level multimodal corridor, called the "great highway", was located, with routes for individual means of transportation [Graham 2016]. Figure 1.6 shows the Broadacre City layout.

The image of the city propounded by Wright emphasized the advantages of modern transport technology – the car – and individualization of the unit, providing everyone with the best family house with a garden and a workspace, a workshop



Fig. 1.6. The Broadacre City mockup – a jigsaw puzzle of "households" Source: design by N. Rogowska based on The Frank Lloyd Wright Foundation Archives, after: http://www.metropolismag.com/Point-of-View/ July-2014/What-Broadacre-City-Can-Teach-Us/ [accessed: 15.07.2017].

or a laboratory¹⁰. In this way, the architect wanted to make the society independent of work in large corporations as well as enable local production and consumption [Graham 2016] Wright believed that "the city should be everywhere and nowhere" [Graham 2016]. The Broadacre City vision was part of an abstraction of a city of the future, but it contributed to the emergence of an idea that was clearly deformed when implemented.

Suburbanization in the US after the Second World War became a mass phenomenon [Gottdiener et al. 2011; Wood 1958; Gillham 2002]. On the one hand, it was associated with social issues, the hope for rebuilding the war losses, and sudden demographic growth, and, on the other – with government programs that supported veterans via guaranteed housing loans. The state policy oriented as such aimed at economic development that was based on mass consumption [Gottdiener et al. 2011].

The dynamics of post-war American suburbs development would not be so intense were it not for one more factor. The technological revolution in construction led to reorganization of the construction system [Wright 1981]. Prefabrication, using wooden, lightweight skeleton constructions made of plywood and drywall, enabled assembly-line-like construction. Figure 1.7 shows a construction site in Levittown. Here, another new house was built every 16 minutes, as on an assembly line (30 houses a day) [Gillham 2002]. Organization of the construction work in this suburb inspired subsequent developers, and thus mass production of houses, became the typical model of American housing in the mid-twentieth century.

In Levittown, mass and homogeneous use of land for housing purposes prevailed. This urban tissue was inhabited by a homogeneous middle class, basically white people, where the father usually worked

¹⁰ The economic independence of each "household", proposed by Wright, although unrealized, seems to be an important element, in the context of the research undertaken by the Authors of the book.

in Manhattan, New York and commuted to work by car every day¹¹ [Gottdiener et al. 2011, p. 128].

In studies on the form of American suburbs, P. van der Putt [2015] showed the structure of Levittown suburbs (Fig. 1.8). The elements dominant in spatial analysis were fragmented housing tissue and island-located service functions.

Along with the dynamic development of housing estates, new forms of service functions began to appear in the landscape around the cities [Gillham 2002]. Shopping and service centers were built by the main roads and transportation hubs. Surrounded by large parking lots, the facilities contained service functions, various types of shops and entertainment, even schools and administration. Commercial centers organized in such way replaced the need to handle these matters midtown. Jackson noticed that until 1980, nearly twothirds of American trade took place in this type of shopping centers [Jackson 1985]. In the following decades of the twentieth century, further development of these urban structures led to creation of huge regional service centers of trans-state range, e.g. the *Mall of America*¹².

The dynamic flow of inhabitants to the suburbs also led to relocation of industrial functions. This trend began at the turn of the 19th and 20th centuries, when transportation – first by rail and then by car – enabled access to the factories located outside the city center [Gillham 2002]. This was not just about employee transportation, but also about the supply of goods and raw materials. City center extremities were a favorable location, especially in the context of the highway and expressway system development. Gillham reports that by 1963 more than half of the American industry



Fig. 1.7. Construction site in Levittown Source: design by N. Rogowska.

was located in the suburbs, and by 1981 – more than 2/3. Suburbanization also affected the corporate sector, which began to locate its headquarters on the city outskirts. This process took place slowly and was dictated by the changes in global economy (changes in the employment structure).

The years 1950–1970 coincided with the golden age of American economy that was based on the increasing consumption. Income of an average American doubled during this time [Gallagher 2014]. The media created an image of a wealthy and happy middle class family living in the suburbs¹³. Mass consumption, stimulated by the factors mentioned above, resulted in the creation of a landscape characteristic of the American suburbs. Suburbs composed of a housing tissue and spot-located service and industrial buildings became a characteristic element of urban life in the United States in the 20th century. Transformation of the urban form took place, from a formerly centralized structure to a dispersed one. By 1957, 174 metropolitan areas had been created in the United States, with 108 million inhabitants. Nearly half of them (47 million) lived in the suburbs [Wood 1958]. This phenomenon has become the determinant of modern urban planning.

The neoliberal state policy and *zoning*-based spatial planning (functional zoning), expressed in masterplans, initiated the spread of suburban areas into the form

¹¹ This picture of life has been repeatedly portrayed in American films, such as the ABC channel television series *The Wonder Years*, which showed the life of a typical American family in 1968–1973.

¹² This "shopping center" is located at the intersection of Interstate 494 and Minnesota Interstate 77. The service, shopping and entertainment center, opened in 1992, is visited by 40 million guests a year. In addition to shops that are typical for this type of a place, there are also several entertainment centers, such as an aquarium, theaters, cinemas, stages and a hotel and a congress center. Source: https://www.mallofamerica.com/[accessed 17.03. 2017].

¹³ Through such TV series as: *The Adventures of Ozzie and Harriet, Father Knows Best, Leave It to Beaver.*



Fig. 1.8. The streets of Levittown, 1950 Source: design by N. Rogowska



Fig. 1.9. Analysis scheme of Levittown urban structure Source: design by N. Rogowska

of *metropolitan regions*¹⁴. Suburban municipalities began to promote their former agricultural areas as future investment areas, often violating the principles of spatial planning, including, inter alia, the principles of environmental protection and the principles of spatial order¹⁵. Fishman [1990] quotes a developer S. Lefrak, who stated: "There is no zoning: only deals" [Fishman 1990]. Such a flexible spatial policy has led to creation of areas where a city is measured in the distance between functions, not in spatial units [Fishman 1990]. In this structure, each family had an individual idea of the city. The spatial form changed from the traditionally center-oriented to a dispersed one, where each resident could have a different idea of the city.

In the mid-twentieth century, the concept of *urban sprawl* appeared. According to Wassmer [2002], this concept was first used by a sociologist W. Whyte in the Fortune magazine in 1958. At that time, it referred to the defining of space as a soulless and an unprofitable form of land development. A new form of extensive land development began to grow around former central cities. The areas covering the expanding zones reached enormous proportions¹⁶.

The landscape described as a *sprawl* has since become an important element of the research on the spatial development of cities and metropolises and is strongly identified with suburbanization process. Various approaches to describing *urban sprawl* have been known in the literature [Siedentop 2005]:

- by describing the density of buildings and its form as a "sprawled", decentralized area with no clear boundaries and dominated by cars [Dutton 2000; Glaeser, Kahn 2003];
- by describing the process of urban function decentralization in connection with extensive use

of agricultural spaces [Glaeser, Kahn 2003; Pumain 2003];

- through a system of settlement unit organization, transforming former monocentric systems into discrete, polycentric and highly dispersed elements [Galster et al. 2001; Torrens, Alberti 2000];
- in reference to such social consequences as travel costs, loss of arable land etc. [Ewing 1997; Downs 1999];
- by describing the planning conditions and the visible spatial disharmony as unplanned urban structures forming shapeless landscape [Gassner 1978].

The 1970s fuel crisis marked a significant moment for the deindustrialization of large industry [Clapson, Hutchison 2010]. Heavy industry, especially metallurgy and processing, began to move from the USA to Asia, where labor costs were lower and raw materials were more available. Massive migration from northeastern states - the Rust Belt area (New York, Pennsylvania, Ohio, Michigan, Indiana, West Virginia, Illinois), to warmer states in the Sun Belt area (California, Nevada, New Mexico, Arizona, Texas, Louisiana, Mississippi, Georgia, North and South Carolina, Florida) took place. Chemical, electronic, military and aviation industries developed there [Holt 2010]. North-eastern metropolises, in particular the suburbs, depopulated, while southern metropolises gained new inhabitants, who fueled the urban sprawl. Companies began to move their headquarters there as well (e.g. JCPenney moved from Manhattan to Plano, Texas) [Holt 2010]. Numerous corporate head offices began to appear in the suburban landscape, located near shopping centers or at expressways. Shopping parks of supra-regional outreach have emerged [Dieterich-Ward 2010].

Figure 1.10 illustrates the scale of Los Angeles sprawl.

Figure 1.11 shows Las Colinas – the Irving district of Dallas (Texas) – with its distinctive expressway network.

During this period, a debate on the forms of settlement units had developed. Fishman [1990] introduced the concept of an *edge city*, which has been described as more or less unified clusters of shopping centers, office buildings and entertainment complexes, located at the intersections of major roads. The concept

 $^{^{14}\,}$ The Los Angeles metropolitan area is an extreme case of this type of land use. Its area is 12 562 km². Compared to the Tri-City Metropolitan Area (414 km²), it can be said that the TMA area accounts for 1/30 of the LA area.

¹⁵ Spatial development of the Phoenix metropolitan area, along with the consequences of breaking the rules of spatial planning, is shown in the documentary *Making Sense of Place. Phoenix: The Urban Desert* – Lincoln Institute of Land Policy.

¹⁶ As Gallagher describes, residents travels an average of 80–100 km per day [Gallagher 2014].



Fig. 1.10. Los Angeles – silhouette of a scattered city Source: photo credit Doc Searls - Creative Commons license via www.flickr.com- [accessed: 18.03.2017]



Fig. 1.11. Las Colinas – the Irving district of Dallas with its distinctive expressway network Source: photo credit La-Citta-Vita – Creative Commons license via www.flickr.com- [accessed: 18.03.2017]

of an *edge city* was disseminated in 1992 by Garreau, who in his book *Edge city: Life on the New Frontier* argued that in the 20th century, this form of a city became the direction for global development of cities worldwide.

In 1970, American suburbs had more inhabitants than other settlement forms - central cities or villages [Gottdiener et al. 2011, p. 133]. It resulted in an increase of economic activity in these regions. As Muller [1981] indicates, 63% of employment in the entire metropolitan region of the city of Philadelphia was located in suburbs. As a result of the fuel crisis in the 1970s, industrial and service facilities increasingly often were moved to the suburbs, as to reduce the commute for employees and customers. Developers proposed new forms of the so-called industrial parks and office parks, while municipalities attracted this type of investment to the suburbs, offering tax incentives. In the 1980s, over 60% of the industries in such major metropolises as Boston, Los Angeles, Detroit and San Francisco were located in the suburbs [Gottdiener et al. 2011]. In the years 1980-1990, over 80% [Pisarski 1996] of corporate headquarters were located outside the city limits - in so-called office parks - specialized areas accommodating office and service functions.

Central cities lost their dominant role of regional economy hubs. Many industries and other entrepreneurship initiatives, including corporations, preferred suburban locations for their headquarters. As such, economic development began to be considered in a metropolitan context [Gottdiener et al. 2011]. The term *Multicentered Metropolitan Regions* – MMR [Gottdiener i in. 2011] emerged, in reference to the areas in which operation is based on the relations and the connections between various centers that are interlaced with urban, rural and suburbs. Its entirety creates a cooperating organism of contemporary urban forms.

Central cities of global significance, but only the largest ones, such as London, New York or Tokyo, have gained new magnitude. Sassen [1991] described their new functions as *control and command* centers for international global corporations, especially the financial ones. The role of central cities was redefined, while an efficient system of global communication became the key aspect in their functioning. These functions, however, were reserved for the cities of global significance, such as New York. Other cities, such as Detroit, were experiencing a crisis deepened by the global economic collapse. At that time, revitalization programs appeared, aimed at intensification of the housing functions in city centers. Introduction of a multifunctional urban scheme was considered the key element in these programs. At the beginning, these activities, however, did not bring much success, as the middle-class trend to reside in the suburbs continued to increase [Gillham 2002].

The summary of American suburbanization process, proposed by Bourne [1996], helps identify the most important forces driving this type of spatial organization. The first was defined as the social need to escape from the deteriorating housing conditions and crowded central cities. The second entails the macroeconomic policy tools used to generate local employment and attract external capital. The third is related to the need to ensure high quality of life – access to countryside and greenery, with simultaneous access to typical urban services. The fourth is related to socio-political issues, within the scope of which suburbanization process ensure social and ethnic homogeneity.

1.3. SPATIAL MODELS OF AMERICAN SUBURBANIZATION

Summing up the history of Anglo-American suburbanization, additional factors shaping the contemporary landscape of metropolitan areas can be identified, one of the most important of which was an efficient transport system, first by rail, then by car. Another element entailed political decisions, including pro-social laws, but also the systems promoting available mortgage loans. The technology of prefabricated frame construction was also an important stimulus. Positive demographic growth, the housing needs of the middle class and the continuous emigration to the US from other countries were also of key importance. Globalization as well as the dynamic economic and social changes, including changes in the organization of work, have additionally led to the creation of new urban forms – industrial, office and commercial parks. Accumulation of these stimulating factors had led to such development of suburban areas that the mechanism of city functioning was reorganized into a polycentric metropolitan area.

Figure 1.12 is a graphical representation of the main factors shaping the development of modern suburbanization. The above factors forming the landscape of contemporary metropolitan areas, in terms of spatial arrangement, have evolved into four models of the relations between the functioning of central cities and their suburbs. On this basis, contemporary theory has developed such concepts as *urban sprawl* or *edge city*.

Evolution of the suburbanization process has been presented in the form of five spatial models illustrating this process in functional and spatial arrangement (Fig. 1.13).

Evolution of the city-suburb relationship entails five stages:

- I. the traditional / historical model (the city/gord¹⁷ and the suburbium i.e. settlement outside the city/ gord walls);
- II. garden suburbs and railroad suburbs (classic theories of suburban development);
- III. *American dream* (dynamic development dictated by mass production and consumption);
- IV. *urban sprawl* (extensive sprawl of cities into metropolitan areas);
- V. *edge city* (a new form of metropolitan regions, areas functioning within the relations between various centers).

The traditional / historical model pertains to the roots of medieval European cities. These cities functioned by dint of the symbiosis between the main city (gord) and the suburbium (nowadays the suburban area). Both structures could not exist without each other. The inhabitants living outside the city walls produced food and the craft goods essential for the townspeople's life. Conversely, the main-city inhabitants were the custodians and the participants on the product-money exchange market. This mechanism was based on daily migration between the main city and the settlement outside it.

The model of "garden" suburbs, "railway" suburbs pertained to the direction of the movement on the path between the place of residence – the suburbs – and the place of work – the central city. Suburbs were connected to a strong, functioning organism, even though some everyday service functions were already located in these areas. Basic everyday matters and services could be taken care of in the immediate vicinity of the place of residence. This type of city development is currently referred to as *traditional neighborhood*, with multi-functional services and diverse usage [Duany, Plater-Zyberk 2000, p. 4]. Based on the return to these ideas, a model of new urbanism, currently promoted in the USA, emerged [Duany, Plater-Zyberk 2000].

The "American dream" model pertains to typical American suburbs of the mid-20th century. This concept was introduced by many authors [Wright 1981; Gallagher 2014; Duany, Plater-Zyberk 2000]. The idea behind such a description of the suburbanization phenomenon was to highlight the characteristic model of a new suburb type. The term *dream* refers to the aspiration for prosperous life, starting a family, creation of a "dream home" in a friendly neighborhood. This model emerged in the time of increased



Fig. 1.12. The forces of American suburbanization Source: own elaboration.

¹⁷ A medieval Slavic fortified wooden settlement, consisting in a group of wooden houses built either in rows or in circles, surrounded by one or more rings of walls made of earth and wood, a palisade, and/or moats.

consumption and the development of mass production during the post-war period, when high birth rates were recorded, thus increasing the housing needs. The fact that suburbs were mainly inhabited by the middle class, blue-collar employees commuting to their workplaces in central cities was characteristic. Their families usually functioned in a given neighborhood, in a given suburb, where basic services were located.

Model II primarily differs from model III in its scale of assumption, not in the way it functions. In "garden" and "railway" suburbs, the most important element was pedestrian access to the center and to public



Fig. 1.13. Spatial models of the relations between the functioning of central city and suburbs Source: graphic own elaboration.

transportation. In the "American dream" model, car accessibility was forced by the large-scale development of a single-family housing tissue, which caused expansion of American suburbs into large-area zones with a uniform form of buildings. This model, however, due to the increase in consumption, quickly changed into another, known as the *urban sprawl*.

The "urban sprawl" model has been widely described in literature [Wassmer 2002; Siedentop 2005; Glaeser, Kahn 2003] and is associated with the concept of metropolitan regions. This model can be described by four characteristic features: dispersion of buildings and functions as well as extensive use of space, spatial disharmony, lack of spatial order, decentralization and polycentricity as well as negative social costs, calculated e.g. in commute time. The model described refers to such development, where the scale of the assumption significantly exceeds the idea of the suburbs of a given city. These forms occupy agricultural spaces and, in an extensive manner, without urban logic, occupy further areas, sometimes also absorbing other settlement units. Due to emergence of various service centers of regional importance within this structure, these areas are transforming into metropolitan areas of a polycentric nature.

The edge city model is a model nowadays often used in science to describe the process of modern city development towards a polycentric edge system [Garreau 1992]. It assumes placement of shopping clusters, industrial and entertainment complexes at the intersections of major roads. Although the model described refers to the American suburbanization process, its basic characteristic aspects have been reflected in the global trend of modern city development, and thus also in the suburban-area development. In Germany, the term Zwischenstadt was coined to describe this phenomenon [Sieverts et al. 2005], while studies carried out by many authors [Phelps et al. 2011; Sieverts et al. 2005] confirm that globalization and the related deindustrialization led to emergence of similar development trends in metropolitan regions in Europe.

1.4. GLOBAL SPATIAL MODELS OF CONTEMPORARY METROPOLITAN AREA DEVELOPMENT

Until the 1990s, strong dominance of regional forms was visible in the urban structure. The importance of metropolitan regions has grown so much that the need arose to describe this phenomenon as a new apparition of urbanization in a modern city. Such concepts emerged as:

- *Regional City* [Calthorpe, Fulton 2001];
- Polycentricity [Kramar et al. 2013];
- Mega-Regions [Florida et al. 2008];
- Polycentric Metropolitan Area [Kloosterman, Musterd 2001];
- Multicentered Metropolitan Regions MMR [Gottdiener et al. 2011].

All these concepts emphasize two important features of metropolitan areas: their polycentricity and strong links between the centers. Against this background, three distinct global spatial models of modern metropolitan area development can be distinguished, i.e.:

- VA a polycentric metropolitan area;
- VB a global city;
- VC an *edge city* without the central city.

Figure 1.14 illustrates the spatial models of contemporary metropolitan areas in an abstract way.

What is characteristic, each of these models is based on areas that are subject to suburbanization process. The first two models - VA and VB - contain a central city, but it does not concentrate all the functions. There are other centers that take over some of the functions. In addition, global significance of central cities was imposed in the VB model - as command and control centers [Sassen 1991]. These global functions, however, are reserved for selected cities. They are traditionally characterized by strong links with global economy; headquarters of global corporations are located there. The VC model, however, no longer contains the core of the former central city, which lost its validity (e.g. Detroit) to the surrounding suburbs. In accordance with these spatial models, a contemporary city can be described as a polycentric metropolitan area consisting of a central city, the suburbs, and the agricultural

space between them [Gottdiener et al. 2011]. Currently, proper functioning and development of a city is determined by the development of its suburbs. It can also be seen that this trend is global in nature. Polycentric metropolitan areas have been growing around often historic central cities. Constant influx of residents to suburban areas is visible in many regions. The most important element that guarantees the functioning of polycentric metropolitan areas, however, is the network system, with smooth communication that should be implemented on various scales [Wassmer 2000]. Effective links are oriented at the relation between the city and its surroundings, on a local and regional scale, sometimes globally. This image seems sometimes chaotic, but it often is productive, efficient and effective.

Summing up, in simple terms, it can be stated that suburbanization has become a common process that describes the contemporary direction of metropolitan area development. At the same time, it should be added that this process is a natural phenomenon, with a very individualized form. The accumulating differences between the suburbanization processes in different parts of the world allow differentiation of certain characteristic features describing suburbanization, e.g. larger influx of population to suburban areas, greater construction activity in these areas, development of transport infrastructure. Looking more closely at the form of American, European or African suburbs [Clapson, Hutchison 2010], significant differences can be noticed, which immediately leads to conclusions about the processes that are characteristic for a given region.



Fig. 1.14. Spatial models of contemporary metropolitan area development Source: own graphic elaboration.

2. SPATIAL MODELS OF SUBURBANIZATION IN POLAND

2.1. DEFINING THE CONCEPT OF SUBURBANIZATION IN THE POLISH RESEARCH AREA

The spatial models presented were built on the basis of the American territorial development scenario. They could be treated as universal, but there are arguments that the phenomenon of suburbanization, leading to the emergence of polycentric metropolitan regions, has individual character, depending on the socio-economic-political context [Gillham 2002; Bruegmann 2006; Clapson, Hutchison 2010, Nuissl et al. 2007; Stanilov, Sýkora 2014]. Clapson and Hutchison diversified the nature of suburbanization, into a northern and southern hemisphere division. They noticed a certain dependency, according to which the middle class in the northern hemisphere is still settling in the suburbs [Gillham 2002], while in the southern hemisphere, people from agricultural areas surge to the expanding suburbia, often creating districts of poverty.

The second element, which in the main outline constitutes a factor differentiating global suburbanization, is the scale. Sometimes it is difficult to compare the phenomena occurring in the United States to the situation in Poland. The current Tri-City Metropolitan Area, for instance, is 12 times smaller than the New York metropolis and 9 times smaller than the Chicago metropolitan area. These proportions look similar when it comes to population. In relation to the scale of London or Paris, both these metropolises are distinguished by a much higher population density than the Tri-City. In simple words, it can be said that London and Paris are 3.5 times more compact in terms of their urban structures than the Tri-City Metropolitan Area (TMA). Figure 2.1 schematically illustrates the comparison of the area scale of individual metropolises and their population. With regard to other metropolises, the TMA has been highlighted in red.

The urban structure of buildings is another feature illustrating the individual nature of suburbanization. The structure of land development is distinguished and described by urban indicators, i.e. building intensity, building percentage, the area of plots, building dimensions, the area biologically active. The distinctiveness of buildings and land development visible in different parts of the world reflects the diverse nature of suburbanization process. Figure 2.2 shows the difference between exemplary manners of development in American and Polish metropolitan areas. The growing Polish suburbs are characterized by extensive land development.

In Polish urban-planning literature, the issue of suburbanization appeared after 2000. Lorens, at the time, defined the problem as follows:



Fig. 2.1. The Tri-City Metropolitan Area (TMA) against other metropolises under examination Source: own graphic elaboration.

"suburbanization - the spill of urban spatial structure, uncontrolled development of suburbs and suburban centers, the 'washing out' of the midtown program from traditional centers of urban life, as well as the profound changes in the field of the social and economic city structure of cities" [own translation] [Lorens 2005]. Lisowski and Grochowski formulated a claim that suburbanization entails a process of transferring the spatial forms of a city and the forms of urban life onto the areas surrounding the urban core, and a process of a functional fusion of the areas that are subject to suburbanization with the central city [Lisowski, Grochowski 2007]. Gzell, however, emphasized that translation of the concept of suburbanization may carry a wrong association that it involves the "building of suburbs", although - as he pointed out - in Polish urban reality, we de facto are more commonly dealing

with the phenomenon of *urban sprawl* [Gzell 2015]. Gzell specified the Polish concept of suburbanization by describing the spatial form related to the phenomenon of city spill. In this way, he wanted to underline the scale and the dynamic pace of spatial development towards peripheral metropolitan areas. It should be noted that this concept, in this case, is primarily connected with spatial form. Solarek, in turn, described this phenomenon as spatial chaos, expressed in the manner of land development as well as in functional and social conflicts [Solarek 2013]. Kurek et al. specified the concept by referring to the decentralization process in urban regions, which consists in the movement of the population and businesses from central cities to suburban areas [Kurek et al. 2014].

Summing up, in the Polish literature on the subject, suburbanization is described as:



Fig. 2.2. The structure of buildings in suburbs Source: own cartographic elaboration.

- migration (of the population and the city-forming functions) leading to decentralization;
- spatial chaos, dispersion.

This approach could suggest that Polish suburbanization has the shape of:

- model IV *urban sprawl* considering is form;
- model V an *edge city* considering the way it functions.

According to the Authors, the Polish suburbanization process is of individual nature, which results from characteristic socio-economic conditions. The research discussed further in the work aims to show the Polish dimension of suburbanization. These considerations will be concluded with an attempt to describe an **individual Polish model of an** *edge city*.

The model used as the basis for identification of the characteristics of Polish suburbanization was

the American model. Against this background, unique, individual features, characterizing Polish suburbanization, have been identified. The need to describe this phenomenon in this way results from numerous references, in the Polish literature, to American patterns [Lorens 2005; Gzell 2015; Lisowski, Grochowski 2007].

2.2. SUBURBANIZATION PROCESSES IN POLAND

Suburbanization processes entail a permanent process accompanying the development of Polish cities. Over the centuries, however, the intensity and the scale as well as the factors causing the spread of city structures outside their administrative boundaries have changed. Development of Polish cities was strongly determined by external conditions and, above all, by the threat of constant conflicts and the dominance of lowland hypsometry.

Polish medieval cities functioned via a symbiosis between the main city (the gord) and the suburbium complex (nowadays the suburbs). Both structures could not exist without each other. Figure 2.3 illustrates the spatial form of medieval Gniezno, consisting of a gord, its suburbium and a market settlement.

Inhabitants of the suburbium produced food and craft goods necessary for the townspeople. Inhabitants of the main city were, in turn, the custodians and the market participants exchanging products for money. This mechanism was based on daily gord-suburbium migration. It was not, however, an open-space coexistence. The gord was surrounded by walls and gates. External threat (enemy attack, epidemics) caused disruption to this symbiosis. The gord was closed while the suburbium was destroyed or decimated. If the threat exceeded the defense capabilities (of the building substance or the organisms), the city died along with its suburbium.

The era of industrialization (19th century) reduced the host functions of suburban areas. As a result of economic-activity zoning, industries and warehouses, which the city centers could not accommodate, were located in suburbs. In addition to the facilities determined by topographic location (e.g. seaports), huge



Fig. 2.3. Gniezno – the multi-component structure of a gord, suburbium and market settlement Source: [after: Kostrzewska 2013, p. 77 – design credit: bang bang design].

industrial establishments were created, employing majority of the central city's inhabitants. With time, the need arose to create large housing estates in a classic arrangement, separating the industrial zone from the historic city. During the industrial revolution, trends emerged in urban planning, the aim of which was to present the growing middle class offering higher standard with proposition of an alternative to the living outside the city center. Manifestations of the impact these trends had on the formation of a modern city can be seen, for example, in the Gdańsk-Wrzeszcz district [Kostrzewska 2013], which is illustrated in Fig. 2.4. For several decades of the 20th century, the segregation of the residential and industrial zones, especially in Central and Eastern Europe, had become a common model.



Fig. 2.4. The Great Gdańsk plan, designed by H. Althoff in 1929–1930 – extension of suburban areas. The existing downtown structure is highlighted in a darker color, new building plans in a linear fashion.

Source: [after: Kostrzewska 2013, p. 174 - design credit: bang bang design].

After the Second World War, the housing economics in the communist system of Poland posed a significant problem in urban development. The housing needs were huge, while the settlement network was planned centrally [Lorens, Mironowicz 2013]. The central government policy created a construction model of large housing complexes developed on the outskirts of cities. A typical urban structure that referred to this trend was the Gdańsk-Przymorze district (Fig. 2.5). At the same time, reconstruction of the city centers damaged during the war usually was carried out only partially.

The largest increase in residential development occurred in the 1970s, when prefabrication of housing estates was introduced [Rembarz 2009]. Usually, as in the case of the Morena housing estate or the Gdańsk-Chełm district, these locations were distant from the central parts of the cities, although connected with the centers through transportation infrastructure. Often, these estates entailed groups of multi-family blocks constructed of prefabricated concrete slabs, developed in high density, of monotonous architecture and small apartment area [Jażdżewska 2010]. They were



Fig. 2.5. The Przymorze Małe housing development, 1960 Source: design by N. Rogowska.

characterized by a lack of individuality and the schematism adapted to the communist era. The very low urban quality of these estates has been repeatedly raised in scientific articles [Gzell 2002; Rembarz 2009]. It resulted from the fact that in the period of post-war urbanization, fundamental importance was attached to the technical efficiency of structures and to rapid implementation of housing programs, and thus to two-dimensional plan drawing, in place of the space shape [Lorens, Mironowicz 2013]. One example of such a manner of planning



Fig. 2.6. Functional and spatial model of agglomeration development designed under W. Gruszkowski's guidance. The Gdansk-Gdynia port and the city complex 1970–1971. 1 – residential areas, 2 – industrial and warehouse areas, 3 – main centers and service facilities, 4 – free-location services, 5 – arranged greenery, 6 – forests, 7 – roads, 8 – railway Source: [Chojnacki 2005].

is the functional and spatial model of the Tri-City, propounded in the years 1970–1971 by W. Gruszkowski. Tendencies are visible in this example, which could be described as suburbanization processes (Fig. 2.6).

Along with the expansion of housing estates, located in the peripheral parts of cities, and the investments implemented by the then authorities, mainly in these areas, the need to renovate old midtown districts deepened [Węcławowicz 2002]. It resulted in the creation of considerably empty or extensively exploited spaces in central parts of the cities.

The huge housing needs and the poor quality of the existing housing resulted in social determination to express the disapproval of the housing situation. One of the Gdańsk's strike postulates in 1980 was the point addressing this problem: "19. Shortening of the waiting time to get a flat" [own translation]. This short statement had later on made its significant mark on the shape of spatial development in Polish cities during the transformation period.

In 1989, the political and economic system changed and a shift from centrally planned economy towards democracy and free market economy took place. Following this, Polish cities also experienced radical changes in terms of space development. During the political transformation of the 1990s, the difficult housing situation and the Poles' need for self-fulfillment became an impulse to look for alternative forms of housing [cf. Brade et al. 2009]. The demand for apartments increased, while investments in multi-family housing in cities dropped. The housing shortage was estimated at about 3.2 million residential premises [Zawadzki 2000]. The reasons for this situation entailed statistical housing shortage, loss of housing resources and an increase in the number of households [Zawadzki 2000].

Cities, with new local governments, were not prepared for immediate changes in the spatial structure nor to offer development areas to the enriching society [Harańczyk 1998]. There was a shortage of buildable land for development of various forms of structures. These problems often resulted from the urbanization of the socialist period, the rather idealistically-treated modernist doctrine, functionalism, and the lack of planning mechanisms. The planning system was changed only five years after the introduction of political changes. In 1994, the *Act of July 7, 1994 on Spatial Planning and Development*, replacing the Act of 1984. This change led to abolition of the central and hierarchical spatial planning system, ultimately equipping municipalities with powers that largely determine the development of the entire country [Dutkowski 2012]. The key aspect, in terms of land development, entailed departure from the principle of obligatory and universal preparation of local spatial development plans, which was additionally upheld in the next Act of March 27, 2003, when the possibility of issuing decisions regarding the building conditions was introduced. The latter element played a leading role with regard to the current state of Polish suburbia development [Solarek 2013].

Non-urban areas, which were introduced to free real-estate circulation as a result of the transformation process, have become an attractive investment offer, sought by the growing middle class in particular. The Act of May 17, 1989 - The Geodetic and Cartographic Law¹ allowed division of agricultural land into smaller plots - up to 0.3 ha - without the requirement to obtain an administrative decision approving the division, whereas a division decision had to be obtained for larger plots. This law enabled farmers to divide agricultural land and sell it on the free market. Agricultural plots were often divided optionally, without an urban plan, for the purpose of sale for single-family housing (Fig. 2.7). At the same time, the slogan "private property" was reinterpreted - often enough situations arose when municipalities decided about spatial development in accordance with the landowner's wish, by virtue of their planning self-governance. The limits of the interpellation law, which were difficult to determine, have become the subject of debate in many scientific articles [Solarek 2005; Izdebski et al. 2007; Czarnik 2010].

The tax policy initiated in the 1990s also indirectly contributed to the changes taking place in the suburban area. *The Act of July 26, 1991 on Personal Income Tax* introduced, among others, the so-called construction

¹ The Act of May 17, 1989 r. – The Geodetic and Cartographic Law, Journal of Laws No. 30, item 163 as amended.



Fig. 2.7. Example of agricultural plot division for housing purposes – Chwaszczyno Photo credit J. Martyniuk-Pęczek.

and housing tax reductions, which were to contribute to the improvement of the catastrophic situation in housing construction. This solution was meant to stimulate the housing market, despite the parallel lack of sufficient credit availability (underdeveloped commercial banking system, high interest rates). These tax allowances were mainly addressed to people with financial resources, who could spend those funds on housing investments [Groeger 2016]. Some of the tax reliefs that were in force in the years 1992–2004 covered housing investment expenditures (the so-called major construction tax reduction) and a PIT relief for expenses associated with the purchase of land for construction of a residential building. Importantly, purchase of land did not require an immediate beginning



Fig. 2.8. Duration of the programs supporting housing development in Poland after 1990 Source: own elaboration based on [Groeger 2016].
of the construction process. Figure 2.8 lists the programs supporting housing development.

Subsequent waves of migration to the suburbs were associated with the period of Poland's accession to the European Union. The greatest dynamics of the Polish suburbanization phenomenon could be observed in the years 2006–2012 [Śleszyński 2012]. At that time, access to mortgage loans increased, while the municipal resources in cities were privatized. Young people staring families were looking for ways to buy an apartment.

The developers' offers began to include various types of apartments in various locations, especially in the suburbs. As Kajdanek describes, the prestige attributed to owning a home outside the city was created via housing-offer advertisements and by the media [Kajdanek 2012]. At the same time, suburban areas were more cost-effective in relation to the offers in central cities, as confirmed by the analysis of housing prices carried out in 2016 based on the Otodom web portal (Fig. 2.10.)

This situation resulted in an increase in the multi-family housing offers in suburban areas [Kurek et al. 2014]. This process has been widely described in the Polish literature on the subject [Grzeszczak 2010; Kajdanek 2012; Solarek 2013; Kurek et al. 2014, Lityński 2015, Lityński et al. 2015].

One particular spatial element that caused the change in the functioning of the Polish city of the 1990s was the introduction of large-area trade in the form of hypermarkets [Lorens, Mironowicz 2013], which initially were located in areas that were not used very intensively, often on wastelands and in agricultural zones, at communication nodes. These large-area commercial facilities began to attract customers from the city, the surrounding suburban areas and villages. The Polish suburbanization process was characterized by the fact that, at the turn of the century, especially at the end of the 1990s, shopping centers became centers of urbanity. They constituted service centers not only for the suburban areas, but also for the entire cities. Free shuttle bus service to these centers was available, while the urban policy supported this concept, e.g. by promoting the idea that the Tri-City Beltway would



Fig. 2.9. Number of mortgage loans and the weighted average apartment price per m² in Poland in the years 2004–2014

Source: own elaboration based on: http://wdomachzbetonu.pl/ dlaczego-w-polsce-nie-ma-kolejnego-bumu/ [accessed: 10.04.2017].



Fig. 2.10. Apartment price per 1 m² (PLN) Source: own cartographic elaboration, based on Otodom.pl [accessed: 10.08.2017].

constitute an inner-city road. Large supermarkets with everyday items appeared virtually in every shopping center. Their strategy was to compete on price with local stores. This consumption space often replaced public space [Dymnicka 2013]. Shopping centers leveled the basic deficits in suburban environment (lack of recreational and meeting places). Presently, the role of commercial facilities has changed, because – as described more broadly by Węcławowicz [2002] – the process of commercial and service offer diversification in Poland has been characterized by great dynamics. Today's offer has been stratified into segments: large-area shopping facilities, hypermarkets with shopping malls, "midtown shopping galleries" and regional shopping centers. In suburbs, networks of retail facilities under 2000 m² were developed intensively, which were to replace the local stores offering basic products.

The transformation in the functioning of commercial facilities was reflected in the functioning of metropolitan areas. Just as in the United States, new types of local-range facilities have developed, i.e. shopping centers supplying the immediate surroundings (e.g. the "Osowa" shopping center – a hypermarket with a shopping mall) and regional centers with specialized, unique commercial offers (e.g. the "Matarnia" Center in Gdańsk with an IKEA store). This way of functioning, not only in terms of the city itself, but in relation to the metropolitan area as well, has brought the nature of Polish suburbanization closer to the form of a metropolitan area, resembling the shape of an *edge city*.

The globalization processes at the beginning of the 21st century have also led to changes in the location of service, industrial, storage and logistics activities. These processes, however, were not as intense as in the US or Western Europe [cf. Kaplan et al. 2004]. Poland has become an important location for international corporations and a recipient of trade and various types of services. Metropolitan areas have become sales markets, while development of technology (industrial and information technology) allowed placement of corporate headquarters in places favorable in economic and localization terms. The office and industrial parks characteristic of American suburbanization were located in various suburban areas. In Poland, as in the whole of Europe, parallel phases of city development occurred: re-urbanization, suburbanization and deurbanization [Kabisch, Haase 2011]. Location of Polish office or industrial parks, therefore, has not always been associated with suburban locations. It depended on the service sector. In Gdańsk, for example, an office center of a high technology profile was built near the airport in Rębiechów, while corporate complexes were located midtown in the Oliwa borough. Logistics centers, on the other hand, were usually located on the main communication routes on the outskirts of cities, e.g. at the Tri-City Beltway, due to the type of business activity.

With respect to business localization, in the context of SME-sector entrepreneurship, the situation in Poland was completely different than in the United States. As a result of the economic changes in Poland, unemployment began to increase, which resulted in the society's need to seek new employment forms and opportunities. Dynamic development of the small and medium-sized enterprise sector (SME) had occurred naturally and was a little later stimulated by co-financing from the European Union (after Poland's accession to the EU in 2004). Studies on this problem have demonstrated large accumulation of SME-sector entities in the suburbs, leading to emergence of entrepreneurship nests [Martyniuk et al. 2016]. These nests are characterized by high concentration of local entrepreneurship and oriented at satisfying the needs of residents, but also at providing services for external areas. Entrepreneurship nests contain service outlets, shops, craft and manufacturing plants of various sizes. This unique type - entrepreneurship nests - has distinguished the Polish model of suburbanization.

At the beginning of the 21st century, the phenomenon of suburbanization in Poland took the form of *urban sprawl*. Its scale and form aroused many fears, which concerned, among others, rescaling of the urban form [Zuziak 2005; Solarek 2013], the social costs [Mantey 2013], the economic costs [Jeżak 2011] and many other issues [Kowalewski et al. 2014] in the plans, of the local areas which suburban municipalities intended for buildings [Śleszyński 2012].

The development forces behind the Polish suburbanization process are illustrated in Figure 2.11, which shows the main factors stimulating this process. As per Solarek [2005], these reasons can be divided into: the social (housing needs), the legislative (change of the spatial planning system, interpretation of private property rights), and the economic (free market and construction concessions) ones.



Fig. 2.11. Development forces of Polish urbanization Source: own graphic elaboration.

The intensity of population migration to suburban areas is not decreasing. Characteristically for Poland, the migrating population has not lost its relations (trade and school related) with the central city [Kurek et al. 2014]. Simultaneously to this process, a discussion developed about the emergence of metropolitan areas. Suburbanization, in this debate, is seen as part of a wider transformation process in contemporary urban planning, called metropolization. It has been the subject of political debate and numerous studies commissioned by local and regional authorities [Markowski, Marszał 2006]. Kurek et al. [2014] note, however, that a metropolitan area should not be equated with a suburban area, as it covers zones with a significant range of metropolitan impact as well as areas of potential development opportunities. They further suggest that: "a metropolitan area should be characterized by strong functional connections between the center, other settlement units and a well-developed transport network. Emergence of a metropolitan area results from the development of metropolitan functions and is accompanied by spatial deconcentration of the population and business activity " [own translation] [Kurek et al. 2014].

In this context, the question arises whether the Polish variant of *urban sprawl* begins to take the form of a unique *edge city* model operating within a system and on the basis of a metropolitan area network.

2.3. THE CONCEPT OF SPATIAL MODELS OF SUBURBANIZATION IN POLAND

Conceptualization of the **Polish spatial model** of suburbanization has been prepared based on the literature on the transformation of Polish cities and the research carried out in the TMA.

The first phase of the Polish spatial model creation is strongly associated with a social factor. In the 1990s, self-realization, understood as a form of increasing the prestige and the quality of life, played a major role. It concerned the group of people who had certain financial resources and built their own, individual suburban houses. This model of functioning and spatial implementations refers to the first migration of wealthy Americans to the suburbs of Riverside type. It is characteristic that both in the USA and Poland, in the first phase of suburbanization, richer city dwellers - middle class representatives - moved to the suburbs. This model, however, lacks a very important element that accompanied the first expansion of American suburbs: social infrastructure, i.e. public transportation and basic services. The Polish process of suburbanization was not accompanied by simultaneous development of infrastructure, which was reflected in the violation of the rules of spatial order.

It is estimated that in the years 1990–2000 migration from cities to quasi-rural areas increased from 15.8% to 26.2% [Ladysz, Mayer 2016]. On the one hand, this process could be described as natural city development, but due to its uncontrolled and quite spontaneous character, dictated by the principles of free market and by individual user needs, the process has been identified in literature as the process of suburbanization [Lorens 2005].

It should be noted that the process of migration from cities was not an inverse of the process of migration from villages to cities; these processes were rather simultaneous. In the first case, this phenomenon was motivated by the need to obtain employment and later on an apartment in the city. Cohesion of jobs and housing therefore occurred. In the second case, migration to rural areas was initiated by the tendency to take up work in the city, while living in suburban areas.





I. SELF-REALIZATION

- uncontrolled suburban development

II. CHAOTIC MELANGE

- tendency for decentralization



III. METROPOLIZATION entrepreneurship nests and networking

Fig. 2.12. Spatial model of Polish suburbanization development Source: own graphic elaboration.



The second phase of Polish spatial model shaping is associated with dynamic investment development during the period of transformation, hence, in the Authors' opinion, the name "chaotic melange". In this phase, various factors overlap, causing the suburbanization process to become a random cluster of various functions and forms. This crisis is mainly overlapped by problems that arose during the transformation period. The too liberal spatial planning system led to inadequate management of suburban areas and to planning self-governance [Czarnik 2010; Ney 2012; Nowak 2015]. Suburban municipalities assigned huge areas for development, far beyond the investment capabilities [Kowalewski et al. 2014]. This meant that the buildings were localized in a very extensive manner, depending on the investors' preferences. The housing offer in suburban areas was more favorable in terms of price, hence the growing demand for this type of real estate among the young [Kurek et al. 2014]. One recognizable element of Polish and generally the post-socialist suburbanization, however, is the fact that this process led to socio-spatial differentiation rather than to the segregation that is characteristic of the American model [Sýkora 2009; Marcińczak et al. 2014]. In this approach, the Polish model is distinguished by social polarization, adding its individual characteristics. The commercial offer introduced by means of new large-area forms of facilities, in turn, entailed simple implementation of Western patterns. The first projects of this type, located on the outskirts of cities, caused changes in the functional structure and initiated decentralization. Strong work-school relations, however, have been maintained as dominant links with the central city. At that time, the debate on the social and economic costs of travel began. Simultaneously, a debate on the social and economic costs of commuting began.

It is difficult to determine today when **the third phase** of Polish suburbanization took place. It would be easiest to attribute it to the period of the global financial crisis intensification in 2007, when construction activity decreased, which resulted in a drop in the intensity of suburbanization processes [Kurek et al. 2014]. At that

time, the role of regional shopping centers evolved, new forms of industrial and office parks appeared, while the existing non-urban centers strengthened. Simultaneously, the role of entrepreneurship nests, as places significantly affecting the functioning of suburbs, also became apparent. They have partly replaced the work-learning links that residents previously had in the cities. This partially resulted from the local entrepreneurs' offer, and in part - due to the fact that new residents started their own businesses. In consequence, the need for commuting and the social costs decreased, while the network connections within the structure of other areas covered by suburbanization processes increased. This process began to fit into the spatial development policy promoted by European Union institutions through creation of metropolitan areas in the form of urban functional areas.

This process has been observed and stimulated throughout the European Union. Development of urban-rural territories constitutes the main objective of the new opening of territorial cohesion. On May 30, 2016, the ministers responsible for urban policies agreed on the Amsterdam Pact establishing an urban agenda for the EU (the EU Urban Agenda 2016). The aim of the Amsterdam Pact was to start cooperation on equal terms, to improve the situation of European cities, towns and suburban areas. Out of the twelve priority themes formulated in the Urban Agenda 2016, at least four can be associated with entrepreneurship in suburban areas:

- 1. jobs and skills in local economy;
- sustainable land use and solutions based on environmental aspects;
- 3. circular economy;
- 4. urban mobility.

In order to implement these priorities, multi-level and integrated management at metropolitan, inter-municipal, urban-rural levels is necessary. This is to stop the spontaneous urbanization process, which, by creating jobs and residence, reduces public space and access to services as well as increases general and unit expenditures. Concisely, it limits the full benefits of living and working in a city.

3. CHARACTERISTICS AND DEVELOPMENT OF THE SME SECTOR IN POLAND

3.1. THE CONCEPT AND CLASSIFICATION OF SME-SECTOR ENTERPRISES

Majority of the enterprises currently operating worldwide¹ as well as in Europe and in Poland belong to the so-called SME sector (the micro, small and medium-sized enterprises). Micro, small and medium-sized enterprises dominate quantitatively in the vast majority of developed and developing global economies2. There are over 22 million non-financial SME-sector enterprises operating in the European Union, constituting 99.8% of all non-financial enterprises in the EU. Microenterprises, which constitute 92.6% of the SME-sector entities (small enterprises – 6.1%, medium enterprises – 1.1%) definitely dominate in this group. The vast quantitative advantage of SMEs does not, however, fully correspond to their socio-economic role, although it should be emphasized that it is still very important. Nearly 90 million people are employed in non-financial enterprises of the SME sector in the European Union (67% of total employment in non-financial enterprises). This sector

generates over 58% of the EU GDP [Muller et al. 2015]. Polish micro, small and medium-sized enterprises account for 99.8% [PARP Report 2017]³ of economic entities.

The importance of small and medium-sized enterprises for the economy began to be noticed in the seventies of the twentieth century, at the time of the global economic crisis, i.e. the recession and significant increase in unemployment. Considering the variety of entities that are intuitively indicated as those belonging to the SME sector, definition difficulties arise when determining what criteria should be taken into account when defining these entities, what parameters should be used to measure the size of an enterprise, how to assess qualitative changes and where the critical values, beyond which a company is no longer small or medium, but becomes a large one, lie [Dominiak 2005]. Ultimately, definitions of small and medium-sized enterprises are based on indication of their quantitative, qualitative features or the relationships between those characteristics. Quantitative criteria include: expenditures, expressed mainly in the size of employment (used in 92% of SME definitions worldwide), the value of assets (used in 36% of SME definitions worldwide) and the effects, i.e. the reported turnover (used in 49%

¹ It is difficult to determine the exact number of companies in this sector worldwide, due to the lack of data for most African countries [Gonzales et al. 2014, p. 11].

² Worldwide studies, covering 124 countries, indicate existence of over 162 million entities in this sector, which employ over 500 million people [Gonzales et al. 2014, p. 11].

³ PARP stands form the Polish Agency for Enterprise Development. Data as of 31.12.2015.

of SME definitions worldwide) [Gonzales et al. 2014, p. 5], less often the added value and the market share.

The first attempt to develop formal definitions of a small, a medium and a large company was made in Western Europe in 1971, when the so-called *Bolton report* [Bolton 1971, p. 19] was published, in which small businesses were defined as follows:

- the processing industry employment limit is below 200 persons;
- construction industry employment limit up to 25 persons;
- retail the annual turnover limit is GBP 50 000;
- road transport there is a limit of having up to 6 vehicles.

In addition to these quantitative criteria, the *Bolton Report* set additional qualitative criteria that were to determine the qualifying of an entity as a small enterprise:

- the entity's relatively small share on the market;
- the company should be managed personally by the owner or the co-owners, not by means of a formal management structure;
- the entity's independence, understood as the freedom of decision making on the part of the owner, lack of external control and the fact that the enterprise should not be part of another large business entity.

European Union legislation attaches great importance to the definition of small and medium-sized enterprises, which is associated with the aid programs targeted at this sector. It is worth noting that the most important EU legal document, which emphasizes the role of small and medium-sized enterprises, is the Maastricht Treaty signed in 1992. The Article 130 Included in it says: "The Community and the Member States shall ensure that the conditions necessary for the competitiveness of the Community's industry exist. For that purpose, in accordance with a system of open and competitive markets, their action shall be aimed at: encouraging an environment initiative and to the development of undertakings throughout the Community, particularly small and medium-sized undertakings". The first Community definition of the SME sector was formulated in the Commission Recommendation 96/280/EC of 3 April

1996⁴. Although the recommendation was of a suggestion nature, it was included in the legal acts of several European Union countries and the countries applying for membership. Current definitions of micro, small and medium-sized enterprises have been in force since July 1, 2014 (the EU Commission Regulation No. 651/2014). An enterprise is an entity conducting economic activity regardless of its legal form (these are, in particular, self-employed persons and family enterprises engaged in craft or other activities, as well as partnerships or associations conducting regular economic activity). The category of micro, small and medium-sized enterprises (SMEs) consists of enterprises that employ less than 250 employees, the annual turnover of which does not exceed EUR 50 million, and/or the annual balance-sheet total does not exceed EUR 43 million. A small enterprise is considered to be an entity with fewer than 50 employees, the annual turnover or the balance-sheet total of which does not exceed EUR 10 million. In microenterprises, employment does not exceed 10 persons, while the turnover or the balance-sheet total is not higher than EUR 2 million⁵. The remaining part of the definition, provided in the Annex, addresses the relationships between enterprises, specifying separate rules for recognizing entities as those belonging to the SME sector with regard to independent, partner and related enterprises6.

Polish legislation provides several concepts of micro, small and medium-sized enterprises. The first legislative act that contributed to the dynamic expansion of small

⁴ The *EU Commission Recommendation No. 96/280/EC* of April 3, 1996 regarding the definition of small and medium-sized enterprises. This recommendation provides definitions of a small and a medium-sized enterprise, the concept of micro-enterprise was introduced by the *EU Commission Recommendation No. 2003/361/EC* of May 3, 2003 regarding the definition of micro, small and medium enterprises.

⁵ The data regarding employment, net revenues and balance--sheet total are taken from a **closed financial year**. If an enterprise exceeds the employment threshold or financial threshold during the last year, it will not affect its size, unless this phenomenon **repeats within the next two years** – then the status changes [*Regulation of the European Commission No.* 651/2014, Official Journal Of the European Union of 26/06/2014, No. L 187, Annex I, Art. 4].

⁶ See: *EU Commission Regulation No. 651/2014*, Official Journal of the European Union of 26/06/2014, No. L 187, Annex I, Art. 2.

enterprises was the Act of December 23, 1988 on Business Activity. Owing to this regulation and the simultaneous collapse of the current economic system, the number of entities employing up to 50 people has increased significantly. The criteria determining enterprise size appeared in Polish legislation for the first time in the Accounting Act of September 29, 1994. These criteria included employment, revenue value as well as the size of assets and were used to determine the reporting obligations of enterprises. The concept of a small and medium-sized enterprise was defined for the first time in Polish legislation in the Act of 19 November 1999 - Business Law [Art. 54, Art. 55], based on the definitions recommended by the European Union (96/280 / EC). Currently, the Act of July 2, 2004 on Freedom of Economic Activity is in force, in which, in accordance with the recommendation (2003/361 / EC), the threshold values for small and medium enterprises were changed and the concept of a microenterprise was introduced. According to the above-mentioned Act:

- a **microenterprise** [Art. 104] "shall mean an enterprise which met, within at least one of the past two fiscal years, the following conditions:
 - employed, on average, less than 10 employees in a year, and
 - generated the annual net turnover from sales of products, goods and services and financial operations of less than the equivalent of EUR 2 million expressed in PLN, or if the balance sheet total value of assets as at the end of one of these two years was less than the equivalent of EUR 2 million expressed in PLN"
- a small enterprise [Art. 105] "shall mean an enterprise which met, within at least one of the past two fiscal years, the following conditions:
 - employed, on average, less than 50 employees in a year⁷, and
 - generated the annual net turnover from sales of products, goods and services

and financial operations of less than the equivalent of EUR 10 million expressed in PLN, or if the balance sheet total value of assets as at the end of one of these two years was less than the equivalent of EUR 10 million expressed in PLN^{"s};

- a **medium-sized enterprise** [Art. 106] "shall mean an enterprise which met, within at least one of the past two fiscal years, the following conditions:
 - employed, on average, less than 250 employees in a year, and
 - generated the annual net turnover from the sales of products, goods and services and financial operations of less than the equivalent of EUR 50 million expressed in PLN, or if the balance sheet total value of assets as at the end of one of these two years was less than the equivalent of EUR 43 million expressed in PLN".

One additional condition for qualifying an enterprise as a micro or a small enterprise entails its independence from the State Treasury, local government units or other business entities that do not belong to the group of micro or small enterprises⁹. The concept of micro-entities and small entities also appeared in the amendment to the *Accounting Act of 29 September 1994* [Art. 3]. The *Act of 11 March 2004 on Tax on Goods and Services* provides a definition of a small taxpayer [art. 2]. Comparison of the definitions of micro, small and medium enterprises used in various Polish legal regulations is presented in Table 3.1.

The Central Statistical Office, in turn, assumes that **microenterprises** employ up to 9 persons, **small enter-prises** from 10 to 49 persons, while **medium-sized**

- 25% or more of contribution, shares or stocks;
- rights to a 25% or higher share in the profit;

⁷ Average annual employment is determined on a full-time basis. When calculating the average annual employment, employees on maternity and parental leave as well as employees employed for vocational training are not taken into account [Art. 109 items 1 and 2 of the *Act of July 2, 2004 on Freedom of Economic Activity*].

⁸ In the case of an entrepreneur operating for less than a year, his/her anticipated net turnover from the sale of goods, products and services, including financial operations, as well as the average annual employment are estimated on the basis of the data for the last period documented by the entrepreneur [Art. 109 item 3 of the *Act of July 2, 2004 on Freedom of Economic Activity*].

⁹ A micro-enterprise or a small enterprise, respectively, is not one in which other entrepreneurs, the State Treasury and local government units have:

^{- 25%} and more votes in the general meeting of shareholders or a general meeting [Art. 108 of the *Act of July 2, 2004 on Freedom of Economic Activity*].

	the Act of 6 March 2018 The Business Law				The Act of 11 March 2004 on the Value Added Tax				
Criterion				mie	cro*	small	**		
	micro small		medium	Commercial companies (Ltd., joint-stock companies)		Commercial companies (Ltd., joint-stock companies)	Natural persons, partnerships	medium	"small taxpayer"
Employment (persons)	≤10	≤50	≤250	≤10	-	≤50	-	-	-
Annual turnover	≤2 mln €	≤10 mln €	≤50 mln €	≤3 mln PLN	1.2–2 mln €	≤34 mln PLN	≥2 mln €	-	≤1.2 mln €
or									
Balance sheet total	≤2 mln €	≤10 mln €	≤43 mln €	\leq 1.5 mln PLN	_	≤17 mln PLN	-	_	-

Table 3.1. Comparison of the definitions of a micro, a small and a medium-sized enterprise used in Polish legal regulations

* More Art. 3 pkt. 48.1a The Act of 29 December 1994 on accounting, Journal of Laws from 2013, item 330.

** More Art. 3 pkt. 48 1c The Act of 29 December 1994 on accounting, Journal of Laws from 2013, item 330.

Source: own elaboration based on the legal regulations.

enterprises employ from 50 to 249 persons [Badanie koniunktury gospodarczej, GUS, 2009].

Summing up, it can be stated that the heterogeneity of the SME population and its dynamics resulted in a multitude and a variety of definitions. The development of these definitions for the purpose of statistical, administrative and tax records as well as for financial institutions was preceded by many theoretical debates. As a consequence, Polish enterprises, depending on the defining party's needs, are qualified as those belonging to the group of micro, small and medium-sized enterprises.

3.2. CHARACTERISTIC FEATURES OF SMEs

In Polish and foreign economic literature as well as in legislation, the division of enterprises into small, medium and large ones is ambiguous and heterogeneous. When adopting any measure, it should be remembered that the terms "large" or "small" are relative and contractual¹⁰. Nevertheless, characteristic features of the SME sector, which differentiate those enterprises from large entities, can be distinguished. These features can be divided into several groups, with regard to: the management system, organization, the market share, production, finance, human resources. Their intensity evolves depending on the life-cycle phase a given enterprise is in.

THE MANAGEMENT SYSTEM

P. Drucker stated that the factors determining the size of an enterprise "come to a head in the **structure of management**, in the behavior required of the various organs of management and in the extent to which management has to manage by planning and thinking". He also writes: "A company is as large as the management structure it requires" [Drucker 1992]¹¹. Management

¹⁰ The studies carried out by R.A. Peterson, G. Albaum, G. Kozmetsky, indicate that perception of an enterprise as a "small" or a "large" one depends even on the sex and education level of the respondent. Research shows that men, in comparison with

women, assign companies to the group of large ones at lower thresholds, just as do persons with higher education do [Peterson et al. 1986, p. 65].

¹¹ A similar statement was made by the Vienna Institute Fur Gewerbeforschung, when characterizing the features of a small enterprise. The upper limit has been set as the possibility of handling all business matters on the part of the owner; while the lower limit of a small enterprise has been described with regard to the fact that an enterprise must be at least large enough to guarantee its owner full employment and adequate income [as per: Łuczka 1997, p. 14].

of a micro and small (less often a medium-sized) enterprise, however, is very different from the management of a large business unit¹². Table 3.2 presents an overview of the basic, specific features of small business entity management.

Table 3.2. Characteristic features of small enterprin	ses –
management system	

Criterion	Charact	eristic features
Management	Managerial functions	Owner, in-person
system		management
	Management model	Centralized
	The role of intuition	Large
	Management strategy	Short-term, operational

Source: own elaboration based on the literature on the subject.

The most characteristic feature of small enterprises is the owners' direct and active participation in all spheres of business activity. Owners decide on the form and the content of all basic functions in an enterprise¹³. They perform all conclusive executive and management functions at their own risk. The risk of losing capital and the associated threat to independence are the strongest motivational stimulus. Unity of management is a feature that distinguishes micro and small enterprises, not only from large entities, but also from medium-sized ones. Personal management of a micro and small enterprise by its owner/s enables its physical size. In terms of medium-sized enterprises (employing between 50 and 250 persons), this is no longer possible. Despite this, literature and statistics generally connect small and medium-sized enterprises, calling them the small and medium-sized enterprise (SME) sector. Manager of a medium-sized and large enterprise carries out the professional, the objective, the economic tasks only. His/her own existence and existence of his/her family are separate from the enterprise. In

micro and small enterprises, however, the entrepreneur and his/her family's fortunes directly depend on the fortunes of the enterprise. In the event of bankruptcy, managers (director) of large entities lose their workplace; small and micro (less often medium) entrepreneurs incur personal losses and lose the assets secured for the future when they lose their businesses. Owner of a micro and small (less often medium-sized) company supervises it, in commercial and technical terms, often also controlling the smallest details and routine work¹⁴. This contributes to the advantage of operational decisions over strategic ones. The functioning of the decision-making process usually causes such enterprise's strategy to be simplified and very flexible, although a bit risky at the same time. Strategic decisions are made based on the owner's intuition¹⁵ and experience, most often in relation to a short time horizon (from 6 months to a year). Strategies can be implemented quickly, while their change can take place in short time. High flexibility of operations and the ability to react quickly to changes in the environment allow effective competition on the market, even with the strongest (in terms of resources and position) entities. An important feature here is the ability to provide services and carry out production in accordance with the individual needs of customers.

FINANCIAL MANAGEMENT

Another characteristic feature of micro and small (less often medium-sized) enterprises is their financial

¹² J.A. Welsh and J.F. White assesses quite critically the treatment of small business management in the literature as management in an enterprise with smaller assets, lower sales and employing fewer employees. They indicate that management in a small enterprise entails ownership management [cf. Welsh, White 1981].

¹³ Some authors conducted research aimed at forecasting the success or failure of newly founded companies, based on the personality traits of entrepreneurs [Bławat 2004].

¹⁴ According to K. Safin, this type of management brings positive results in an enterprise, if the entrepreneur is endowed with appropriate charisma and the ability to center people around his/her concepts and ideas. This can cause various problems, if it is associated with the owner's lack of professionalism, lack of dynamism and discouragement [Safin 2003, p. 37]. A similar statement, as per E. Hamer, has been expressed by K. Schneider, who stated that small businesses are the work of their entrepreneur and are assessed by him/her both positively and negatively. It is not the company's capital, but the owner who is the only key to the success of small businesses [Schneider 1998, p. 27].

¹⁵ Based on research, the Vienna Institut für Gewerbeforschung stated that the upper limit for the size of a small and medium-sized enterprise is determined by the possibility for its owner to handle all its affairs [Kaczmarczyk 2003, p. 313].

management. Like other features, this aspect also changes as the enterprise grows. Appropriate selection of financing sources has significant impact on the entity's financial results, its further development and existence on the market. The possibilities of shaping the capital structure on account of the diversity of financial instruments are currently huge, although, especially in the case of micro enterprises, availability of some of those instruments is limited¹⁶.

During the founding phase, the entrepreneur's savings – the owner's and/or the family's savings as well as possible loans from family and friends – usually constitute the basis of financial management. At further stages of development, desire to finance operations with equity, mainly retained profit or short-term liabilities to the bank (overdraft) or suppliers (commercial loan), is observed. Business financing of micro and small enterprises in particular (less often medium-sized ones) via capital market instruments is still very rare in Poland. Table 3.3 presents the main sources of SMEs' financing in Poland and the European Union

Table 3.3. Main sources of SME financing in Polandand the European Union in the years 2009–2013

D	2009		20	11	2013	
Financing sources	UE	Poland	UE	Poland	UE	Poland
Retained profit or sale of assets	No data		24.4%	27.3%	25.9%	26.2%
Overdraft	29.8% 38%		39.9%	43.4%	38.8%	41.6%
Bank credit	26.2%	24.6%	30.4%	28.1%	31.6%	33.1%
Leasing / installment purchase / factoring	22.9%	29.3%	35.7%	39%	34.5%	38.2%
Commercial loan	16.2%	33.1%	32.3%	41.6%	31.9%	36.5%
Grant or subsidized bank loan	10.3%	3.6%	12.7%	10.9%	12.8%	10.2%

Source: own elaboration based on [Dostępność finansowania przedsiębiorstw niefinansowych w Polsce, NBP 2016]¹⁷.

The features distinguishing small enterprises in Poland include the possibility of using various forms of tax and accounting records as well as the use of simplifications in the area of valuation principles and the exemption from the obligation to apply certain provisions of the *Accounting Act*. Depending on the type and the size of a business, small enterprises may use simplified records as part of the tax records, in which a lump sum is singled out from the revenues recorded, a tax card or taxation based on general principles for enterprises keeping a tax revenue and expense ledger may be used.

MARKET POSITION AND THE LOCAL NATURE

In addition to the specifics of the SME sector, resulting from the manner of management, organization and financial management, it is necessary to point out the features related to employment and the market position as a seller, buyer and producer. One characteristic feature of a small enterprise is its small market share [Lachiewicz, Matejun 2012], and thus its small impact on the prices and the supply as well as its dependence on any changes occurring outside the enterprise. Production activity of micro and small enterprises is often poorly diversified, focused on selected products. Transition from diversified production - in small series or on request – to serial production takes place along with the company's development. The principle of "universalism" applies to production, i.e. the use of universal devices/equipment and minor division of labor. This makes these companies more flexible and therefore willing to innovate. The short response time achieved owing to greater flexibility turns out to be an increasingly important source of competitive advantage. This is mainly due to the increase in the unpredictability and the transformation speed of the modern organizational environment, which forces dynamic adaptation processes. Small enterprises also have specific characteristics in terms of their contact with suppliers and customers. They usually rely on one key supplier or customer, therefore, they depend on the financial condition of that supplier or customer. This can result in a dependency, and thus – an imposition of adverse

¹⁶ Participation in the capital market is ruled out by the most important features of a small enterprise – unity of ownership and direct influence of the owner on the decisions made in the enterprise

¹⁷ Availability of financing for non-financial enterprises in Poland, Polish National Bank 2016

contract terms. Small units more often personalize their contacts, moving into the non-business sphere, which can have positive effects for the enterprise. These enterprises often operate on local or regional markets only, while their expansion onto further markets is limited by the need to increase expenditure on advertising and acquisition as well as by the lack of appropriate staff. Micro and small (less often medium-sized) enterprises cannot afford to experiment, because failure on new markets can result in big financial problems for the enterprise, and thus its owner/s. S. Skowroński, pointing to the local nature of micro and small (less often medium-sized) enterprises, emphasizes their strong connection with the place of operation as a source of supply, not a market. Locality - in his opinion - also means strong social and economic ties with a given place, the use of local initiatives and the labor rules applicable in a given area. He believes that the more local nature of small units. compared to large ones, is evidenced by the fact that two small enterprises with the same total production and employment as one large enterprise can become factors in the development of two local centers, not one [Skowroński 1985; Łuczka 1997].

HUMAN RESOURCES

Another characteristic feature of micro and small (less often medium-sized) enterprises - mentioned already - and, at the same time, a problem, is the difficult access to specialized staff [Janiuk 2004], which results from these entities' limited financial resources. In this group of enterprises, selection of employees is mainly based on family recommendations and contacts. Conversely, high level of trust and employee loyalty may be a unique source of advantage enterprises from the SME sector have. Generally speaking, in an organization in which a relatively small number of people work, it is easier to establish strong and lasting interpersonal relationships. The impression of anonymity, characteristic of large corporations, is alien to them. This fact can have positive impact on the quality of the knowledge sharing among employees [Cegliński 2016].

Summing up, it should be noted that in each life-cycle phase, a company has a different objective and structure, different styles of management, control and decision making are desired, it reacts differently to and influences the market. Along with the enterprise's growth, the owners have less and less influence on the processes occurring in it.

3.3. SIGNIFICANCE OF THE SME SECTOR FOR SOCIO-ECONOMIC DEVELOPMENT IN POLAND

It is commonly emphasized that SMEs primarily have significant impact on such important areas of the economy as economic growth or employment. They also constitute a major factor in the development of innovation as well as in the social and local integration of Europe. The importance of the SME sector for socio-economic development can be assessed depending on both economic and non-economic criteria. Basic macroeconomic effects of SMEs are described below.

- **Production effect** meaning that for the same volume of production smaller entities usually need less capital than large units.
- Employment effect results from the lower costs of creating new jobs in SME-sector enterprises, compared to large enterprises.
- Technological progress effect is associated with faster implementation of innovative solutions by smaller enterprises, compared to large units. Unfortunately, in the Polish SME sector, its innovativeness is slightly different than in most European Union countries. The percentage of small enterprises conducting innovation activity in the EU was 45.2%, and in Poland 17.4%; in the case of medium-sized entities, it was 60.5% in the EU and 35.8% in Poland respectively [Zadura-Lichota 2015, p 15].
- **Regional decentralization effect** is expressed in the support smaller enterprises provide for less developed areas. This results from the fact that enterprises in this sector are local and, by being more flexible in the selection of location, are beneficial for the deconcentration policy. Micro and small

enterprises do not need special infrastructure conditions for operation, therefore they can be set up in areas that are unprofitable for large enterprises.

- **Capital mobilization effect** meaning that owing to the SME sector, capital is engaged in the economy, which would have been productively unused without the existence of these undertakings.
- Ecological effect is associated with the thesis that as an enterprise grows, its negative impact on the natural environment increases. At the same time, impact of the SME sector is less aggressive and decentralized, therefore the overall environmental impact is lower in this case.
- Transformational effect is associated with the neutralization, by the SME sector, of the negative effects of reforms, as well as with promotion of new values and market behavior strategies. Micro and small enterprises absorb the surplus labor from restructured industries, by creating new areas of development and by searching for market niches.
- Income effect consists in an increase of public revenues (depending on the legal regulations of the national budget and/or the local government budget). It is connected with fiscal burdens on enterprises and with smaller, in the case of SME-sector enterprises, tax optimization opportunities, involving transfer of business (headquarters) to the so-called tax havens (income tax). Due to the local nature of smaller enterprises, VAT revenues flow into the state budget (significantly lower flows between countries).

In terms of the country's social development, development of the SME sector should be indicated as a **factor creating the middle class**, which is most often understood as the group of people conducting business activity, made up of ambitious people who strive to obtain or maintain appropriate social and property status. In addition to their professional careers, this group attaches importance to high income, independence, freedom, dignified life in accordance with their ideological beliefs, and to meeting their higher-order needs. This social group determines the increase in consumer demand, which in turn activates the country's economic development [Lachiewicz, Matejun 2012; Wach 2014; Grudzewski, Hejduk 1998].

Analysis of macroeconomic data (Table 3.4), with regard to Polish non-financial business entities, indicates that the Polish SME sector also plays a huge role in the socio-economic development of the country.

At the end of 2014, there were over 1839 thousand non-financial enterprises employing up to 249 people, and they constituted 99.8% of all non-financial enterprises, 95.8% of which were micro-enterprises, 3.2% – small entities, 0.8% – medium-sized entities and 0.2% – large enterprises¹⁸. Enterprises of the SME sector in Poland most often conducted commercial activity (27.1% of the sector) as well as professional, scientific and technical activity, followed by construction and industrial activity (respectively: 12.5% and 10.3%). Their revenues in 2014 amounted to PLN 2165.3 billion (55.4% of the total revenues of all non-financial enterprises). The shares of micro, small and medium-sized entities in revenue generation amounted to 20.7%, 14.8% and 19.9% respectively.

	Enterprise							
Criterion	micro	small	medium	total SME	large	total		
Number of enterprises	1 764 597	59 166	15 470	1 839 233	3356	1 842 589		
Employment (number of persons)	3 495 101	1 223 036	1 608 324	6 326 461	2 819 197	9 145 658		
Revenues (billion PLN)	807.6	579.6	778.1	2165.3	1742.6	3907.9		

Table 3.4. Macroeconomic data on the SME sector in Poland – as of 31.12.2014

Source: own elaboration based the Central Statistical Office.

This sector also constitutes a very important element of the Polish labor market. According to the Central Statistical Office data, clear dominance of the people

¹⁸ Entry in the REGON (National Business Register) is obligatory for every entrepreneur; changes regarding, among others, suspension or termination of business activity is a voluntary act. Some entities do not take up business activity after registration. As such, despite the registry updates made by the Central Statistical Office, it still contains data on entities that do not conduct business actively. It should also be noted that micro enterprises include natural persons conducting business activity, often in the form of the so-called self-employment, not real business activity.

employed in micro and small enterprises is maintained in Poland – 51.6% (4.6 million people) of the population employed in the entire non-financial sector, including those employed in micro-enterprises – 38.2%, small – 13.4%, and medium-sized ones – 17.6% [CSO 2015].

In comparison with other EU countries, Poland ranks sixth in terms of the number of enterprises, however, the sheer number of enterprises, although important, is not sufficient when it comes to assessing the entrepreneurial potential of a given country, with regard to the number of companies. Referencing the number of enterprises to the population size in a given country is a better indicator. With a result of 40 enterprises per 1000 inhabitants, Poland ranks 19th in the EU19. Nearly 70% of jobs are created in the SME sector both in Poland and averagely in the EU, but there are clear differences in the individual enterprise size classes. In Poland, compared to the EU, micro-enterprises have dominating significance for the labor market, where 38% of those employed in all enterprises find work in those entities. In the EU, in contrast, far more jobs are created by small enterprises. As for medium-sized entities, their participation in job creation is at a similar level both in Poland and the EU.

3.4. DEVELOPMENT OF THE SME SECTOR IN POLAND IN THE YEARS 1980-2014

The reasons behind the development of the SME sector are diverse, while the impact strength of individual factors varies from one country to another. Development of small and medium-sized enterprises in Poland was very uneven. Nevertheless, ingenuity and originality of solutions, boldness and diligence, according to J. Targalski, have always been the features distinguishing Polish employees and entrepreneurs. The diminishing of the spirit of independence and entrepreneurship after World War II [more broadly: Targalski 2014, pp. 143–147] resulted from the limiting of civil and economic freedoms as well as from the deprivation of the citizens of their private property. The longterm inefficiency of the centrally planned economy, the decreasing value of manufactured products and services, wrong investment decisions and the growing debt of Poland led to the change in the economic system. Creation of a basis for the functioning of market economy, by introduction of legal acts enabling natural persons and legal entities to undertake business activities, regardless of the type of business, was the primary factor empowering development of the SME sector in Poland. The following stages of this sector's development are distinguished:

- the pre-transformation phase of SME development the initial phase of entrepreneurship development (1980–1988);
- the phase of entrepreneurship explosion (1989–93);
- the phase of quantitative stabilization and the SME sector's growing rank in the economy market self-regulation (1994–1997);
- the phase of slowed development and preparation for integration with the European Union (from 1998 to May 2004);
- the phase of competing on European markets (since May 1, 2004) [Lachiewicz, Załęczny 2003, p. 49].

Before the transformation of Polish economy, the possibilities of setting up private enterprises were limited, though the communist authorities allowed existence of the private craft sector, which most often operated via small facility leasing, mainly shops, catering establishments and service outlets belonging to stateowned enterprises. This sector was usually made up of family businesses providing services to the public.

THE PRE-TRANSFORMATION PHASE OF SME DEVELOPMENT

Beginning in 1976, the so-called Polish diaspora enterprises could be set up, however, it was not until the 1980s that more significant development of such entities took place. At the same time, the change in the cooperative law enabled creation of authority-independent

¹⁹ The highest value of this indicator has been recorded for the Czech Republic (96), Portugal (75), Slovakia (74), Sweden (70) and Greece (66). The smallest number of enterprises per 1000 inhabitants has been recorded for Romania (21), Germany (27) and Great Britain (27) (data for 2011) [PARP Report 2015, p. 14].

cooperatives. Since 1985, it was again possible to register capital partnerships, under the *Commercial Code* of 1934. It is estimated that in 1988, the number of small and medium-sized enterprises was 572 thousand. They employed about 10.1% of the labor force in Poland [Grabowski 1992]. Unfortunately, it is not possible to carry out a thorough comparative statistical-economic analysis of the enterprises operating in Poland before and after 1990, because private enterprises were not subject to statistical reporting before 1990, while basic information regarding this population was obtained by the Central Statistical Office from the Ministry of Finance (tax declarations) and from Craft Chambers (registers).

THE PHASE OF ENTREPRENEURSHIP EXPLOSION

The most significant legal change regarding the private sector was brought about in 1988, when the *Act of December 23, 1988 on Business Activity*, the so-called Wilczka Act, was adopted. It abolished the need to obtain most business permits and licenses, by introduction of registration instead. Some consider the entry of this law into force on January 1, 1989 as the real beginning of the "economic revolution in Poland"²⁰. The beginning of the 1990s was a period of dynamic growth in the number of small and medium-sized enterprises and their share in the generation of GDP. The reasons for the rapid development of SMEs include:

- abolition of monopoly and/or preferences in the access to the state-enterprise market;
- lack of flexibility in the activities of state and cooperative enterprises;
- the threat of systematically rising unemployment;
- the opening of the economy to the world and introduction of internal convertibility of the zloty (PLN);

- the monetary and privatization policy;
- introduction of the freedom to travel and foreign exchange trade;
- restitution of local self-governance;
- possibility of starting a business with minimal capital injection;
- persistent market imbalance [Tokarski 2005].

This resulted in a release of huge entrepreneurial potential and revival of family trade traditions craft and merchant heritage. J. Targalski emphasizes, however, that it was not an easy period, especially for newly established enterprises, financial resources of which limited the type and the size of their operations and for which the rules of free market were a novelty. The developmental barriers in the early 1990s also entailed hyperinflation, high interest rates on loans, uncertainty of the legal, political and economic situation, as well as prejudice towards private entrepreneurs, resulting from the society's mentality [Targalski 2014]. Despite this, in the years 1989-1993, the SME sector was developing very dynamically. The number of enterprises in 1993 increased by nearly 240%, compared to 1988²¹. In this phase of the SME sector's development, important legal regulations came into force regarding the taxation of enterprises, which still apply, though appropriate changes have been introduced:

- The Act of 26 July 1991 on Personal Income Tax (Journal of Laws 1991, No. 80, item 350 entry into force on January 1, 1992);
- *The Act of February 15, 1992 on Corporate Income Tax* (Journal of Laws 1992, No. 21, item 86 entry into force on March 10, 1992);
- The Act of 11 March 2004 on the Tax on Goods and Services. (Journal of Laws 2004, No. 54, item 535 – entry into force on April 20, 2004).

²⁰ Art. 1 and Art. 4 were considered to be particularly revolutionary. Art. 1 stated: "Undertaking and conducting business activity is free and permitted to everyone on an equal basis, subject to the provisions laid down by law" [own translation], while Art. 4 states: "Economic entities may carry out activities that are not prohibited by law, as part of their business operations" [own translation].

²¹ The number of private enterprises in 1988 was 572 451, in 1993 - 1 943 561.

THE PHASE OF QUANTITATIVE STABILIZATION AND THE SME SECTOR'S GROWING RANK IN THE ECONOMY

In subsequent years (1994–1997), economic life normalized, inflation fell, industrial production and investment outlays increased. Since 1994, the Polish economy has been perceived as relatively stable and most active among the countries of Central and Eastern Europe, which is reflected in the foreign investors' growing interest in the Polish market. Despite the favorable economic situation, some saturation of the market with small and medium-sized entities has taken place and signs of individual markets' maturity have appeared. An unfavorable tendency to license a growing number of new areas of the economy, including tourism [The Act of 29 August 1997 on Tourist Services], transport [The Act of 20 June 1997 - Road Traffic Law], real estate trading, passenger transport has emerged. Polish entrepreneurs could gain their first experience in acquiring EU funds, by implementing projects under the PHARE pre-accession program. In this phase of the SME sector's development, important legal acts regarding business activity entered into force and are still in force:

- *The Accounting Act of September 29, 1994* (Journal of Laws 1994, No. 121, item 591, as amended entry into force on January 1, 1995);
- Constitution of the Republic of Poland of April 2, 1997 (Journal of Laws 1997, No. 78, item 483 – entry into force on October 17, 1997).

The number of private enterprises registered in the REGON²² (National Business Register) database in 1997 increased by 22%, compared to 1993²³. Analysis

- organizational units without legal personality;
- natural persons conducting economic activity, including individual agricultural farms;
- local-units of the above-mentioned entities.

²³ The number of private enterprises registered in the REGON in 1993 and 1996 amounted to 2047.3 and 2433.6 respectively.

of the activities of small and medium-sized industrial enterprises in Poland in the early 1990s, however, is relatively difficult due to the lack of sufficiently reliable, consistent information even regarding basic values. There were many reasons for this, partly objective ones, but in some cases also resulting from the imperfections of statistical solutions [Zienkowski 1997]. The main reason is the fact that the REGON, containing basic information about the business entities operating in Poland, has become increasingly outdated over time, which resulted from the fact that a significant proportion of smaller enterprises suspended production shortly after registration, changed the number of employees or ceased their operations entirely, without informing this Central Statistical Office. Consequently, the number of "dead" entities and the companies listed in the Central Statistical Office registers began to increase every year. Based on subsequent research, it was found that in 1993 about 30% of registered units did not run any business, in 1994 this share increased to 41%, and in 1995 - to 42% [Zienkowski 1997]²⁴.

The development of the SME sector in the years 1980–1997 is illustrated in Fig. 3.1.

²⁴ In subsequent statistical analyses, the term "active enterprise" was used.



Fig. 3.1. The number of SME-sector enterprises in the years 1980–1997

Source: own elaboration based on the data from the Central Statistical Office and PARP (Polish Agency for Enterprise Development).

²² REGON – the National Business Register maintained by the President of the Central Statistical Office. The term REGON also means the REGON identification number, i.e. the nine-digit number of the national economy entity in the above-mentioned register. The following entities are subject to entry in the REGON: – legal persons;

THE PHASE OF SLOWED DOWN DEVELOPMENT AND PREPARATION FOR INTEGRATION WITH THE EUROPEAN UNION (FROM 1998 TO MAY 2004)

The period of preparation for integration with the European Union was a period when a tendency appeared to liquidate existing enterprises, at the still existing, although clearly decreasing, tendency to establish new ones. This phase is also associated with the growing crisis phenomena in Polish economy, in the form of a weakening GDP growth rate and an increasing budget deficit. The decline in the society's wealth, which reduced the demand for goods and services and intensified competition on the domestic and international markets, also constituted a barrier to the development of the SME sector [Zakrzewska-Bielawska 2006, p. 133]. At the same time, Polish entrepreneurs, in addition to the possibility of obtaining EU funds from the PHARE program, could use the ISPA and the SAPARD programs. The number of active enterprises employing up to 250 people increased in 2004 by 8%, compared to 1997 [Zienkowski 1997, p. 6; Tokaj - Krzewska, Pyciński, 2006]. During this period, the notions of a small enterprise [Art. 54] and a medium-sized enterprise [Art. 55] were specified for the first time in Polish legislation in the Act of 19 November 1999 on Business Activity [art. 54], based on the definitions recommended by the European Union (96/280 / EC).

THE PHASE OF COMPETITION ON EUROPEAN MARKETS (SINCE MAY 1, 2004)

The years 2004–2014 were a period of economic development in Poland²⁵. In the years 2004–2012, a cumulative increase in Poland's gross domestic product amounted to 46.3%, which was the second result in the European Union²⁶. The SME sector, though its

economic activity, capital involvement and activity in international exchange confirmed that economic changes would not be possible without its participation. Its ability to develop its potential, and consequently to develop jobs, caused a significant drop in the unemployment rate in 2004–2008 and in 2013–2014. In 2004, the unemployment rate in Poland was 19.0%, which was the worst result out of all Member States. In 2014, the unemployment rate in Poland fell to 11.4%²⁷.

Along with Poland's accession to the European Union, a new form of enterprise financing has appeared. Due to the fact that European Union policy recognizes SMEs as a priority for the economy, they have become one of the main beneficiaries of structural assistance. In 2007, the PHARE program ended. Under the 2007–13 financial perspective, many projects were implemented in the SME sector, under three operational programs: Innovative Economy, Development of Eastern Poland, and Human Capital.

In the years 2004–2008, the number of active SMEs increased. The extraordinary flexibility of the Polish SME sector caused Poland to be recognized in 2009 as a country resistant to the effects of the global economic downturn. Nevertheless, statistical data show that in 2009 the number of active SMEs decreased by over 10%, compared to 2008. In the years 2010–2014,

²⁷ http://stat.gov.pl/obszary-tematyczne/rynek-pracy/bezrobocie-rejestrowane/stopa-bezrobocia-w-latach-1990-2016,4,1.html [accessed: 17/11/2016]. The EU average for 2014 was at the level of 10.5% [Polska w Unii Europejskiej 2014, p. 32].



Fig. 3.2. The number of SME-sector enterprises in the years $1999-2014^{60}$

Source: own elaboration based on the data from the Central Statistical Office and PARP (Polish Agency for Enterprise Development).

²⁵ The GDP growth rate ranged from 7.2% (2007) to 1.7% (2013). In the period indicated, in 2004–2008, a decrease in unemployment was recorded, and its increase in 2009–2013.

²⁶ Only Slovakia developed slightly faster (47.8%). In the same period, the total gross domestic product in the EU increased by 10.8% [Polska w Unii Europejskiej 2014, p. 60].

the number of active SMEs started to increase again. In 2014, the number of these entities was 10% higher, compared to 2009, and amounted to 1 839 233.

At the beginning of this phase of the SME sector's development, in accordance with recommendation (2003/361 / EC), the threshold values for small and medium-sized enterprises were changed in Polish law and the concept of a micro-enterprise was introduced (*Act of 2 July 2004 on Freedom of Economic Activity*, which entered into force on August 21, 2004).

Summing up, it can be stated that the SME sector in Poland, in particular small and micro enterprises, constitutes an important element of economic and social life. Its dynamic development in the last decade was a phenomenon that significantly influenced the current image not only of the Polish economy, but also of the society and the middle class in particular. Polish micro and small entities do not differ in terms of their management, financial management or the range of activity from micro and small enterprises in the European Union and in the world. The only distinguishing features are their age (on average they operate shorter than their counterparts in the EU) and employment (on average they are smaller). This sector will probably continue to grow in the upcoming years, but at a much slower pace. The structure of these enterprises is also likely to change, in terms of the type of business activity conducted, the percentage share of commercial enterprises will reduce, while the share of service enterprises will increase, especially in the field of high technologies.

4. THE POLISH SME SECTOR IN NATIONAL AND METROPOLITAN CONFIGURATION

4.1. CAUSES OF ENTREPRENEURSHIP IN POLAND AND IN THE WORLD

Entrepreneurship constitutes an important factor in socio-economic life and, undoubtedly, an interdisciplinary and complex category [cf. Gołębiowski 2014]. It can be considered a process leading to creation of enterprises and their development, but also as a personality trait. Entrepreneurship as a process consists in the creation and development of enterprises [Kapusta 2006, p. 19]. The dynamic development of the SME sector in Poland is thought to be one of the reasons for the increased interest in entrepreneurship in recent decades [Zięba 2015; Grudzewski, Hejduk 1998]. Entrepreneurship is viewed as a critical talent, that is, a very rare one and particularly desirable in a given community. It can also be treated as a social category related to the mentality and the resulting attitudes of a given community [Moczydłowska 2010]. One example of a life philosophy based on readiness to take risks, self-realization, creativity, flexibility, and often innovation, which is an emanation of entrepreneurial predispositions, are micro, small and medium enterprises. As such, for the purpose of this study, development of entrepreneurship will be equated with the development of the SME sector.

The role entrepreneurship plays in regional development has been the subject of interest for many researchers, both nationally and worldwide, where research in this field has been undertaken for years. Entrepreneurship is one of the main determinants of success, not only for individuals, but for regions or countries as well. According to M. Płaziak and T. Rachwała [Płaziak, Rachwał 2015], it is important to determine how entrepreneurship is defined in the considerations about regional development. The deliberations about the essence and the definition of entrepreneurship give rise to the question of the extent to which the term 'entrepreneurship' ('entrepreneurial') can applied to territorial systems. There is increasing talk of an entrepreneurial region¹ [Klasik 2005; Berggren, Dahlstrand 2009; Płaziak, Rachwał 2015], an entrepreneurial city [Zheng 2011; Quilley 2000; Chapin 2002; While et al. 2004; Szromnik 2012], entrepreneurial municipalities/ local governments [Słomińska 2007; Kożuch, Noworól 2011]. The Authors of the study propound the concept of an "entrepreneurship nest".

¹ This concept has been popularized in Europe owing to the *European Entrepreneurial Region* (EER) project, under which 1 to 3 EU regions that have developed unique visions for entrepreneurship development are indicated, regardless of the size, wealth, competence and the current level of these regions' competitiveness level.

Kuciński [2014] examined entrepreneurship at municipality level, in the context of regional and local development, and indicated its two dimensions. One of them concerns local municipal governments, the other – the business activities actually undertaken and conducted. The author also contemplates on the mutual relations between:

- the municipal government authorities' entrepreneurship and the number of enterprises operating in a given municipality;
- the level of economic development in individual municipalities and their authorities' entrepreneurship as well as the number of operating business entities per 1000 inhabitants;
- the municipal government authorities' entrepreneurship and the business entities located in a given municipality as well as their impact on local and regional development.

The problems with defining the concept of entrepreneurship cause, in effect, difficulties in entrepreneurship measurement. In scientific research in Poland, the source used most frequently in this regard is the National Business Register (REGON) maintained by the Central Statistical Office. The Polish Agency for Enterprise Development (PARP) introduced its own synthetic indicator of regional entrepreneurship development. It derives from several indirect measures of entrepreneurship development, such as:

- the number of economically active enterprises per 1000 inhabitants;
- the number of employees per an economically active micro, small and medium-sized entity;
- the number of employees in an economically active enterprise (micro, small and medium-sized) per 1000 inhabitants;
- revenues per an economically active micro, small and medium-sized entity;
- revenues per an employee in an economically active micro, small and medium-sized entity;
- the share of costs in revenues in economically active micro, small and medium-sized entities;
- the average salary in economically active micro, small and medium-sized entities;

- investment outlays per an economically active micro, small and medium-sized enterprise;
- investment outlays per an employee in an economically active micro, small and medium enterprise [PARP Report 2012].

One important attempt to empirically investigate the phenomenon of entrepreneurship on a global scale entails development of a methodology, along with its measurement carried out since the late 1990s, under the *Global Entrepreneurship Monitor* (GEM) project. The GEM was created to investigate the differences in entrepreneurship intensity in various communities and to attempt explanation of these differences². The Global Entrepreneurship Monitor distinguishes these differences in terms of the reasons motivating people to start a business, i.e.

- opportunity-based entrepreneurial activity, i.e. resulting from the recognition of a business opportunity and the desire to use it;
- necessity-based entrepreneurial activity, i.e. entrepreneurial activity undertaken in the absence of other perspectives, especially often due to unemployment or when the current job is not satisfactory enough. Entrepreneurship by necessity does not bring as good

results as the one undertaken with a desire to seize an opportunity. It has lower survival rates and lower potential for growth. As such, the first entrepreneurial motivation, which brings faster growth, higher survival rate and better financial results, is particularly desirable. Accordingly, it seems that from the perspective of spatial layout, entrepreneurship based on opportunity guarantees, among others, the following: longterm tax revenues to the budget, long-term impact on the level of unemployment, willingness to cooperate with local authorities, in the context of the development

² Research carried out under the GEM consists of two main parts:

the surveying of adult population, aimed at identification and analysis of business ventures in their bud, often even before being officially created;

interviews with experts, as to define the national conditions underlying the development of the economy and entrepreneurship (referred to as the General National Framework Conditions and Entrepreneurship Framework Conditions).

of local infrastructure, as well as care for spatial order and greater corporate social responsibility.

The TEA³ index is the central indicator created in the GEM research, representing the percentage of working-age population involved in setting up a business or running a new business for up to 3.5 years. It should be emphasized that the TEA does not measure the percentage of the people running a business, but the share of adults setting up and running a business at an early stage. In this context, it is a leading indicator that allows forecasting of the intensity of economic activity in a given community [cf. Tarnawa et al. 2016, p. 16].

Poland participated in the GEM project in 2004, 2011, 2012, 2013, 2014, 2015. Table 4.1 and Fig. 4.1 present the results of the GEM study on the motives for undertaking business activity in Poland in the years under analysis.

Table 4.1. Motives for undertaking business activity in Poland as per the GEM report

Criterion	2004	2011	2012	2013	2014	2015
TEA	8.83%	9.0%	9.4%	9.3%	9.2%	9.2%
Ventures undertaken by choice (opportunity)*	64.7%	31.5%	30.1%	26.1%	31.0%	46.4%
Ventures undertaken by necessity*	35.3%	47.6%	40.7%	47.4%	37.0%	28.1%

* The results do not add up to 100%, but the GEM reports do not provide other motives for undertaking business activity. Source: own elaboration based on the GEM reports.

The TEA index for Poland oscillated around 9% in all the years under consideration, which means that out of a hundred Poles aged 18–64, nine were involved in setting up a business or running their own enterprise for up to 3.5 years. Changes, however, occurred in the motivation to start a business. In 2004, the TEA index for Poland was 8.8%, 64.7% of which were enterprises set up by choice, and 35.3% – out of necessity. This means that in 2004, every third person involved in business activity felt that they were forced to do so by circumstances, i.e. lack of employment or the threat of losing it. The high number of ventures undertaken



Fig. 4.1. Motives for undertaking business activity in Poland as per the GEM report

Source: own elaboration based on the GEM reports.

by opportunity in 2004, compared to subsequent years, probably resulted from Poland's accession to the European Union that took place this year, which could have contributed to the increase in entrepreneurial attitudes among Poles. In 2012, the TEA index in Poland amounted to 9.4%, thus an improvement in the overall level of entrepreneurship should be noted, compared to 2011 (9.0%) and 2004 (8.8%). Nevertheless, 40.7% of the ventures were undertaken in Poland in 2012 out of necessity, and only 30.1% out of the willingness to seize an opportunity. This entrepreneurial structure was not only worse than in 2004, but also placed Poland among the countries with very unfavorable structures of motivation to undertake business ventures⁴. In the years 2014–2015, the results regarding the motivation to start a business improved. Between 2013 and 2015, the percentage of business owners who decided to start their own business due to lack of other earning possibilities fell by around 40% and in 2015 amounted to 28.1% of the TEA. Despite this positive trend, the percentage is still worse than in innovative countries and averagely in Europe. With regard to the percentage of the people motivated by opportunity when setting up a business, Poland is similar to Europe, but weaker in comparison with the average

³ TEA – total early-stage entrepreneurial activity.

⁴ In 2012, predominance of necessity over opportunity still occurred in three countries only: Bosnia and Herzegovina, Macedonia and Russia.

for innovative countries. In 2015, this population constituted 46.4% of the total number of those setting up an enterprise [Global Entrepreneurship Monitor, 2016].

Summing up, it can be stated that although the share of SME-sector enterprises in Poland is similar to that in other European Union countries, Poles, on average, still decide to run their own enterprises out of necessity more often than the average European. It should be noted, however, that entrepreneurship resulting from opportunity rather than necessity increased in subsequent years, which should be considered as a positive phenomenon.

4.2. THE SME SECTOR IN THE POMERANIAN VOIVODESHIP AGAINST THE BACKGROUND OF POLAND

The voivodeship entrepreneurship ranking is created by the PARP on the basis of a synthetic index consisting of the positions ranked by individual voivodeships in 26 sub-rankings of entrepreneurship development. The synthetic index (SI) is determined according to the following formula:

$$SI = (p \cdot n - x) \cdot 100/\max((p \cdot n - x))$$

where:

n – the number of variables;

x – the number of points for variables, constituting a sum of the places ranked by a given region in individual sub-rankings;

p – the number of places in a ranking;

max $(p \cdot n - x)$ – maximum number of points that can be scored for ranking first in all sub-rankings.

The value of the index is the level of the maximum-result achievement on the part of a given voivodeship, i.e. ranking first in all sub-rankings.

The Masovian Voivodeship was the leader in this ranking in the years 2009–2014. In this period, the Pomeranian Voivodeship ranked third only in 2010; in all other years it came second out of the 16 voivodeships. The average value of the synthetic index for the period 2009–2014 for all voivodeships in Poland was 50.02. For the Masovian Voivodeship – the best one in the ranking – the index was 85.81, while for the Pomeranian Voivodeship – 76.74. This means that in the period under analysis, the Pomeranian Voivodeship realized a 76.74% chance of ranking as first in entrepreneurship sub-rankings. Figure 4.2 presents the average value of the synthetic index for the 16 voivodeships in the years 2009–2014.

It seems, therefore, that the Pomeranian Voivodeship can be described as an entrepreneurial voivodeship, that is a region distinguished, on a national scale, by high intensity of micro, small and medium-sized enterprise development. The data regarding the synthetic indicator measuring the development of the SME sector in the Pomeranian Voivodeship in the years 2009–2014, in relation to the national average and to the ranking leader (Masovian Voivodeship), is presented in Table 4.2.

Table 4.2. The synthetic indicator of entrepreneurship in the Pomeranian Voivodeship in the years 2009–2014

Entrepreneurship	2009	2010	2011	2012	2013	2014
Masovian Voivodeship	85.64	89.49	83.36	88.46	84.60	83.30
Pomeranian Voivodeship	82.31	72.31	71.28	79.23	75.4	79.9
Average	50.00	50.00	50.02	50.00	50.01	50.06
Median	44.88	45.65	46.67	47.69	47.70	48.70
Standard deviation for Poland	18.75	18.57	16.37	18.94	18.87	17.97
Minimum value for Poland	23.85	23.08	26.92	21.03	20.80	23.6
Maximum value for Poland	85.64	89.49	83.36	88.46	84.60	83.30

Source: own elaboration based on PARP reports.

When analyzing the number of active SEM-sector enterprises per 1000 inhabitants, the Pomeranian Voivodeship ranks fourth out of the 16 voivodeships. In 2009–2014, there were, on average, 50 active SME-sector entities per 1000 inhabitants in the Pomeranian Voivodeship. The average and the median for the entire country entailed 44 active SME-sector enterprises per 1000 inhabitants. In addition, according to the research conducted by Sołtys and Dorocki [Sołtys, Dorocki 2016] on subregion, district and municipality distribution, the highest indicators of the number of conducted business activities per 100 working age inhabitants in 2014 were recorded for metropolitan and coastal areas, descending from west to east.



Fig. 4.2. The synthetic index (SI) average for 16 Voivodeships in years 2009–2014 Source: own elaboration based on PARP reports.



Fig. 4.3. Number of active SMEs per 1000 inhabitants Source: own elaboration based on PARP reports.

When analyzing SME enterprises in terms of the type of the activity conducted, it can be stated that their structure in the Pomeranian Voivodeship in the years 2009–2014 did not differ significantly, in comparison to nationwide data. In relation to the entire country, in the Pomeranian Voivodeship there were more industrial enterprises (Pomeranian – 14.81%, Poland – 13.10%), more entities from the construction industry (Pomeranian – 14.81%, Poland – 13.10%), and more accommodation and gastronomy entities (Pomeranian – 3.98%, Poland – 2.86%), which results from the geographical location of the region. In the same period, there were fewer trade and repair entities (Pomeranian – 24.29%, Poland – 28.97%), compared to the national average.

4.3. THE SME SECTOR IN CENTRAL CITIES OF THE TRI-CITY METROPOLITAN AREA (TMA)

Comparative analysis of the micro, small and medium enterprise sector in central cities (Gdańsk, Sopot, Gdynia) and the TMA municipalities entailed measurement of SME concentration, measured by the location quotient in a given spatial arrangement and statistical analysis of the structural features of the entities in this sector.

Location quotient (Florence index) is the measure most often used in regional employment analyses. According to Antonowicz [Antonowicz 2015, pp. 285– 286], however, analysis of the literature on the subject indicates high universality of this coefficient, which in manifested by its use in many quite diverse regional studies. In international economic analyses, the location index has been used since the 1970s [Leigh 1970; Isserman 2007; Carroll, Reid, Smith 2008]. These analyses most often concern the concentration of selected industries in regions; enterprise size is very rarely analyzed.

Location quotient (LQ) is a measure of the degree of concentration of a given feature in a given area, in relation to the degree of population concentration in a that area. A location quotient equal to 1 means that the region (here: a municipality in the TMA) has the same share of a given feature (here: the number of SME-sector entities registered in the REGON), in relation to the population share in this area. It is usually assumed that a location quotient higher than 1.25 indicates regional concentration of a given feature [Brodzicki, Szultka 2002, p. 54].

 $LQ = \frac{\% \text{ of TMA population in a given municipality}}{\% \text{ of SMEs from a given municipality registered}}$ in the TMA

where:

– the percentage of SMEs from a given municipality registered in the TMA is the ratio of the number of SMEs having their headquarters in a given municipality, excluding section I⁵, to the number of all SMEs registered in the TMA, according to the REGON – as of 31.12.2012;
– the percentage of the TMA population in a given municipality is the ratio of the number of people residing in a given municipality to the total population of the TMA – as of 31.12.2012.

Summary of the location quotient results for selected municipalities or parts of municipalities within the TMA is presented in Table 4.3.

The location quotient median for the entire TMA area was 0.7768. This means that in the municipalities and the cities of the TMA, the number of registered small and medium enterprises, in relation to population density, in most cases is lower than the average. This indicates large differences in the level of economic activity concentration, in relation to the population level in the TMA. The highest value of the location quotient was obtained for the city of Sopot (1.5925), which describes this city as most economically active in the TMA, in terms of SME activity. This means that Sopot has the largest number of registered SME

⁵ Section I in the REGON classification denotes activities related to accommodation and catering services. Due to the geographical location of the TMA, in coastal municipalities, a large number of entities conducting activities consisting in renting private accommodation is only registered in summer. This applies especially to the municipalities of Jastarnia (62% of SMEs), Władysławowo (58% of SMEs), Hel (30% of SMEs), Stegna (27% of SMEs). According to the Authors, such a high share of seasonal activity would distort the research results associated with location determinants. For this reason, this group of entities has been eliminated.

1	Sopot (1)	1.592548960
2	Gdańsk (1)	1.071726956
3	Gdynia district	1.064912146
4	Pruszcz Gdański (1)	1.052241319
5	Pruszcz Gdański (2)	0.999305500
6	Kosakowo (2)	0.983107248
7	Kolbudy (2)	0.957414609
8	Żukowo – city (4)	0.949915508
9	Kartuzy – city (4)	0.873256267
10	Rumia (1)	0.844429993

Table 4.3. SME concentration in the TMA municipalities, measured by the location quotient, as of 31.12.2012

Source: own elaboration based on the data from Local Database.

Notes:

The number in brackets is the eleventh digit according to the NTS⁶ classification, denoting the type of commune or a part thereof:

- (1) urban municipality,
- (2) rural municipality,
- (3) urban-rural municipality,
- (4) a city in an urban-rural municipality,
- (5) rural area in an urban-rural municipality.

enterprises per 1000 inhabitants, compared to all cities and municipalities in the TMA. It is worth noting, however, that registration of a business entity in Sopot does not have to mean business activity conducted in this city, but only the place of its registered office. It is therefore necessary to consider whether Sopot can be called an entrepreneurial city. It is worth considering whether the results obtained are related to the Sopot authorities' entrepreneurship or to the level of the city's economic development and, perhaps, to other factors not yet considered in the literature on the subject.

Comparing the results of the research on the intensity of suburbanization processes in the TMA municipalities, it has been found that municipalities with the highest intensity of suburbanization processes – Pruszcz Gdański, Żukowo, Kolbudy, Kartuzy, Kosakowo, Szemud – are distinctive in terms of SME activity concentration, with respect to other TMA municipalities. The average location quotient for selected municipalities amounted to 0.8818 and was higher than the average for the entire TMA (0.7854) and the average for the municipalities, excluding the central cities. The Florence index for the central cities was higher (above 1 for each city).

The structure of the SME sector, considering the size of the enterprises registered in the central cities of the TMA (Gdańsk, Gdynia, Sopot) and in the TMA municipalities, is homogeneous and dominated by micro-enterprises (the results are presented in Table 4.4). On average, they constitute 95.91% of the economic entities registered in the municipalities and the central cities of the TMA.

Table 4.4. Structure of the SME sector in the TMA – as of 31.12.2012

SME-sector structure	Microentrepreneur	Small enterprises	Medium-sized enterprises	
Average	95.91%	3.42%	0.62%	
Median	95.77%	3.48%	0.63%	
Minimum value	93.73%	1.11%	0.09%	
Maximum value	98.8%	5.69%	1.42%	
Standard deviation	1.27%	1.07%	0.003%	
Sopot	95.09%	4.11%	0.73%	
Gdynia	95.65%	3.52%	0.71%	
Gdańsk	95.71%	3.44%	0.71%	

Source: own elaboration based on the data form the Local Database.

In order to eliminate self-employment from the group of micro enterprises, entities not employing employees have been eliminated from further analyses⁷. The structure of enterprises according to size, after elimination of self-employment, is presented in Table 4.5.

⁶ NTS stands for the Nomenclature of Territorial Units for Statistical Purposes [in PL: Nomenklatura Jednostek Terytorialnych do Celów Statystycznych], i.e. a classification of territorial units introduced in 2000 by the regulation of the Council of Ministers and functioning until the end of 2017.

⁷ The REGON Database used for further research under the project was obtained from the provincial Statistical Office in Gdańsk, prepared for the project, was used for further research. It covered economic entities employing from 2 to 249 people, registered in the cities of Gdańsk, Gdynia, Sopot and six selected municipalities. Due to financial restrictions, the database did not include all TMA municipalities.

Table 4.5. Division of enterprises into micro, small
and medium-sized enterprises - the TMA central cities
and municipalities examined

Enternaise sine	Munici	palities	Central cities		
Enterprise size	Number %		Number	%	
Micro	2502	84,5	23 649	86,8	
Small	419	14,2	3140	11,5	
Average	38	1,3	454	1,7	
Total	2959	100,0	27 243	100,0	

Source: elaboration by A. Gierusz based on data from the provincial Statistical Office in Gdańsk.

Both in the central cities and the municipalities, dominance of micro-enterprises is still noticeable, but their share has decreased by nearly 10%, in favor of small entities. The percentage of micro-enterprises in the municipalities is lower than in the central cities (84.5% and 86.8% respectively), while the percentage of small enterprises is higher (14.2% and 11.5% respectively). The percentage of medium-sized enterprises in both areas is very low (1.3% and 1.7% respectively). The average period of enterprise activity (age), the median and enterprise age dispersion, broken down by micro, small and medium enterprises, were also examined. The results are shown in Table 4.6.

Enterprise size	Municipalities			Central cities				
	\overline{x}	Me	s	V(s)	x	Me	s	V(s)
Micro	12.2	12.0	8.1	67%	13.3	14.0	8.0	60%
Small	15.0	15.0	7.9	52%	15.7	17.0	8.0	51%
Medium	20.4	22.5	7.3	36%	17.0	18.0	7.0	41%
Total	12.7	13.0	8.2	65%	13.7	15.0	8.1	59%

Table 4.6. Enterprise-age statistics

Notes:

 $\overline{x}-$ average, Me – median, s – standard deviation, V(s) – coefficient of variation

Source: elaboration by A. Gierusz based on data from the provincial Statistical Office in Gdańsk.

The average period of activity of micro and small enterprises in the municipalities is about a year shorter than in the central cities and amounts to 12 years for micro enterprises and 15 years for small enterprises. This means that the average micro and small enterprise was founded in the late 1990s. The average age of medium-sized enterprises in the municipalities, however, is over three years higher than in the central cities, that is 20 years. This means that entrepreneurship in the TMA is a well-established phenomenon, while entrepreneurs are people experienced in business. The age diversity of micro and small enterprises is greater in the municipalities, while the age diversity of medium-sized enterprises is higher in the central cities.

The division of enterprises in selected municipalities and in the central cities was also examined in terms of legal structure (Table 4.7).

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Legal form	Municipalities	Central cities
Natural persons conducting business	49.7%	34.2%
activity		
Civil law partnerships	22.5%	28.3%
Limited Liability Partnerships	19.9%	31.6%
General partnerships	3.2%	2.8%
Other	4.7%	3.1%
Total	100.0%	100%

Source: elaboration by A. Gierusz based on data from the provincial Statistical Office in Gdańsk.

Nearly half of the municipality enterprises are natural persons conducting business activity. The next two most common legal forms of activity – civil law partnerships, operating on the basis of a contract concluded under the Civil Code, and limited liability partnerships – in total account for around 42% of all enterprises. There are also many other forms of activity, which represent a small percentage of all enterprises.

The three most common forms of central-city enterprises are natural persons conducting economic activity, limited liability partnerships and civil law partnerships conducting activity based on a contract concluded on the basis of the Civil Code, which constitute respectively 34%, 32% and 28% of all enterprises in the central cities. Other forms of activity constitute a small percentage of all enterprises.

The last enterprise feature examined entails classification of business activity according to the GDP. The results are shown in Table 4.8.

GDP classification of business activity	Municipalities	Central
Wholesale and retail trade: repair	28.5%	33.3%
of motor vehicles, including	201070	001070
motorcycles		
Industrial processing	20.2%	11.1%
Construction	14.7%	10.6%
Transport and storage	7.6%	4.7%
Agriculture, forestry, hunting and fishing	2.9%	under 1%*
Total service activity:	22%	39%
professional, scientific and technical activity	5.8%	11.3%
activity related to accommodation and catering services	4.4%	5.7%
education	3.4%	1.7%
administrative and support service activity	2.8%	3.4%
health care and social assistance	1.9%	2.5%
activity related to real-estate market service	1.9%	3.2%
other service activity	1.8%	3.0%
information and communication	under 1%*	4.5%
financial and insurance activity	under 1%	2.5%
activity related to culture, entertainment and recreation	under 1%*	1.2%
Other	4.1%	1.3%
Total	100.0%	100%

Table 4.8.	GDP	classification	of	enterprises	in	municipalities
Table no.	001	classification	~	enterprises		manneipanties

* Under 1% means that a given type of activity was included in the 'others' group.

Source: elaboration by A. Gierusz based on data from the provincial Statistical Office in Gdańsk.

In both populations (Table 4.8), the largest number of SME-sector enterprises are enterprises dealing with trade. They constitute about 1/3 of all enterprises in this sector. Comparing the structure of enterprises in the central cities and suburban municipalities, with regard to the type of activity, some differences can however be noticed. Industrial enterprises in the municipalities constitute 20.2% of entities, while in the cities the percentage is much less, i.e. 11.1%. This probably results from the demand for usable floor space (and the related costs), with regard to this type of activity, and the legal restrictions for some types of industrial processing. Similar situation applies to construction companies and companies dealing with transport and warehouse management. Their share in the structure of enterprises is higher in the municipalities than in central cities. Opposite situation occurs in the case of enterprises engaged in service activity. In the central cities they constitute 39% of all SMEs, while in the municipalities 22% of SMEs. Differences are particularly visible in the case of communication and information services (central cities - 11.3% of SMEs, municipalities - less than 1% of SMEs) as well as professional, scientific and technical activity (central cities - 4.5% of SMEs, municipalities - 5, 8% SME). This may result from the fact that such enterprises (this applies especially to professional, scientific and technical activities) most commonly are located close to universities, research institutes and/ or public-administration offices, they do not require large usable floor space, while their activity is highly specialized, which means that the demand for such services does not concern the average citizen. It is also interesting that agriculture, forestry, hunting and fishing activity constitutes only 2.9% of the total business activity in the suburban municipalities, where the area had been largely agricultural before 1990. This shows that the processes associated with suburbanization have significantly changed the original character of these areas.

Summing up, it can be stated that the SME sector in the central cities of the TMA (Gdańsk, Gdynia, Sopot) and in the TMA municipalities has been dominated by micro enterprises. Regardless of the location, the entities in this sector are most often involved in trade. Differences in spatial distribution are noticeable in the case of manufacturing enterprises (more entities are located in suburban than in central cities) and service enterprises (more entities are located in central cities than suburban areas) – this applies to highly specialized services in particular. The operation period of the enterprises located both in the central cities and in the suburban areas indicates that entrepreneurship is a well-established phenomenon.

4.4. THE SME SECTOR'S DEVELOPMENT ON THE EXAMPLE OF THE TMA

Transformation of cities constitutes an inevitable element in their development [Mironowicz 2016]. The era of industrialization introduced profound changes to urban structures and initiated the relocation of city-forming functions [Kostrzewska 2013]. Localization of industrial functions and the spatial segregation undertaken during the dominance of the doctrine of modernist urban planning had led to a situation, in which large industrial facilities employing a majority of the city-center residents (e.g. Zakłady Naprawcze Taboru Kolejowego in Gdańsk-Przeróbka) moved away from the midtown zones. At that time, the classic system separating the industrial zone from the historic city strengthened. This model had been mainly applied into the Gdańsk agglomeration, until the political transformation of the 1990s.

This structure began to transform after 1989, along with the introduction of numerous economic reforms. The SME sector began to develop dynamically at that time. As the role of the private sector increased, the location activity of small businesses (processing, crafts, construction and automotive services) developed. These were spontaneous, dispersed localizations, with very random forms of development, in which the type of activity was rather hidden than affirmed. This spontaneous process had one thing in common, i.e. transport orientation along the road network. In the Gdańsk agglomeration, Rumia - Reda - Wejherowo production and service zones developed in accordance with this scheme. The Gdańsk-Tczew railway line, however, did not release the localization of economic activity. The above mechanism had functioned successfully

(despite the fiscal restrictions of the socialist economic system) until the transformation breakthrough in 1990. Since then, two barriers have been broken: the industrialization and the land-price (mainly on agricultural land) barriers. The post-industrial period is characterized by the collapse of large production plants and the release of huge post-industrial areas. The changes in transportation technology (containerization, logistics) have also excluded the extensive rail areas. Location assets were created, which were very slowly complemented with economic activity. Localization activity of small and medium enterprises developed much better. The price of investment land seems to play a key role in the expansion of this economic sector. Localizations based on transport accessibility emerge secondarily. In this case, the road quality requirements are greatly reduced. Of course, locations with access to road nodes are preferred. It can be expected that future spatial clusters of SMEs will be located at these nodes.

It should be noted that the mechanism described does not include the formerly very strong relationship between two elementary functions: housing and employment. The choice of apartment location is not related to the presence of jobs in the vicinity of new housing estates. Also, the choice of a workplace does not entail the presence or the planning of new housing estates. As such, we are dealing with a model, in which enterprise owners live in suburban areas (often through generational succession),



Fig. 4.4. Gdańsk-Przeróbka – historical picture of the Zakłady Naprawcze Taboru Kolejowego Source: design by N. Rogowska

while employees commute from various locations, from the center as well. The whole microstructure is located along the main access roads of the Gdańsk agglomeration. This is how settlement and production zones are created, as in the case of the commute route to Kolbudy, Żukowo (from Gdańsk and Gdynia) or Kartuzy.

Of course, this ongoing process is burdened with significant costs, mainly infrastructural, incurred by municipalities and the region. The costs of commuting (time and energy loss), though hard to measure, also play an important role [Guzik 2011; GUS 2014].

From the perspective of general rationality, it is an inefficient system, resulting from spontaneous suburbanization as well as from the weakness and the ineffectiveness of the re-urbanization associated with the revitalization and intensification of the urban zones that have lost their city-forming functions (post-industrial areas, e.g. the Gdańsk Shipyard, and post-railway areas, e.g. the Miedzytorze in Gdynia). The Authors' research, carried out in the years 2013–2017, was aimed at indication of the characteristic structure of SME-sector localization within spatial arrangement. The drafting of maps via a Geographic Information System (GIS Software) helped identify the main directions of SME localization development in the TMA suburban areas, in the years 1970–2012. The results of the analyses are presented in Fig. 4.5.

The TMA spatial structure is distinguished by corridors, which year after year have been characterized by an increasing intensity of economic activity. It is characteristic that in the initial (1970–1990) as well as in the last (2010–2012) phase, the same development directions recur (Fig. 4.5). This may indicate sustainability of certain spatial processes. Figure 4.6 shows a schematic view of the density of SME-sector entities (data from 2012). Another characteristic feature of SMEs' growth is the accumulation of economic entities right near the administrative borders of the central cities.



Fig. 4.5. GIS map of SME localization in time conceptualization (years 1970–2012) Source: design by H. Obracht-Prondzyńska.

One distinctive feature of the SME-sector clusters is their localization along major regional road-network transport connections. Figure 4.8 shows three directions:

- South towards Tczew;
- Southwestern- towards Kościerzyna;
- Northwest the Chwaszczyno-Żukowo route.

There are new connections emergent due to the suburbanization process and the population relocation to former agricultural areas. Moving towards the Kashubia, e.g. from southwest, in the vicinity of Kolbudy, or from northwest, near Kielna, the areas are being intensively developed.

Further analysis entailed examination of the distribution of SME-sector enterprises in the vicinity of the TMA agglomeration, in relation to their size⁸. The Authors sought to answer the question of whether enterprise size determines its localization in the vicinity of a central city. Figure 4.8 illustrates the distribution of enterprise size, in spatial distribution.

The data presented in Fig. 4.9 allows a conclusion that medium-sized entities are located nearby the resources,

⁸ Single-person entities – the so-called self-employment – were excluded from the study.

e.g. qualified workforce and raw materials. Clusters of small entities, on the other hand, show greater spatial complexity. They are located along the "entrepreneurship corridors"⁹ and in entrepreneurship nests.

Analysis of enterprise distribution according to the type of business activity carried out¹⁰ allowed identification of the areas with increased occurrence intensity of enterprises conducting a specific type of business activity, which is presented in Fig. 4.11.

- ¹⁰ Enterprises have been classified as those belonging to the following groups:
 - Construction (F construction);

Trade (G – wholesale and retail trade; repair of motor vehicles, including motorcycles);

- Processing (C industrial processing);
- Agriculture (A agriculture, forestry, hunting and fishing);
- Transport (H transport and storage);

– Services (M – professional, scientific and technical activity, I – activity related to accommodation and catering services, N – administration services and supporting activities, Q – healthcare and social assistance, L – real estate services S – other service activity).



Fig. 4.6. Territorial diversification of SME distribution in the years 1970-2012 Source: own graphic elaboration.

⁹ "Entrepreneurship corridor" is an area with unique features of SME accumulation localized along a transport corridor.

The next step was to identify the towns in which "industry clusters"¹¹ are localized. The research shows that entrepreneurship nests have been classified as zones containing specific types of industry specialization. Straszyn was distinguished by a density of construction-industry companies. Chwaszczyno specialized in services. Interestingly, both locations were characterized by a large number of industrial processing plants. In addition, a corridor was created on the Chwaszczyno-Żukowo route, where construction and industry clusters were located alternately. Localization of service clusters near the borders of central cities is an interesting phenomenon. It has been noted that the presence of these services was often associated the demand for basic services (e.g. shops, kindergartens, language schools, doctor's offices, etc.). This suggests that the inhabitants' grassroots initiative as well as their individual entrepreneurship replaced the activity of local governments in this regard. It seems that such activity on the part suburban communities should be highlighted in the analyses of suburbanization processes as one of the possible scenarios for improvement of the residents' quality of life and one of the models of public-private partnership.

Based on the scheme presented in Fig. 4.12, it can be argued that the research conducted shows the seed of the Polish edge city model that is interrelated with the processes of metropolization and suburbanization.



SME concentration in spatial distribution

- data source 2012

Concentration of SMEs – in spatial distribution / in concentrated distribution Concentration of SMEs – in spatial distribution / in dispersed distribution

Fig. 4.7. Territorial diversification of SME distribution in spatial arrangement – concentrated and dispersed. (Black means clusters of entities accumulating in a given area. Gray means areas where entrepreneurship occurs extensively – in a dispersed manner)

Source: own graphic elaboration.



SME concentration in spatial distribution – in relation to the directions of transport corridors

Oirections associated with suburbanization processes

Main directions

Concentration of SMEs – in spatial distribution / in concentrated distribution Concentration of SMEs – in spatial distribution / in dispersed distribution

Fig. 4.8. Territorial diversification of SME distribution in relation to transport corridors

Source: own graphic elaboration.

¹¹ The term "industry clusters", in this context, refers to the definition of clusters of enterprises engaged in similar service, production or trade activity.



Fig. 4.9. Spatial distribution of enterprises by size



Source: cartographic elaboration by H. Obracht-Prondzyńska.

Fig. 4.10. Territorial differentiation of SME localization in spatial distribution – concentrated and dispersed Source: own graphic elaboration.



Fig. 4.11. SME localization by type of activity Source: cartographic elaboration by H. Obracht-Prondzyńska.



Fig. 4.12. SME clusters in distribution by business activity – suburban industry clusters Source: own elaboration.

5. SPATIAL MODELS OF ENTREPRENEURSHIP NESTS IN THE TMA

5.1. THE SME SECTOR IN ENTREPRENEURSHIP NESTS

An **entrepreneurship nest** is understood as an area with economic activity higher than its average level in a given metropolitan region. In order to identify entrepreneurship nests in the suburban areas of the TMA, the number of SME-sector enterprises registered in 138 locations in selected six municipalities, which are characterized by high intensity of the suburbanization process, i.e. Pruszcz Gdański, Żukowo, Kolbudy, Kartuzy, Kosakowo, Szemud, was determined. Table 5.1 lists the localities characterized by the highest density of SMEs, in accordance with the number of registered entities.

Table 5.1. Towns with the highest number of SMEs registered in selected municipalities – as of 31.12.2014

Town	Number of SMEs*
Straszyn	225
Chwaszczyno	201
Kolbudy	144
Rotmanka	120
Kowale	112
Bojano	110
Banino	96

*Including business entities employing from 2 to 249 persons. Source: own elaboration based on the data from the provincial Statistical Office. Straszyn (Kolbudy municipality) and Chwaszczyno (Żukowo municipality) have been distinguished by a high level of SME-activity concentration within the TMA. The location quotient for these towns is higher than 1.25, which proves the regional concentration of the feature under examination (here – economic activity of SMEs) in these towns. As such, the towns of Chwaszczyno and Straszyn can be considered the TMA entrepreneurship nests, with the location quotient of:

- Chwaszczyno 1.3378;
- Straszyn 1.3709.

The number of SME enterprises registered in these towns, in relation to the number of inhabitants, is much higher than the average in the TMA (0.7854), the average in all TMA municipalities (0.7428), the average in selected six municipalities (0.8818) as well as in Gdańsk (1.0717) and Gdynia (1.0649). In the city of Sopot the location quotient was the highest (1.5925) (Table 5.2).

The research on the localization of SME-sector enterprises within the layout of urban structures has shown that, both on the TMA scale and the entrepreneurship-nest scale, these entities are mainly located nearby transport corridors. The SME concentration in the center of the urban structure, somewhat in the center of the town, is also characteristic, as illustrated in Figures 5.1 and 5.2.
Coefficient	Sopot	Chwaszczyno	Straszyn
in relation to the TMA population	0.030620	0.002695	0.005139
in relation to the number of SMEs in the TMA*	0.048319	0.003606	0.007045
Location quotient	1.578027	1.337879	1.370957

Table 5.2. Location quotients for Sopot, Chwaszczynoand Straszyn – as of 31.12.2014

* Including business entities employing from 2 to 249 persons, without section I (as explained in chapter 3.4).

Source: own elaboration based on the data from the provincial Statistical Office and the Local Database.

In both cities under examination, the natural system did not cause any consequences that would limit or strengthen the choice of a given enterprise localization. In Chwaszczyno, green areas of regional range were distant and did not affect the town's vicinity. In Straszyn, the ecological corridor, along with the protected landscape area, was characterized by entrepreneurship accumulation comparable to that in its vicinity. This shows the flexibility of multi-functional facility localization in areas of exceptional natural value.

The SMEs registered in the entrepreneurship nests and other towns in selected municipalities do not differ significantly in terms of structural characteristics. Predominance of micro-enterprises occurs in both groups of the entities under examination (Table 5.3).

Table 5.3. Suburban enterprise structure by size

Entonnico sino	Entreprene	urship nest	Other towns		
Enterprise size	Number	%	Number	%	
micro	335	79,6	2167	85,4	
small	76	18,0	343	13,5	
medium-sized	10 2,4		28	1,1	
total	421	100,0	2538	100,0	

Source: elaboration by A. Gierusz based on the data from the provincial Statistical Office in Gdańsk.

The percentage of micro enterprises in the entrepreneurship nests is 6 percentage points lower than in other towns in selected municipalities (79.6%



Fig. 5.1. Chwaszczyno – main road / railway network and residential areas with enterprises Source: cartographic elaboration by H. Obracht-Prondzyńska based on PZWP, BDOT10k (Database of Topographic Objects), the REGON (National Business Register) Database.



Fig. 5.2. Straszyn - main road / railway network and residential areas with enterprises

Source: cartographic elaboration by H. Obracht-Prondzyńska based on PZWP, BDOT10k (Database of Topographic Objects), the REGON (National Business Register) Database.

and 85.4% respectively), while the percentage of small and medium-sized enterprises is 6 percentage points higher. It should be remembered that non-employing entities were excluded from the study, as to eliminate entities that are not actually independent enterprises. Analysis of the period of enterprise functioning (age) allows a statement that entrepreneurship in the entrepreneurship nests - both in the suburban areas and in the central cities - is well-established, while entrepreneurs are persons experienced in business. The average age of micro and medium enterprises ranges from 11 to 15 years; medium-sized entities have existed on the market for a little longer (about 20 years). In entrepreneurship nests, successive development of enterprises could be noted (Fig. 5.3, 5.4). Entities established both before the period of political transformation and in the last few years were located in Chwaszczyno and Straszyn. The highest number

of emergent business entities, however, was recorded for the years 1991–2010.

The SME enterprises in Chwaszczyno and Straszyn are mostly run by more than one person (civil law partnerships, registered partnerships and limited liability partnerships; 57.4% of SMEs). In terms of stability and economic-activity risk, this is certainly a better situation than that of other cities, where nearly half of the SMEs (49.4%) are natural persons conducting business activity.

The last enterprise feature examined was the type of business activity, with respect to the GDP. In both groups of entities, distribution of enterprises, with regard to the type of business activity, was similar. Every third enterprise is involved in commercial or service activity, around 20% of the units are manufacturing companies, and around 12% are construction companies (Table 5.4).



Fig. 5.3. Chwaszczyno – enterprise localization by date of creation Source: cartographic elaboration by H. Obracht-Prondzyńska based on the REGON register.



Fig. 5.4. Straszyn – enterprise localization by date of creation Source: cartographic elaboration by H. Obracht-Prondzyńska based on the REGON register.

Enterprise classification by GDP	Entrepreneurship nests	Other towns
Wholesale and retail trade; repair	28.8%	29.1%
of motor vehicles, including motorcycles		
Industrial processing	22.3%	18.0%
Construction	11.2%	13.1%
Transport and storage	5.1%	7.2%
Other services ¹	32.6%	32.6%
Total	100%	100%

Table 5.4. Types of business activity in suburban areas

Source: elaboration by A. Gierusz based on the data from the provincial Statistical Office in Gdańsk.

In order to identify the industry specialization in entrepreneurship nests, an attempt was made to examine a given feature in relation to each localization. As a result, unique attributes of entrepreneurship have been

¹ A principle of grouping individual types of business activity was adopted:

- Construction (F - construction);

 Trade (G – wholesale and retail trade; repair of motor vehicles, including motorcycles);

- Processing (C industrial processing);
- Agriculture (A agriculture, forestry, hunting and fishing);
- Transport (H transport and storage);

– Services (M – professional, scientific and technical activity, I – activity related to accommodation and catering services, N – administration services and supporting activities, Q – healthcare and social assistance, L – real estate services S – other service activity.

illustrated, as shown in Figure 5.5. In Chwaszczyno, dominance of processing, construction and trade activity has been noted, while in Straszyn – service, trade and processing activity dominate. Interestingly, both entrepreneurship nests have a distinctive ratio of industry – the processing industry. This characteristic distinguishes the entrepreneurship nests, in comparison with other localizations where construction and industry entities occur, but to a lesser extent.

Summing up, the SMEs registered in the entrepreneurship nests do not differ from those located in other towns. The only difference between the entrepreneurship nests and the other towns is the intensity of economic activity, especially industrial activity. This may suggest location flexibility of spatially demanding objects (with large cubature, with some nuisance for the environment) in these places. What is more, the urban planning and architectural structure analysis carried out has led to a conclusion that the period of enterprise creation overlaps with the period of urban development. The rise of residential buildings has consequently intensified the development of entrepreneurship in these two towns. It can also be stated that the entrepreneurship corridors created are characterized by distinct localization factors, such as: transport accessibility (at main road lines), the benefits resulting from the location near the central-city borders (at the edge



Fig. 5.5. Feature concentration – type of business activity in entrepreneurship nests Source: cartographic elaboration by H. Obracht-Prondzyńska based on the REGON register.

of central-city contact points), access to markets and raw materials (fostered by the clustering), and the quality of life alternative to the central-city offer. The growing of entrepreneurship around transport corridors is also a feature noticeable on a town scale. This process took place over time and was successively complemented by the development of the settlement unit.

5.2. ANALYSIS OF THE SPATIAL STRUCTURE OF ENTREPRENEURSHIP NESTS

The towns with the highest location quotient among the entrepreneurship nests identified in the previous study – i.e. Chwaszczyno and Straszyn [Martyniuk et al. 2016] – were selected for detailed analysis of the spatial structure (Fig. 5.6).

The analyses were carried out using the GIS software, in accordance with the various planning scales contained in different planning documents. The town structure was also analyzed in an urban context, with focus on the issues related to the building forms, the street layout, and the division into plots. The spatial structure of the towns selected was additionally illustrated by the means of schematic drawings and photographs of specific places. The research was conducted based on the cartographic materials obtained from the PZPWP and the BDOT10k (Database of Topographic Objects) resources. The study of the spatial layer of Chwaszczyno and Straszyn was aimed at identification of the principle governing SME location in these towns (Fig. 5.7).

Chwaszczyno (German: *Quaschin*, Kashubian: *Chwaszczëno*) is a town located on the borders of the cities of Gdańsk and Gdynia. The following roads run through the town: national road No. 20 Stargard-Szczecinek-Gdynia and provincial road No. 218 Krokowa-Gdańsk. Both these roads run in and out the Kashubia – a recreational region for many TMA residents. They intersect in Chwaszczyno, forming a roundabout road junction, which makes this place unique. The town's localization at Lake Osowskie is an additional advantage.



Fig. 5.6. Entrepreneurship nests selected for spatial analysis: Chwaszczyno i Straszyn Source: own cartographic elaboration.

The town's history dates back to the 12th century, when it was founded on an oval plan. Its characteristic layout, with common greenery space in the middle and the surrounding roads, had been preserved until the end of the 19th century, when housing facilities and a school were built at the town corners. The postwar years and the communist system were a period of stagnation in Chwaszczyno, when agricultural functions were continued to be realized. In the 1980s, the authorities enabled construction and localization of several craft factories and poultry houses. The largest development, however, occurred after 1989, when the political transformation took place. Local governments begun to implement individual, often very liberal, spatial development policies. The free real-estate market enabled sale of land, whereas the strategic location of Chwaszczyno caused many private investors to look for new places of residence in this area.

Straszyn (German: *Straschin*, Kashubian: *Straszino* or *Straszënò*) is a town located in the valley of the Radunia River, below Lake Straszyński, on the border of the city of Gdańsk. It is located at the intersection of provincial road No. 222 and express road No. S6, on an abandoned railway line Pruszcz Gdański – Żukowo – Kartuzy – Lębork. Straszyn is a place of exceptional environmental



Fig. 5.7. Chwaszczyno and Straszyn in a TMA layout Source: own cartographic elaboration.



Fig. 5.8. Chwaszczyno in 1940 Source: cartographic elaboration by N. Rogowska based on a map from 1940



Fig. 5.9. Chwaszczyno – a roadside inn from the beginning of the 20^{th} century

Source: design by N. Rogowska, based on a postcard from private archival collections.



Fig. 5.10. Chwaszczyno today Photo credit: G. Pęczek.



Fig. 5.11. Straszyn in 1941

Source: cartographic elaboration by N. Rogowska based on historic maps from 1941

values, characterized by the presence of natural monuments as well as such resources as the drinking water intake for Gdańsk. This town also is characterized by high cultural values – a former farm, mills and three unique historic hydroelectric power plants from 1910, 1934 and 1937 are located here.

The first mention of Straszyn dates back to the fourteenth century. Located at the historical route of the "Amber Road"², it was developing rapidly owing to the use of its water resources. At the end of the 19th century, there were 20 houses in Straszyn, a school and two mills. The launch of the first hydroelectric power plant in Radunia in 1910 had been a developmental impulse and as early as 1934 the town was inhabited by about 200 people. The power plants built successively supplied electricity to Gdańsk. In the post-war period, the town's dynamic development stopped. Revival came only in the 1970s, when holiday resorts were established at Lake Straszyński. The authorities also sold the first 59 building plots at that time.

The period of political transformation was a dynamic time of changes in the structure of Straszyn. The suburbanization process has strongly affected the shape of the town's current urban structure. In addition to private investments, the municipality also invested in public services. Besides the expansion of the road network, investments in a sports hall, an integration park with an area of 7000 m² and media center located in the former railway station building were carried out.

SPATIAL ANALYSES OF CHWASZCZYNO AND STRASZYN

As part of the research, numerous spatial analyses were performed, the results of which can be divided into two groups: the outcomes concerning external conditions, including those related to spatial policy, as well as the findings relevant to the internal structure and the form of spatial development. This phase of the study was additionally accompanied by numerous research-related field trips and visits. The purpose was

² An ancient trade route for the transfer of amber from coastal areas of the North Sea and the Baltic Sea to the Mediterranean Sea.



Fig. 5.12. Straszyn at the beginning of the 20th century – the Croll Inn Source: design by N. Rogowska, based on a postcard from private archival collections



Fig. 5.13. Complex of Straszyn-Prędzieszyn hydropower plants Source: designed by N. Rogowska based on archival data from the ETH Zurich (Swiss Federal Institute of Technology)

to search for spatial attributes distinguishing these entrepreneurship nests. It was essential to find the development stimulants and the cumulative distribution functions for the localization of SMEs in the suburbs.

As part of the external-condition analysis, two main thematic blocks were identified: the transport network and the position within the spatial structure of the metropolis. The key conclusions drawn, based on the spatial analysis, included both the unique features of entrepreneurship nests as well as the dilemmas and questions regarding the future shape and transformation of these areas.

One distinctive feature characterizing both towns is their position near the borders of central cities (Fig. 5.17). The fact that Chwaszczyno is adjacent to Gdynia and Gdańsk, and Straszyn is located side by side with Gdańsk is of significance here. Such localization guarantees central city access, and thus – access to broader sales markets. While searching for an answer to the question about the potential clients of the SME sector in the entrepreneurship nests, population density was additionally analyzed (Fig. 5.18). Both areas are characterized by rather extensive population, but they are also surrounded by housing estates and neighborhoods with much higher population densities.

Analysis of external conditions shows that none of the towns lies at the main intersections of the transport corridors defined by the Pomeranian Office for Spatial and Regional Planning³ (Transport accessibility RDP 2014–2020 – Rural Development Program for

³ Original institution in PL: Pomorskie Biuro Planowania Regionalnego



Fig. 5.14. The media library in the former Straszyn railway station building. The turn of the 20^{th} and 21^{st} centuries Photo credit: G. Pęczek



Fig. 5.15. Straszyn housing estate. Typical suburban buildings Photo credit: G. Pęczek



Fig. 5.16. The center of Straszyn today Photo credit: G. Pęczek



Fig. 5.17. Chwaszczyno and Straszyn – position relative to central cities

Source: own elaboration.

2014-2020), nevertheless, both are located within zones of quick (about 30 minutes) access to the central cities. Moreover, Straszyn is adjacent to the present Tri-City Beltway, which is the main transport axis. Chwaszczyno lies at the intersection of provincial roads but does not touch the beltway. For both towns, this state of things will change in the near future (Fig. 5.20) due to the planned development of the transport infrastructure. The Kashubian Route is to run through Chwaszczyno, as to improve accessibility to the north-west of Poland, including Szczecin and, down the road, Berlin. The Chwaszczyno junction will be additionally connected to the newly planned investment, i.e. the Metropolitan Beltway, which will affect the spatial arrangement, the way the town functions, and the method of division into plots. This begs to question whether such a huge investment will further stimulate SME activity, will it change the character of the area.

By contrast, a new Tri-City Metropolitan Bypass junction, along with the main exit road to Warsaw, will be located near Straszyn. What is common for both towns is the fact that, in the future, routes of national significance are to run through the towns or in their vicinity and that construction of very large road junctions is planned. As the qualitative studies discussed below prove, business owners are not fully aware of the future planning situation, including the development of the transportation system, and they do not attach much importance to transportation issues in general.

The future investments in the TMA transport infrastructure will probably change the current structure of entrepreneurship nests in the Tri-City metropolis, but at this moment it is difficult to tell what the nature of these changes will be. Perhaps, the development of SMEs will be intensified, or global corporate headquarters will be located here – in industrial and business parks. There is no doubt, however, that the state of spatial development in both towns is on the verge of change. The above-described process of entrepreneurship nest emergence, with regard to Chwaszczyno and Straszyn, will probably undergo transformation as a result of the road investments.

LAND-DEVELOPMENT AND LAND-USE ANALYSIS

In order to analyze the spatial structure and to determine the characteristics of space-related features in selected entrepreneurship nests (Chwaszczyno and Straszyn), numerous analyses were performed, which have been synthetically described in Table 5.5. Two development factors affecting the phenomenon of entrepreneurship development in suburban areas have been identified: transport infrastructure and the quality of life. The first of them has been taken into account due to its compliance with the economic and urban research area, in terms of the importance infrastructure plays as an element conditioning growth [Ratajczak 2000; Party 2005; Komornicki et al. 2013; Bak 2013]. The second factor was identified in relation to the Authors' research.



Fig. 5.18. Population density of residential areas expressed in persons / km². Chwaszczyno and Straszyn in relation to the central cities

Source: cartographic elaboration by H. Obracht-Prondzyńska.



Fig. 5.19. Position of Straszyn and Chwaszczyno within the transport network Source: cartographic elaboration by H. Obracht-Prondzyńska.



Fig. 5.20. The Chwaszczyno junction linking the Kashubian Route and the Metropolitan Beltway Source: Press materials from GDDKiA (General Directorate for National Roads and Motorways).

The table was developed on the basis of spatial analyses. The results presented in it can be illustrated via a division into two into basic groups:

transport infrastructure – this aspect, entailing many categories of national, provincial and municipal roads, is at a similar level in both cities. It involves high-class roads, including main regular roads and main accelerated-traffic roads. In both cases, the towns are connected with the central cities and the region via bus transportation. There is no rail transportation nor any other alternative to public transportation [Guzik, 2011]. The commute time to the central cities is similar, around 30 minutes⁴. New road investments are planned in the surroundings of both towns;

- quality of life⁵ – is expressed in spatial structure, through the housing offer and the functional diversity as well as access to social infrastructure and public space (Fig. 5.20, 5.21). Both towns are alike with regard to localization of similar functions. Extensive and dispersed single-family buildings predominate, with compact building complexes occurring insularly. Chwaszczyno has a poorer offer of social infrastructure, without healthcare centers, secondary education nor a cultural offer. Straszyn, against this background, has all the assets.

⁴ Time commute time was determined on the basis of [Guzik 2011; Komornicki, Rosik 2014]. The Authors' empirical experience, however, shows that it can be significantly extended – up to approximately 1.5 hours – during the peak hours.

⁵ The term 'quality of life' refers to prosperity and welfare, covers the subjective and objective aspects associated with this issue, and is determined by individual desires and the urban public policy – as per the national urban policy 2023.

Developmental factor		Occurrence of individual elements	Chwaszczyno	Straszyn
Transport	road transport infrastructure	national road – accelerated traffic	-	\checkmark
infrastructure		national road	\checkmark	
		provincial road	\checkmark	
		regional road	\checkmark	\checkmark
		local road	\checkmark	\checkmark
		regional transport node	\checkmark	\checkmark
		other	-	-
	public transport infrastructure	public transport node	-	-
		commute time to the city via public transportation	30 min	30-45 min
		other	-	-
	key planned elements	supralocal road system	\checkmark	\checkmark
	of the transportation system	public transportation (i.e. PKM* stops)	-	-
	in the Gdansk metropolis	other infrastructure	-	-
Quality of life	dominant functions of space	single-family residential functions	\checkmark	\checkmark
		multi-family residential functions	\checkmark	\checkmark
		local services	\checkmark	\checkmark
		large-area trade	-	-
		production and craft factories	\checkmark	\checkmark
		other	\checkmark	\checkmark
	social infrastructure	kindergartens	\checkmark	\checkmark
		primary schools	\checkmark	\checkmark
		junior high schools	√	√
		high schools	_	_
		cultural facilities, including tourist attractions	-	\checkmark
		local sports facilities	_	√
		healthcare centers	_	_
		green areas – parks		√
		other	-	√
	forms of urban tissue	compact city structure	_	√
		low-density urban structure	\checkmark	\checkmark

Table 5.5. Spatial characteristics in selected entrepreneurship nests

* PKM stands for the Pomeranian Metropolitan Railway.

Source: own elaboration based on [Martyniuk et al. 2016].

The price of plots was not compared in the urban analysis, for two reasons. The Authors' initial research from 2015 [Martyniuk et al. 2016] showed that the cost of purchasing a construction plot in suburbs and in peripheral city zones often are at a similar level or sometimes even lower (e.g. Chwaszczyno and the Gdańsk district of Stogi). What is more, the results of the survey conducted by the Authors confirmed that the desire to meet individual housing needs, not the price of construction plots, was crucial. Summing up the urban analysis, it should be noted that despite the similar rate of SME accumulation per capita, the two towns differ, however, in their functioning and development. In a sense, Chwaszczyno constitutes the end of the transport corridor that enters the town. It could be described as a modern gateway between the region and the central cities. Straszyn, on the other hand, is distinguished by a unique natural and landscape offer, enhanced by an extensive network



Fig. 5.21. Chwaszczyno – building functions Source: cartographic elaboration by H. Obracht-Prondzyńska.



Fig. 5.22. Straszyn – building functions Source: cartographic elaboration by H. Obracht-Prondzyńska.

of public services. What is more, the urban structure of Straszyn is more compact. These two elements form the quality of life in the town under analysis. The quality-of-life criteria, in terms of the expectations regarding spatial order and urban planning, has been understood as:

- individualization and security of the privacy associated with realization of a lifestyle within the limits of ownership and a household recreation zone (my house/castle with a garden);
- silence, peace, health;
- security;
- proximity and availability of greenery and open recreational areas (views, active leisure);

- efficient public transportation service (variant--based) – easy access to any destination (work, school, city, recreation)
- good school;
- proximity to a diversified service and commercial offer;
- good neighborly community.

Straszyn is additionally characterized by greater compactness of spatial systems. In both towns, however, the public space system has not been fully developed, although in Straszyn the development process is at its seed, in the form of historic monuments and a park, which probably translates into the positive reception of this space. Moreover, urban forms of building complexes refer to the traditional urban planning of the *garden city* trend beginnings. The difference, however, lies in the accessibility by car, not via public transportation.

It seems interesting that the dynamic development of entrepreneurship in selected towns has not been hindered by the lack of a developed public transportation system. With regard to the transport-infrastructure factor, current access to the public road network is sufficient enough for business development. It is worth noting that both towns are located near important road transport nodes, one of which is located on a national road (Straszyn), which probably also positively affects the development of entrepreneurship. Both towns are located within the zone of planned road-infrastructure investments. It is also worth noting that no public transport infrastructure is planned near any of the towns.

As a summary of this part of the research on the form and the functioning of entrepreneurship nests, a synthesis of urban-planning stimulants of SME emergence in the suburbs was prepared (Fig. 5.23).

Synthesis I describes a situation in which presence of regional communication links, a communication node and metropolitan functions stimulates entrepreneurship development. Synthesis II illustrates a situation when a good housing offer, identified with a good quality of life, or rather the quality of life sought at the beginning of the 21st century, is provided, apart from the transport connection.

5.3. MICRO-SCALE FEATURES OF URBAN-ARCHITECTURE STRUCTURE ON THE EXAMPLE OF ENTREPRENEURSHIP NESTS

The purpose of the urban analysis was to determine the types of buildings found in entrepreneurship nests. An answer was sought to the question about the spatial nature of the building forms, which economic entities of the SME sector are located in.

First, a broader context of the urban structure was analyzed. As part of the study, the building typology was identified, and its forms have been described. In both towns, dispersed single-family housing is a dominant element. Its characteristic layout, however, allows recognition of three basic groups of building layouts, in which different types of spatial layout have been distinguished (Fig. 5.24).

Group 1, represented by types CH1, CH2 and S1.1, has the most extensive form. The buildings are



- quality of urban structure

Fig. 5.23. Urban stimulants of entrepreneurship nests Source: own elaboration.



Chwaszczyno

Fig. 5.24. Typology of the building layout in Straszyn and Chwaszczyno Source: own elaboration.

point-located, usually on separate plots, quite spontaneously, without clear outlines of their urban-composition layouts. The composition in these types of building layout follows the former layout of agricultural fields (type CH2), which had been converted into building plots. There is no explicit link between these building developments and the town center. These complexes are chaotically scattered throughout the space. Occasionally, in small quantities, objects with different service or production functions appear. This system is referred to by many researchers [Gzell 2015; Majewska et al. 2015; Małek 2011] as *urban sprawl*.

Group 2 is characterized by continuous spatial development of the settlement unit (types CH3 and S2). New buildings are growing around the former town center, becoming an inseparable part of the urban layout and reproducing the principles of composition. Large functional diversity of the buildings and their dimensions is observed. Its characteristic feature is the slow growth and the thickening of the structure. Group 3 is clearly distinguished by its strongly-outlined urban layout (type S3). It constitutes a complex of housing and service buildings, designed and built in one period. It is characterized by distinct urban composition, which is marked by spatial coherence (legible spatial layouts with a hierarchical layout). This form pertains to the first American suburban housing estates of the *garden city* type.

Development forms of individual plots were analyzed subsequently. An answer was sought to the question about the share of the housing function in the manner of land development. The authors wanted to examine the principles of SME localization on individual plots. The following urban parameters were used for the analysis:

- plot area;
- building-development percentage / building-development area;
- building height measured by the number overground floors;



Fig. 5.25. Structure of buildings in Chwaszczyno. The units included in the study have been marked in red Source: own cartographic elaboration.

- the size of biologically active areas;
- building intensity.

The analysis was aimed at identification of the types of urban tissue and the assigned characteristic features determining the building-development parameters. The results show that a majority of plots have a fairly large area, i.e. from 1200 to 3500 m², and even 9000 m² in some places. Such plot-area sizes are characteristic for extensive use of suburban space. The second feature characteristic for this type of systems is the relatively low percentage of buildings, mostly not exceeding 20% of the plot area. Consequently, the buildings are extensive and their intensity ranges from 0.1 to 0.5. The building tissue is characteristic of the Polish suburban landscape and exhibits a lack of spatial-order quality.

The features characterizing the occurrence of building development on the plots characterized by the function of running micro, small or medium enterprises were analyzed next. Three basic layers have been identified:

- the number of buildings on a plot;
- presence of a residential building;
- business activity carried out in a residential building.

This part of the analysis was aimed at identification of the relationship between housing development and business operations, in terms of urban and architectural characteristics. Answers were sought



Fig. 5.26. Structure of buildings in Straszyn. The units included in the study have been marked in red Source: own cartographic elaboration.

to the following questions (the answers and their percentage are provided in the brackets):

- Does a residential building always accompany a building where a business is run? (in 80% YES).
- How often business activity is located in a residential building? (in over 55% of the cases).
- Are there only plots of land with residential buildings in which business activity is carried out (i.e. a part of the house has been adapted for business) (in over 30% of the plots).

Characteristically, the plots were much smaller than in other cases and, on average, corresponded to the average area of a residential plot – i.e. approximately 800 m².

The analyses of urban structure showed a correlation between the occurrence of housing and the intensity SME-sector business activity. It can be stated that the main development-stimulating factor is urban tissue, in the form of extensive, free-standing housing, usually single-family housing. The parameters selected are illustrated by the results of the correlation



Fig. 5.27. Examples of the building types identified during the architectural structure analysis Source: elaboration by Martyna Szymczak.

between the number of residential buildings per plot and the number of conducted business activities.

A compilation was prepared for two different locations – Chwaszczyno and Straszyn.

An attempt was then made to analyze the impact the objects identified in the survey, i.e. those in which business activity is located, have on the immediate environment. Based on the architectural analyses, a typology of the SMEs' impact SMEs on the surroundings and the entrepreneurship-nest area was created (Table 5.7).

Table 5.6.	Selected	urban	indicators	for the f	towns o	f Straszvn	and Chwaszczvno
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Town	Address	Plot areas [m ²]	% of building development	number of buildings	Residential buildings	Business activity in a residential building
Chwaszczyno	ul. Wąska 21	4300	13	2	0	0
	ul. Polna 9	9130	19	3	1	0
	ul. Ogrodowa 3	1130	18	1	1	1
	ul. Oliwska 92	356	24	1	1	1
	ul. Gdyńska 78	4200	14	3	1	0
	ul. Gdyńska 78C	1600	9	1	1	1
	ul. Gdyńska 94	1630	9	1	0	0
	ul. Gdyńska 59	3560	6	1	0	0
	ul. Wąska 23	1640	23	1	1	0
	ul. Jarzębinowa 5	865	26	1	1	1
	ul. Świerkowa 72	1200	14	1	1	1
	ul. Henryka Sienkiewicza 2	830	18	1	1	1
	u. Cypriana Kamila Norwida 14	790	18	1	1	1
	ul. ks. dr. Bernarda Sychty 18	630	27	2	1	0
	ul. Majkowskiego 2	815	29	2	1	1
	ul. Gdyńska 133	6270	4	1	0	0
	u. Gdyńska 121	3820	22	3	1	0
	ul. Kaszubska Droga 5	1320	10	2	1	1
Straszyn	ul. Różana 19	512	25	2	1	1
	ul. Meblowa 10	3500	46	3	0	0
	ul. Liliowa 4.	605	13	1	1	1
	ul. Świerkowa 27	675	16	1	1	1
	ul. Młyńska 7	8000	35	5	0	0
	ul. Starogardzka 42–44 BUD. A	4730	36	2	0	0
	ul. Tęczowa 1	465	26	1	1	1
	ul. Liliowa 5	850	22	2	1	1
	ul. Szafirowa 11	1200	13	1	1	1
	ul. Starogardzka 38	1130	27	1	0	0
	ul. Spokojna 68	2580	10	2	1	1
	ul. Ogrodowa 19	600	18	1	1	1
	ul. Objazdowa 5	3445	18	2	0	0
	ul. Starogardzka 22	705	23	1	1	1
	ul. Spokojna 52	3450	30	1	0	0

Source: own elaboration.

Туре	Manner of activity	Relationship to the housing development	Relations between SMEs and public space	Impact on the immediate environment
Ι	Operating outward, outside the neighborhood	No connections or trace connections with housing	Without the potential to create urban / public space – non-city-genic	Generates heavy transport
II	Operates inward, for the neighborhood	Closely connected with the housing development	With the potential to create urban / public space – city-genic	Generates pedestrian and bicycle traffic, and sporadically car traffic – the need for integrated parking
III	Operates outward and inward	Connected with residential buildings	With the potential to create urban / public space – city-genic	Generates pedestrian and bicycle traffic, and sporadically car traffic – the need for integrated parking
IV	Phantom operation – online operation	Closely connected with the housing development	With a neutral residential potential – city-genic	Without impact

Table 5.7.Typology of the SMEs' impact on the entrepreneurship nest area

Source: Rembarz 2017.

This stage of the research was aimed at identification of the opportunities for creation of spatial order⁶ in the entrepreneurship nests, based on the potential inherent in the SMEs. It has been noted, however, that currently it is difficult to assess the spatial order in the entrepreneurship nests in a "traditional" manner. The socio-economic conditions in the towns examined are unique, while the other elements vary considerably. The report prepared by Rembarz [2017] emphasized that currently their 'image' should be rather described in relation to space. It has also been noted that when describing the criteria for assessing the state of spatial order in the entrepreneurship nests, in the context of the inhabitants' quality of life, it is necessary to consider not so much the current state, as the potential of a given place to form a classic suburb (thematization) or a new type of structure with a clear image. On this basis, potential criteria for assessment of the spatial order in entrepreneurship nests were selected:

 The criterion of having potential to create a pedestrian-friendly zone (walkability) – a network of streets, passageways and places forming the public space;

- the criterion of having potential to develop a clear image of the entrepreneurship nest, reflecting its individual character and specificity;
- the criterion of having potential for changes, associated with the strength of human resources – the local social and cultural capital.

With such understanding of spatial order, the development of a spatial image for entrepreneurship nests should be shaped from the perspective of the entrepreneur and the public sector. Correlation of these two private (with high human capital) and public (with political and legal resources) forces could serve as a potential facilitating the process of co-shaping the space. Image is understood here in a complex way, as a derivative of the aesthetic issues / image (urban, architectural, landscape form) as well as the intangible, socio-cultural factors responsible for creation of identity and for local identification.

5.4. SPATIAL MODELS OF SME ACTIVITY IN ENTREPRENEURSHIP NESTS

The search for urban typology of entrepreneurship nests has led to the emergence of certain patterns that depend on different local conditions. There is no universal model and pattern, although there are common features that allow differentiation of two types of entrepreneurship nests (Fig. 5.28):

⁶ In accordance with Art. 1 item 1 of the *Act of 27 March 2003 on Spatial Planning and Development*: spatial order – ought to be understood as such shaping of the space, which creates a harmonious whole and takes into account, in all ordered relations, all functional, socio-economic and environmental, cultural and composition-aesthetic conditions and requirements.

- type 1 located along a communication corridor, with services oriented at local connections and in relation to the external accessibility of markets, but with the nucleus in the former center of the city/town;
- type 2 having the same features as type 1 and an additional SME nucleus, focused on the services provided outside the entrepreneurship nest.

The above-presented spatial models describe the functioning of SMEs in entrepreneurship nests. One characteristic feature of types 1 and 2 is the concentration of economic entities around the main transport corridors. The largest SME cluster operates based on access to and visibility from the road. In this context, however, it is interesting that in both entrepreneurship nests, public transportation is based on road transport (buses) with a variable, rather poor, offer of connections with the central cities. At this point, a question arises about the need to develop public transport. Perhaps its absence could stimulate entrepreneurship nests.

The historical cultural layer contained in the urban structure is also important. The SMEs performing service functions in this settlement unit are centered around it. The remaining areas are filled with dispersed, extensive buildings containing SMEs. Sometimes, as in the case of type 2, "SME-concentration islands" occur – in this situation two scenarios are possible: appearance of a new nucleus in the settlement unit or a new element located on the edge neighboring with the central city.

TYPE 1

Fig. 5.28. Models of SME activity in entrepreneurship nests Source: own graphic elaboration.

5.5. MODELS OF TERRITORIAL SME DEVELOPMENT IN ENTREPRENEURSHIP NESTS

One important research aspect also entailed analysis of the process linking the housing function and individual enterprises. Answers were sought regarding the possibilities of transforming the forms of an individual economic entity's development and its impact on the process of suburban-zone evolution. Five model phases have been identified here, illustrated in Figure 5.29.

A. EMERGENCE AND INERTIA

A small-scale enterprise uses part of the cubature of the owner's house. The office and production space takes the form of an add-on integrated with the house.

Example: a cosmetics studio, a design studio.

B. EXPANSION "TO THE LIMIT"

A company, expanding in terms of production, takes over an increasing cubature of the owner's home. At the same time, it increases its external cubature (including the building height).

Example: a toy manufacturing plant.

C. MULTIPLICATION

Due to limited terrain (plots), development occurs through daughter companies operating on other plots, in close proximity. The seed of entrepreneurship emerges.

Example: production of cosmetics (including export), division of production into segments, in different locations, at different production lines. Form of ownership: enterprises and family companies.

D. COOPERATION

A form of a co-operator collaboration, characterized by flexible location, in relation to the owner's main



Fig. 5.29. Forms of territorial SME development Source: own graphic elaboration.

office and the core of primary production. Territorial network expansion takes place. The enterprise takes the form of a cluster with an autonomous management structure for the related and cooperating industries.

Example: design and production of cardboard packaging from recycled paper.

E. DYSFUNCTIONAL DIVERSIFICATION

The business owner separates the residential facility from the production facilities. The management headquarters are in the production facility. This form can be compared to the foregone factory structure: owner's castle and a textile factory.

Example: a company producing juices from local stock.

Further conclusions resulting from the analysis of the interrelation structure between the residential and the production functions as well as their transformations translate into models of territorial entrepreneurship-nest development and the functioning of the entire metropolis. The Authors distinguished two basic models: the cluster model and the dispersion model. Both models are contingent on the directions of entrepreneurship-nest development, depending on the intensity of spatial dispersion (Fig. 5.30).

The propounded **cluster model of territorial entrepreneurship-nest development** takes on a heavily local character, with interrelations within the settlement unit. This type of entrepreneurship nest mainly consists of entities characterized by: emergence and inertia (A) as well as growth "to the limit" (B). Enterprises operate in already-existing places and expand to the maximum limit possible. Suburbs are then formed within the metropolis structure, with strong internal connections, concentrating the activity and the functioning within the area that has formed features of an entrepreneurship nest.

The dispersion model of territorial entrepreneurship-nest development is divided into two subgroups: dispersion within the metropolis and outside it. Territorial development in this case is based on three successive types of enterprise-development phases, i.e.: multiplication (C), cooperation (clusters) (D), dysfunctional diversification (E). The main element differentiating these two submodels entails the issue of dispersion, on the one hand based on local (metropolitan) connections, and on the other based on the forms of multifaceted regional and global interrelation. As a consequence of the networking within the metropolis, an edge city model with strong entrepreneurship nests is developed. Extreme dispersion, on a regional and global scale, in turn, leads to the transformation of enterprises into large ones or into global and other corporations. The links between global networks are strengthened. New SMEs are created around such enterprises, but their number is smaller.

In this context, the most favorable scenario for sustainable development emerges, in which facilitation of enterprise development, in relation to the inner framework of the metropolis, is most important. The entrepreneurship nests operating within the network of local interrelations are of key importance in this model.

The purpose of presenting individual models was to present abstract scenarios of certain extreme behaviors / mechanisms. These models, however, have highlighted the need to strengthen the networking relationships within the metropolitan spatial system. Stimulation of such interrelations, which are oriented at emergence of the Polish edge city model, may contribute to a sustainable development of entrepreneurship and the country's economic growth. MODELS OF TERRITORIAL ENTREPRENEURSHIP-NEST DEVELOPMENT IN THE LIGHT OF ENTERPRISE DEVELOPMENT



Fig. 5.30. Models of territorial entrepreneurship-nest development in the light of enterprise development Source: own graphic elaboration.

6. DETERMINANTS OF SME LOCALIZATION IN ENTREPRENEURSHIP NESTS AND SUBURBAN ZONES

6.1. CLASSIFICATION AND CHARACTERISTICS OF ENTERPRISE LOCALIZATION DETERMINANTS

One of the elements of the **enterprise competitiveness** is their **localization**, defined as:

- placement of the size and the type of business activity, facility or a set of facilities in a specific area [Budner 2004];
- activity aimed at selection of a place for a specific enterprise, where it will carry out its mission, conducting economic activity of a given type, in a specific manner [Adamska 2014];
- the process of choosing the place of business activity [Godlewska-Majkowska 2013].

The decision regarding enterprise localization can have significant impact on the company's ability to create and maintain competitive advantage. Despite this, spatial issues are rarely addressed in mainstream economics, which Zaucha [Zaucha 2010, p. 53] indicates as its weakness. Proper localization can significantly increase the competitiveness of an enterprise, while inappropriate one can cause adverse effects. This is particularly true for micro and small enterprises. This state of affairs is influenced by the characteristics of these entities resulting from their size, primarily from the local nature and the financial resources. This applies, above all, to commercial and service companies, less often to production entities. If a given product or service is not consistent with the needs of local communities (e.g. for financial reasons), such enterprise has little chance of survival, although it could thrive in another location. Due to limited financial resources, micro and small enterprises are often forced to choose location based on the cost aspect, which is not always the optimal solution. In comparison with large and medium-sized units, this group of entities has less chance of adapting their locations to their needs. This results from both the limited financial resources and the lesser power of these enterprises in negotiations with local authorities when making decisions on the spatial development of a given place [Martyniuk 2016].

Entrepreneurial decisions regarding business location are influenced by many factors. Along with the emergence of business localization theories¹, iden-

¹ The first location theories focused on cost minimization (von Thünen 1826; Launhardt 1882; Friedrich 1929; Predöhl 1928), subsequent ones on market analysis and maximizing profits

tification and analysis of these factors have become a significant research problem.

In microeconomic terms, the theory of localization concerns enterprises which, taking into account the costs and the benefits, look for the best place to conduct business activity. In macroeconomic terms, however, the theory of localization constitutes part of the broadly understood spatial management [Budner 2004].

In the literature on the subject, localization factors are divided, among others, into:

- traditional/classical factors (e.g.: proximity to the raw material/resource base, proximity to markets, access to real estate, transport base, workforce) and modern factors, deriving from the technological progress and social development [cf. Szymańska, Płaziak 2014];
- soft factors (e.g. human resources, natural environment) and hard factors (e.g. geographical location, topography, in terms of investments, technical infrastructure) [Reijmer, van Noort 1999; Leśniewski 2012];
- **internal** factors (e.g.: the type of business, legal status, company size and organizational structure, management methods, technical and technological progress, the existing land development and land use) and **external** factors (e.g.: natural and environmental

conditions, socio-demographic conditions, spatial structure of the environment, spatial relation to markets, the economic situation, infrastructure) [see: Budner 2004; Godlewska-Majkowska 2013];

- **exogenous** factors independent of the enterprise (including the sales market, the supply market, real estate, transport infrastructure, the labor market, business costs) and **endogenous** factors – associated with the type of business activity and its organizational structure [cf. Szymańska, Płaziak 2014; Leśniewski 2012];
- factors associated with the business environment (e.g.: proximity of suppliers, proximity to clients), factors associated with infrastructure (e.g.: infrastructure, transport, available usable space) and factors associated with the institutional environment (e.g.: legal regulations, assistance from local authorities) [cf. Reijmer, van Noort 1999].

In Polish and foreign literature on the subject, empirical studies identifying the factors determining enterprise localization can be divided into three categories:

- the studies measuring the impact of a specific factor or a set of factors on business localization decisions (e.g.: taxes, quality of life, labor costs, transport infrastructure);
- the studies explaining the location decision-making process, with regard to a specific industry or industries (biotechnology companies, high technology enterprises) [Kimelberg, Williams 2013];
- the studies addressing specific areas (e.g.: city center, rural areas) [Vlachou, Iakovidou 2015].

Authors of most studies have focused on the decision--making processes in large companies; less attention has been paid to how such decisions are made in small and medium-sized enterprises. Significant differences, however, can be noticed between the factors determining the localization decisions in SME-sector enterprises and large entities. These differences are primarily related to the decision maker, the access to information about a specific location, and the financial resources. In the pan-European studies carried out by Moore et al. [1991], the most important factor influencing localization decisions was the availability of regional--development aid, in the case of large and medium-sized

⁽Palander 1935; Lösch 1940; Hoover 1948; Isard 1956) [cf. Fierla 1998; Wieloński 2004; Budner 2004; Zaucha 2010; Domański 2011; Szymańska, Płaziak 2014]. In the second half of the 20th century (1967), a behavioral approach was introduced, according to which the explanation of the localization procedure takes into account the existence of a decision maker, whose behavior is characterized by limited rationality. Pred (1967) states that it is not always possible to gather all the information required. In addition, it is often difficult to process and correctly interpret the knowledge available. This approach implies the so-called homo satisfaciendus theory, emphasizing the role of non-economic factors in the process of choosing enterprise location. In practice, homo satisfaciendus strives for a satisfactory location, consequently not achieving optimal localization. At the end of the 20th century, research in the field of new economic geography began, under which the spatial aspect was introduced to market models other than perfect competition. The specificity of the new economic geography entails "cumulative economic mechanisms of dispersion and spatial concentration, and the importance of spatially conditioned factors for the shaping the dynamics of economic processes within space" [own translation] [Zaucha 2010, p. 70].

enterprises, and access to clients, in the case of small entities. With regard to the SMEs in the Netherlands, in turn, the choice of location is not - unlike in large enterprises - a strategic decision [Reijmer, van Noort 1999]. What is more, soft factors, such as the image of a place, were of higher importance for large enterprises than for small and medium-sized ones [Reijmer, van Noort 1999]. Conversely, Sullivan et al. [1998] state that large entities pay more attention to transport infrastructure (access to railways, commercial airports, ports or port facilities), compared to SMEs. In their opinion, availability of managerial staff and labor force, the cost of labor, and availability of mass transport for employees are much more important for large entities. On the other hand, Australian studies concluded the most important factors influencing localization decisions in SMEs were the proximity to central business districts and direct access to major roads [Kupke, Pearce, 1998]. In turn, Arauzo-Carod and Manjon-Antolin [2004] stated that most SMEs do not analyze the location values of individual places, while the range of alternatives is limited to the places known to enterprise owners.

Polish researchers studying the factors of enterprise location have also rarely analyzed enterprise size. Most studies were focused on identification of the internal and external localization factors as well as the characteristics of a given location. Enterprise size has been addressed, inter alia, by: Poniatowska-Jaksch [1997], Flieger [2013], Godlewska-Majkowska [2016], Chrzanowska, Drejerska [2015]. Real estate ownership or the possibility of renting a property out have been noted as most important factor determining SME location in a study carried out by Poniatowska-Jaksch [1997]. The results of the research carried out by Flieger [2013] show that in the case of SMEs, the only decisive factor involves the cost (local fees, rent, labor cost) and the possibility of raising funds to support operations, while in the case of large enterprises factors related to technological infrastructure, proximity to highways, labor costs and the possibility of cooperating with local enterprises play the most important role. Chrzanowska, Drejerska [2015] indicated two factors affecting localization of micro enterprises: proximity to the city (in this case Warsaw) and the location's convenience, in relation to customers/recipients. Godlewska-Majkowska [2016] does not present detailed research results but notes that the location decisions of SMEs depend on the stage of development in enterprise's life cycle. In the first phase, the deciding factor, in terms of the selection of a place of business, according to the author, often entails the place of the entrepreneur's residence. In the founding phase, however, the localization decision may be based on the process of an active search for localization, out of the existing and available buildings (brownfield investments).

Summing up the results of the existing studies, it can be concluded that the main SME localization factors include:

- the entrepreneur [Poniatowska-Jaksch; Godlewska-Majkowska; Arauzo-Carod, Manjon-Antolin];
- market-related factors [Drejerska, Chrzanowska; Kupke, Pearce; Moore i in.];
- cost-related factors [Flieger];
- infrastructure [Kupke, Pearce];
- the factors related to a given location, including the actions on the part of the local authorities [Drejerska, Chrzanowska; Kupke, Pearce; Flieger].

It seems impossible, however, to create a universal set of localization factors. What is more, there may be a hundred factors that can be considered when making localization decisions, but only a few are really important. These factors have different significance, depending on the size of an enterprise, although the issue of entity size rarely appears in both the localization theories and the related research.

6.2. ANALYSIS OF SME-LOCALIZATION DETERMINANTS IN SELECTED TMA MUNICIPALITIES AND ENTREPRENEURSHIP NESTS

The study entailed assessment of 17 localization factors, which can be divided into 5 categories:

1. **owner-related (personal)** factors (real estate ownership, the family-work interrelation, the place of residence or its proximity);

- cost-related factors (property/land price, the cost of transport, labor costs, investment outlays, availability and prices of raw materials/resources);
- market-related factors (vicinity of main customers, the demand);
- 4. the factors **associated with the features of a given place** (infrastructure, communication conditions, natural environment conditions, distance from central cities, incentives for entrepreneurs);
- 5. **other** factors (initial analyses of different locations, other).

When asked about the main motives that influenced the localization of their business activity, the entrepreneurs surveyed most commonly answered that the location of their business was linked to their place of residence (42.8%). Another important motivation influencing the decision regarding the place of business activity was the proximity to the Tri-City. This factor was significant for 32.4% of the respondents. The proximity of the owner's place of residence (significant for 30.4% of the respondents), convenient communication conditions (important for 24.4% of the respondents) and other factors (23.3% indications) were arguments indicated quite frequently. Family reasons, i.e. the factors allowing them to balance work with childcare, were also important (19.6% of the responses). Other factors were indicated by less than 20% of the respondents².

ENTERPRISE SIZE VS. LOCALIZATION FACTORS

The significance of localization factors varied within individual entity-size classes (Table 6.1).

² The respondents could select several localization factors, hence the answer sum exceeding 100%.

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				0							

Selection criteria	Total	Microenterprises	Small enterprises	Medium-sized enterprises							
	Personal factors										
Place of residence	42.8%	47.1%	24.3%	0.0%							
proximity to the place of residence	30.4%	32.2%	24.3%	0.0%							
Family-work relationship	19.6%	21.6%	10.8%	0.0%							
property/land ownership	8.4%	10.1%	0.0%	0.0%							
		Cost-related factors									
Property/land price	8%	8.2%	8.1%	0%							
Transport costs	5.6%	6.3%	2.7%	0.0%							
Labor costs	4.8%	4.8%	5.4%	0%							
Investment costs	10%	9.6%	10.8%	20%							
Availability and prices of raw	2.8%	3.4%	0%	0%							
materials/resources											
	Market-related factors										
Vicinity of major customers	14%	16.3%	2.7%	0%							
Demand	14%	15.9%	5.4%	0%							
	Factors asso	ciated with features of a given	place								
Infrastructure	14%	15.9%	5.4%	0%							
Communication conditions	24.4%	25.5%	21.6%	0%							
Environmental conditions	6%	7.2%	0%	0%							
Proximity to central cities	32.4%	33.7%	29.7%	0%							
Incentives for entrepreneurs	2%	2.4%	0%	0%							
in a given location											
		Other									
Localization analysis	4.8%	5.3%	2.7%	0%							
Other	23.2%	19.2%	37.8%	80%							

Each of the respondents could choose several factors, which in his/her opinion were relevant for the selection of business localization, hence the answer sum exceeding 100%.

Source: own elaboration based on survey questionnaire research.

In the case of micro-enterprises, the decision regarding the area of business activity reflected the overall results. Owners of micro enterprises, when making decisions regarding the place of business activity, more often took notice of their place of residence (47.1%), the proximity to central cities (33.7%), proximity to the place of residence (32.2%), convenient communication conditions (25.5%) and family considerations associated with the ease of balancing work and childcare (21.6%). The same indications constituted the most important factors determining the choice of the place of business activity in the group of small enterprises, with the difference that, in comparison with micro enterprises, the following factors were in decline: proximity to the main recipient/customer (significant for 2.7% of small enterprise owners), low product and raw material transportation costs (also significant for 2.7% of small entrepreneurs), infrastructure (significant for 5.4% of small entrepreneurs) or anticipated high turnover (also significant for 5.4% of small entrepreneurs). In the case of small businesses, such factors as ownership of land or acquisition of property from family, the natural environment conditions in the area, access to raw materials, and incentives for entrepreneurs have completely lost their significance.

Summing up, it can be concluded that, especially in the case of micro enterprises and - to a slightly smaller extent - small entities, localization decisions are mainly influenced by personal, i.e. behavioral, factors related to the decision maker. The fact that micro and small entities operate in the owner's place of residence has also been confirmed by studies conducted worldwide [Risselada, Schutjens 2012; Mazzarol, Choo 2003; Liang et al. 2001; Lopez, Henderson 1989] as well as those carried out Poland with regard to the Warsaw metropolis [Poniatowska-Jaksch 1998]. On the one hand, this confirms the assumption that the so-called homo satisfaciendus theory, which emphasizes the role of non-economic factors in the process of choosing enterprise location. On the other, this may be conditioned by the lack of capital, lack of familiarity with the local market opportunities, the need to start one's own part-time business, personal contacts which are only available in the "home" region.

ENTERPRISE-LOCALIZATION FACTORS IN SUBURBAN AREAS AND ENTREPRENEURSHIP NESTS

There are no statistically significant relationships between enterprise localization (entrepreneurship nests vs other localizations) and localization determinants³. Both in the entrepreneurship nests and in other towns/ cities, the main criterion determining enterprise localization are personal factors, and, above all, the place of the owner's residence. The only difference between the entrepreneurship nests and other places under examination is the intensity of economic activity. The results of the study are summarized in Table 6.2.

It seems, thereby, that local authorities and urban planners should take into account the quality of the living conditions they offer to potential residents. People characterized by entrepreneurship, when considering the place of economic activity, prefer locations providing their families with adequate living conditions, including the quality of public spaces. These factors are more important than economic ones.

THE NATURE OF ENTERPRISE (FAMILY ENTERPRISES VS NON-FAMILY ONES) AND LOCALIZATION DECISIONS

International studies on localizations factors of family enterprises are not very numerous. Such studies were carried out in the United States by Kahn and Henderson [1992], the results of which indicate that the proximity of the owners' residence has significant influence on the localization of family business entities – much larger than in the case of non-family entities, which is also confirmed by the results presented in the research carried out in the TMA.

A chi square test was used to study the relationship between the nature of enterprise (family/non-family business) and the localization determinants⁴. These

³ The study incorporated the chi square test assuming p < 0.1.

⁴ The analysis was carried out by A. Gierusz. The test was aimed at comparison of the frequencies observed in the sample with the frequencies expected, assuming that the two variables are independent.

	Entre	preneurship	nests	Other places		
Localization factor		%	Rank	Number of answers	%	Rank
Personal factors	31		1			1
Place of residence	11	33.3		96	44.0	
Proximity to the place of residence	12	36.4		64	29.4	
Family-work interrelations	6	18.2		43	19.7	
Ownership of property/land	2	6.1		19	8.7	
Cost-related factors	12		2			4
Investment outlays	2	6.1		23	10.6	
Property/land price	6	18.2		18	8.3	
Cost of transport	1	3.0		13	6.0	
Cost of work	1	3.0		11	5.0	
Availability and prices of raw materials	2	6.1		5	2.3	
Market-related factors	8		5			6
Short distance to main customers	4	12.1		31	14.2	
Demand	4	12.1		34	15.6	
Factors related to the characteristics of a given place of business activity	8		5			2
Infrastructure	5	15.2		30	13.8	
Communication conditions	6	18.2		55	25.2	
Distance from central cities	7	21.2		74	33.9	
Natural environment conditions	1	3.0		14	6.4	
Other	9		4			5
Location analysis	1	3.0		11	5.0	
Special incentives for entrepreneurs	1	3.0		4	1.8	
Other	7	21.2		51	23.4	

	Table 6.2. Localizatio	on determinants	in entre	preneurship	nests and	other town
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Each of the respondents could choose several factors, which in his/her opinion were relevant when choosing the place of business activity, hence the answers do not add up to 100%.

Source: own elaboration based on survey questionnaires.

interrelations have been shown to be statistically significant (p <0.1). The Yule's phi (Φ) coefficient was used to measure the strength of that dependence. It takes values from 0 to 1, where the values close to 0 indicate a weak interrelation, and the values close to 1 – a strong one.

Personal factors constituted a criterion in the selection of a given location for business activity that was indicated more frequently by family enterprises than by non-family ones. For 95% of family and 58% of non-family entities, enterprise localization was determined by the place of residence or its proximity. Family considerations were enterprise-localization determinants for 30% of family businesses and 13% of non-family ones. Proximity to the central cities, which was indicated as localization determinant by 43% of family businesses and 25% of non-family businesses, was a criterion of greater significance. 32% of family businesses indicated convenient communication conditions as a localization determinant, while for non-family businesses this percentage was 19%.

6.3. ASSESSMENT OF SME LOCALIZATION ATTRACTIVENESS IN THE SUBURBAN AREAS OF THE TMA

Identification of the factors determining the localization of enterprises in the suburban areas examined, including the TMA entrepreneurship nests, was based on the qualitative study conducted on 251 randomly selected entities of the SME sector. Most of the enterprises surveyed were ran at the place of establishment. Only 26.7% of the companies changed their location 6.3. Assessment of SME localization attractiveness in the suburban areas of the TMA

Localization factor	P	Phi (Φ) Coefficient	Family enterprises	Non-family enterprises
Place of residence	0.0001	0.25	58%	32%
Proximity to the place of residence	0.0590	0.12	37%	26%
Work-family interrelation	0.0007	0.22	30%	13%
Communication conditions	0.0210	0.15	32%	19%
Distance from central cities	0.0030	0.19	43%	25%
Short distance to main customers	0.0240	0.14	20%	10%
Demand	0.0800	0.11	20%	12%
Low investment outlays	0.0830	0.11	14%	7%
Location analysis	0.0040	0.20	10%	1%

Table 6.3. Localization determinants and the nature of enterprise

Source: own elaboration by A. Gierusz based on questionnaire surveys.

over the years. Most of them (32) previously operated in the city of Gdańsk; 17 companies indicate Gdynia as their previous location. The majority of the respondents (78.1%) stated that they do not intend to change their location in the next 5 years.

Most (67.7%) of the respondents consider the location of their enterprises to be rather good, while 23.9% – very good. 4.0% of the surveyed rated the location of their business negatively (rather not good), while 4.4% of the surveyed had no opinion in this regard. Analysis of the attractiveness of individual enterprises' location was also carried out, using the taxonomic measure of location attractiveness (*TMLA*). Its construction was based on the **X** matrix containing the values of the diagnostic features. The following formula was used to determine the synthetic measure of a given location's attractiveness:

$$TMLA_i = 1 - \frac{d_i}{d_0}, (i = 1, 2, ..., n)$$

where:

 $TMLA_i$ – the synthetic measure of location attractiveness for the *i*-th enterprise (object);

 d_i – the distance of the *i*-th enterprise from the pattern estimated using the following formula:

$$d_i = \sqrt{\sum_{j=1}^n (z_{ij} - z_{0j})^2}, (i = 1, 2, ..., n)$$

where:

 z_{ij} – the reference value of standardized *j*-th variable for the *i*-th enterprise (object);

 d_0 – the norm ensuring assumption of a value between 0 and 1 by *TMAL*;:

$d_0 = \overline{d} + a \times S_d$

Using the formula developed for calculation of the *TMAL* as well as the information that $0 \le TMLA \le 1$ and $d_i > 0$, the limit value for the constant *a* was calculated:

$$a \ge \frac{d_{i\max} - \overline{d}}{S_d}$$

where:

 $d_{i max}$ – the maximum value of d_i , d (upper line) – the average value of d_i , S_d – standard deviation of d_i .

The *TMLA* indicator is normalized and takes values from 0 to 1. The closer to 1 the measure value is for a given enterprise (object), the better result for the entity assessed, in terms of the general criterion, i.e. location. The last stage of the calculation procedure for estimation of the synthetic measure of location attractiveness was to classify the SME-sector enterprises surveyed. For this purpose, standard deviation and the *TMLA* mean were used.

The first group includes enterprises for which the value of the synthetic index (*TMLA*) was greater than or equal to its average value (\overline{w}) increased by the value of standard deviation (S_w). These enterprises constitute a set of entities characterized by the most advantageous location. The second group includes enterprises for which the value of the *TMLA* synthetic indicator is greater than or equal to its average value (\overline{w}) and, at the same time, is less than its average value plus the standard deviation (S_w). The *TMLA* index value determined in this way constitutes the basis for selection of enterprises with good, i.e. above average, location. The third group includes enterprises with inferior locations, i.e. those for which the value of the *TMLA* indicator is greater than or equal to its average value (\overline{w}) minus the standard deviation (S_w), and less than the average value of the synthetic indicator. The fourth group consists of enterprises with bad location. The value of the *TMLA* indicator for these entities is at a level lower than its (\overline{w}) value minus the standard deviation (S_w).

30 companies with the best location have been qualified as those belonging to group I. Group II was the most numerous (98 enterprises), encompassing entities with above average location attractiveness. 59 companies were classified in group III. The number of badly located enterprises, included in group IV, was 37 (Table 6.4).

Table 6.4. Classification of enterprises by municipality into groups of different location attractiveness

Municipality	Group I	Group II	Group III	Group IV	
Kartuzy	0	0	5	6	
Kolbudy	0	11	13	11	
Kosakowo	4	16	3	4	
Pruszcz	19	21	4	6	
Gdański					
Szemud	7	14	3	5	
Żukowo	0	36	31	5	
Total	30	98	59	37	

Group I – enterprises with most favorable location; group II – enterprises with a good or above average location; group III – enterprises with worse than average location; group IV – enterprises with a bad location.

Source: own elaboration based on the taxonomic analysis carried out by M. Gostkowska-Drzewicka.

The first group includes enterprises with their headquarters most commonly located in the Pruszcz Gdański municipality. The enterprises classified as those belonging to the second and third groups were mostly located in the Żukowo municipality. The enterprises included in group IV most commonly had their headquarters in the Kolbudy municipality.

6.4. TAXATION POLICY IN THE MUNICIPALITIES EXAMINED VS ECONOMIC ACTIVITY OF SMEs

The source of income for municipalities in Poland are taxes. This is an important category of income, whilst the dysfunctions associated with it have significant impact on the entire local finance system. According to the Act on the Income of Local Government Units (Journal of Laws 2010 No. 80, item 526), the municipality's income derived from tax revenues entails the revenues from: property tax, agricultural tax, forestry tax, tax on means of transport, personal income tax paid in the form of a tax card, tax on poswsession of dogs, tax on inheritance and donations, tax on civil law transactions (Art. 4 of the Act of November 13, 2003 on the Income of Local Government Units). Revenues from this group of local taxes and fees, in 2003–2013, accounted for approximately 19.5% of the total revenues in the structure of municipalities in Poland [based on: Filipiak 2015, pp. 221-230]. What is more, in the Polish tax system, personal income tax (PIT) and corporate income tax (CIT) are taxes, the revenues from which are divided between the State Treasury and the local government units (LGUs), i.e. municipalities, districts and voivodeships. The share of the revenues from the personal income tax paid by the taxpayers residing in the municipality and from the corporate income tax paid by the taxpayers having their registered office in the municipality changes every year, as shown in Table 6.5.

The average share of PIT and CIT in the revenues obtained by municipalities in Poland in the years

Table 6.5. The share of PIT and CIT revenues in municipalities in Poland in the years 2003-2016 (%)

														1
Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
PIT	27.60	35.72	35.61	35.95	36.22	36.49	36.72	36.94	37.12	37.26	37.42	37.53	37.67	37.79
CIT	5.00	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71	6.71

Source: own elaboration based on [Olejniczak 2016, p. 115].

2003–2013 was: PIT – 14.68%, CIT – 0.87% respectively. Municipal tax policy should therefore constitute an important element in a given municipality's development strategy. The role of municipal tax policy, however, is not always perceived positively by taxpayers – in particular by entrepreneurs. There are also cases when a well thought-out tax policy has brought measurable, positive effects in the field of socio-economic development.

Tax policy has two functions. The first - fiscal function consists in the delivery of income (financial resources) for the implementation of tasks. The second - non-fiscal - function entails the use of taxes in such way, as to facilitate the development of economy and thus stimulate social development. With regard to municipalities, the two functions indicated are difficult to consider separately, as they play a special role in the hands of both the tax and the constitutive authorities [Filipiak 2015, pp. 221-230]. This role is to stimulate socio-economic development, through the use of the tax policy and creation of a climate for development and an increase of the society's well-being, by shaping the tax rates or development of public aid programs⁵. These activities are intended, among others, to attract investors and stimulate municipal economy. It should also be emphasized that the powers indicated above have specific impact on a municipality's financial stability and, above all, on the current and the future level of its income. It is obvious that the tax policy pursued by municipalities affects the level of the income

obtained from local taxes and fees and, to some extent, the level of other revenues, such as the PIT and the CIT. Implementation of the a policy that is based on low tax rates and the use of a wide range of tax preferences may not bring any short-term benefits, but, in the long run, it will not only strengthen the municipality's finances, but will also become an important element of the influence on the development of entrepreneurship (mobilization of investment capital, increase of employment, development of investments that improve the society's quality of life and facilitate conduction of business by entrepreneurs) [Felis 2012, p. 65].

As a result, the municipal authorities' entrepreneurship, expressed by an optimal tax policy, seems to be an important localization factor for enterprises. The analysis of these factors, carried out in the TMA suburban areas, did not, however, show that the tax incentives offered to entrepreneurs encouraged them to locate enterprises in a given area (only 2% of the respondents). On the one hand, perhaps the state aid programs proposed by the municipalities under examination or the way they shape the property tax policy were not motivative. For example, the municipality of Żukowo:

- as part of public aid, exempts new non-residential buildings from property tax in the first year of their use for business purposes;
- applies maximum rates of property tax on other buildings used for business operations.

On the other hand, the costs of property tax may not be significant in the overall structure of SME's costs. In the municipalities examined, the cost of property tax was considered insignificant by 63% of the respondents.

The tax revenues related to business operations, primarily the PIT, the CIT and the property tax, should be influenced by entrepreneurial local-government authorities through encouraging entrepreneurs to pay these taxes in the municipalities where a given business activity is actually carried out. This means that it is important to encourage the persons running businesses to register economic entities in a given municipality or to settle the PIT tax at the place of stay, not the place of permanent residence. Unfortunately, the statistical data on economic activity do not allow estimation of what proportion of enterprises located

⁵ Tax rates are shaped in two manners: 1. by directly setting the amount – this applies to property tax [*Act of January 12, 1991*, Art. 5] and the tax on means of transport [*Act of January 12, 1991on Local Taxes and Fees*, Art. 10]; 2. through the use of the so-called stabilizers, such as a reduction in the purchase price of rye, which the rate of agricultural tax depends on [Act of November 15, 1984 -Transport Law, Art. 6, item 3] and the purchase price of sawmill wood, constituting the basis for calculation of the forest tax [*Act of October 30, 2002*, Art. 4, item 5].

Municipal tax policy is subject to certain objective restrictions. It is not possible for the municipality authorities to set tax rates at PLN 0. It can be noted that the legislator has limited the municipal tax authorities' power only to interference within the framework established by law. A municipality may not introduce non-genuine tax rates, which in the case of the tax on means of transport or the real estate tax could mean their level close to PLN 0.
in the municipalities analyzed have registered offices there (this applies to capital partnerships). It is even more difficult to carry out such an analysis in the case of natural persons conducting business activity, because they are allowed to settle the PIT at the place of permanent residence or the place of stay. This could mean, for example, that:

- the actual enterprise location is the municipality of Żukowo;
- the owner has permanent residence and lives in Gdańsk.

As a consequence, the PIT revenues are transferred to the municipality of Gdańsk, while only the property tax is paid in the municipality of Żukowo.

In the suburban zones under examination, 28.9% of entrepreneurs settle their income tax (PIT or CIT) in another municipality, 30.1% of entrepreneurs pay income tax at the place of permanent residence, and 29.3% at the place of stay; 11.9% of the respondents did not answer this question.

The research results in this regard differ significantly between the two entrepreneurship nests examined, namely:

- 66.67% of entrepreneurs from Straszyn pay income tax in the municipality of Pruszcz Gdański;
- 27.78% of entrepreneurs from Chwaszczyno pay income tax in the Żukowo municipality.

Probably, the tax policy in the municipality of Pruszcz Gdański is more effective, in comparison with Żuków and other municipalities under examination. As a result, the municipality of Pruszcz Gdański benefits from the fact that an entrepreneurship nest exists in its area.

Summing up, it can be stated that the differences between the place of residence and the place of economic activity may affect the income of municipalities. On the one hand, this is indicated by the research results for the city of Sopot, where the quotient of SME location is very high, while actual activity of the enterprises based in Sopot or those registered in the CEIDG⁶ in Sopot is smaller. On the other hand, this is also indicated by the research results concerning the place of income tax settlement by the entrepreneurs from the municipalities examined.

6.5. LOCATION RISK IN DECISIONAL LOCALIZATIONS OF SMEs

The decision on the location of a given economic entity usually brings far-reaching, long-lasting and often irreversible effects on its further functioning. The impact of business-location characteristics on the economic efficiency of enterprises, however, is still underestimated [Adamska 2014, pp. 21–31]. This means that localization decisions are often made without prior analysis, which can lead to realization of location-related risks.

Risk constitutes an inseparable element of human activity, including economic activity. It occurs in all areas of enterprise activity, but it is difficult to predict its direction and strength. It entails a state in which there is uncertainty as to the effectiveness of the decision made and, in particular, as to the actual economic efficiency of its result. Most people associate risk with danger, although risk taking can also result in benefits. Therefore, when making decisions, people usually choose between better chance and greater threat and less chance and lesser threat. When choosing a specific place of business activity or trying to attract or maintain a certain type of business, one should be aware that the decisions associated with it are burdened with certain risk. Each decision on the location of an economic entity is burdened with risk, because it is made under conditions of uncertainty as to the actual localization value and the spatial value of the place, in particular uncertainty about the dynamics of these values [Kuciński 2014, p. 38]. When considering location-risk issues, they can be addressed in four contexts defined by Kuciński [Kuciński 2014, p. 56]. In this part of the study, risk will be considered from the perspective of an enterprise/investor and his/her localization decisions.

Location risk, from the perspective of an enterprise, means "the possibility of threats, occurring at the place of enterprise localization, to the achievement

⁶ CEIDG stands for Central Register and Information on Economic Activity

of the objectives assumed by a given economic entity, but also the opportunity to obtain unexpected benefits in a given location" [own translation] [Kuciński 2014, p. 44]. In static terms, location risk can be equated with bad localization resulting from incorrect estimation of enterprise-localization features, which are significant from the perspective of the investment outlays associated with the creation of an enterprise in a given location and the costs of its functioning in this place. When estimating location risk though, it should not be only analyzed at the time of the localization decision but should be treated dynamically. A location decision that was accurate at a given moment may turn out to be unfavorable in the long run, due to the changing natural, spatial, social, institutional and market environment of a given economic entity [Martyniuk 2016, p. 423].

Location risk is the greater, the longer the time horizon of a given localization decision and the greater the sensitivity of a given business entity to the conditions prevailing at its location. Its evolution depends not only on what is happening in a given enterprise, but also on the changes in its location.

Location-risk level is determined by two mutually--related variables jointly-affecting the value of the enterprise: the random component and the trend component. The trend component is related to the so-called hard location factors (access to infrastructure, labor resources or raw materials). The random component entails the opportunities for business operations. The enterprise's ability to become aware of and recognize the opportunities created by its location depends on its competence in this area and on the intellectual capital, entrepreneurship, the technological, market, social and financial flexibility, in conjunction with the resources occurring in a given location. Due to the fact that location risk results from the cumulative impact of the micro and macro environment on the enterprise as well as from the company's interaction with this environment, it should be treated as an "aggregate" combining many types of risk. As such, the problem is to quantify the location risk. On the one hand, it results from the difficulties in the selection of an appropriate method of its component hierarchization⁷, and on the other – from the difficulties in a reliable estimation of individual components. Therefore, when assessing the risk of location in a given place and time, the goal is not to precisely determine its level, but rather to identify the factors that can make a given location beneficial or not. The threats associated with the location of a given business activity in a given place are identified and the decision makers are made aware of these threats, so that they can include them in their plans and decisions. When making a decision on the localization of an enterprise in a given place, the investor should clearly define the location advantages that may provide him/her with higher revenues or lower costs of running business in this and not another location. When defining these advantages, the specificity of a given activity, the complexity of the production process, the uniqueness of the services provided, the possibilities of financing a given investment, the planned ways of distributing goods and services must be taken into account. What is more, the variables that may occur in a given location are factors independent of the enterprise, such as: the possibilities and the expectations of the local labor market, the rules of cooperation with suppliers, the customers, the subcontractors, the demand, the transport infrastructure, and ecological factors. The local authorities' policy is also of key importance, as they can protect a given business profile by using various preferences. Therefore, location-risk assessment should be one of the primary activities associated with the implementation of a specific business venture in a given place, carried out before undertaking business activity and repeated throughout the time of its operation [Martyniuk 2016].

It seems particularly important to take location risk into account when choosing business location for small and micro enterprises. This is predisposed by the characteristics of these entities, resulting from their size, primarily their local nature and financial resources. According to empirical research, however, when deciding on the location of an enterprise, location risk was

⁷ One solution that can be used to determine the rank of individual risk components may entail application of a point scale of risk assessment used by internal auditors.

taken into account by every third owner of a micro enterprise (37.8%) and a small enterprise (32.4%). Only 5% of micro-entrepreneurs researched this aspect before making location decisions, while in the case of small entities, such research was carried out only by 2.7% of the respondents. Conversely, small-enterprise decision makers have better knowledge of the local law (the local spatial development plan and the study of land use conditions and directions). These documents contain the information and guidelines that determine the company's operations in the short and the long term. 55% of the owners were familiar with the provisions of the local spatial development plan, while 34.4% of them were familiar with the study of land use conditions and directions. It can therefore be concluded that the larger the company, the greater the knowledge of the provisions contained in the documents concerning spatial development. This relationship was confirmed by the chi-square test value p <0.05. Thought must be given to whether this knowledge indicates the entrepreneurs' awareness of the consequences resulting from the provisions contained in these documents.

Parameterization of location risk based on the measures referring to its individual components can be carried out using the model developed by Godlewska-Majkowska [Godlewska-Majkowska 2016, pp. 208-211], which distinguishes four location-risk components: demographic risk, work-factor risk, economic risk, public-administration risk. In this model, the risk components determined in this way are affected by a total of seventeen factors, including ten stimulants and seven destimulants. This model, however, seems to be usable and useful for large and medium-sized enterprises, due to their financial capabilities and the lack of close links between the owners (in this case their place of residence) and the business activity. For smaller entities, it is suggested that assessment of a given location (location-risk estimation) should not only be carried out with regard to the costs associated with the purchase or rental of property, but also with respect to the factors related to road transport infrastructure, public transport infrastructure, the dominant function of space, social infrastructure, and the local legal conditions (the local spatial development plan

and the study of land use conditions and directions) (Table 6.6).

Table 6.6. Propounded areas of location-risk analysis fo
small enterprises

Risk component	Individual element					
Road transport	National accelerated-traffic road					
infrastructure	National road					
	Provincial road					
	Regional road					
	Local road					
	Regional transport node					
	Other					
Public transport	Public transport node					
infrastructure	Commute time to the city – via public transportation – via private transport					
	Other					
Key planned elements of the transport system	Supralocal road system					
	Public transport					
	Other infrastructure					
Dominant functions	Single-family residential functions					
of the space	Multi-family residential functions					
	Local services					
	Trade – large-area trade – retail					
	Production and craft factories					
	Other					
Social infrastructure	Schools and kindergartens					
	Cultural facilities, including tourist attractions					
	Local sports facilities					
	Healthcare Centers					
	Other					
Local law	Local spatial development plan					
	Decision on land development					
	De minimis aid rules for enterprises					
Local policy	Programs offered by local employment office					

Source: Martyniuk 2016, p. 425.

In the first stage, the decision maker can rank individual risk components based on personal needs. The ranks determine the importance of a given component for the decision maker. Each location can be then assigned points on a scale of 1–100 (see Table 6.7).

65	Location	risk in	decisional	localizations	of SMEs
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Risk component	Rank (%)	Number of points for location			Rank × number of points				
		Α	В	С	D	Α	В	С	D
Personal factors	25	50	20	10	20	12.5	5	2.5	5
Potential local demand	20	40	15	15	30	8	3	3	6
Road transport infrastructure	10	30	45	10	15	3	4,5	1	1.5
Public transport infrastructure	5	5	25	25	45	0.25	1.25	1.25	2.25
Key planned elements of the transport system	5	20	25	25	5	1	1.25	1.25	0.25
Dominant functions of the space	10	20	35	30	15	2	3.5	3	1.5
Social infrastructure	10	15	35	20	30	1.5	3.5	2	3
Local law	5	20	20	30	30	1	1	1.5	1.5
Local policy	10	30	50	15	5	3	5	1.5	0.5
Total	100	х	х	х	х	32.25	28	17	21.5

Table 6.7. Exemplary location-risk analysis for micro and small enterprises – locations A, B, C, D

Source: own elaboration.

Some components can be assessed based on observation, i.e. individual estimates (e.g. personal factors, dominant functions of the space, social infrastructure, road and public transport infrastructure, potential demand). To assess the other components (local law, local policy, key planned elements of the transport system) a visit to the local municipality/city/town and the employment office is required. The components in this group have been included in the form proposed above, in order to make the owners of micro and small enterprises aware of the fact that these factors - in addition to personal views - should be considered when making localization decisions. The location with the highest number of points is characterized by the highest location risk. In the example provided, the location with the highest location risk is location A and with the lowest location – location C.

7. THE EDGE CITY PERSPECTIVE BASED ON POLISH ENTREPRENEURSHIP NESTS

The current shape of the Polish suburbanization process requires transformation, in order to develop a well-functioning metropolitan area characterized by high quality of life. It seems that one of the postulates for the shaping of network relations in this area may involves the strengthening of the potential and expansion of the entrepreneurship-nest system. Entrepreneurship nests have the potential to limit certain adverse external effects of suburbanization. They are characterized by higher than average intensity of economic activity, resulting from the operation of mostly micro and small enterprises in these areas. This group of enterprises may therefore become a factor facilitating the development of entrepreneurship nests, which results from such characteristics of these economic units as:

- the local character, strengthening the loyalty to the supplier and the recipient/customer, oriented at employment of the nearby residents of suburbs;
- for one thing, flexibility, expressed by action and a possible quick response to market changes, for the other, the possibility of conducting business activity without changing the spatial development;
- responsible involvement of equity and creation of reserves (field and capital reserves), leading to permanent rooting in the suburban areas exhibiting attributes of a functional metropolitan area;
- openness to innovations in a neighborhood with an area of creative metropolization.

These features enable stable, balanced development of suburban areas, with participation of the middle class, a significant part of which are the owners of SME-sector entities. The Authors' research shows that, on this basis, the Polish form of an edge city has developed, containing entrepreneurship nests as its cells. Interestingly, such a model refers to the visions proposed by F.L. Wright for the Broadacre City from the beginning of the 20th century, where the agricultural landscape is intertwined with the urban grid covered with small households, small manufacturing plants and laboratories (today's SMEs), while the entire structure is complemented with public facilities.

In the existing studies on the Polish urban-rural space (suburban area), cause-and-effect analyses of the territorial spread of the housing function outside the city limits has dominated. The reasons for suburbanization (as a negative process) have so far been thought to lie in the migration of the residents of large Polish cities to the rural areas adjacent to city borders¹, thus reducing the issue of urban-rural areas to the expansion of the housing function only, poorly associated with the development of the accompanying services. One element distinguishing the research carried out is the consideration of economic-activity

¹ Central Statistical Office forecasts show that out of 39 cities with over 100 000 inhabitants, only six (Rzeszów, Warsaw, Wrocław, Kraków, Zielona Góra and Gdańsk) are to register an increase in the population.

development in suburban areas (production function) and the suburbanization-process analysis conducted. Although the suburbanization process is widely recognized as a negative phenomenon, from the perspective of comprehensive rationality (the growing costs of infrastructure, the wasting of time and productivity for commuting, the reduction of environmental resources), it seems that suburbanization cannot be only viewed as the "cancer" boring the rural structures. The choice of living outside the city is made by those residents, who are guided by individual rationality, which partly results from the desire to conduct business activity.

The Authors of the study concluded that, in the analyses of the suburbanization process, the dominant development of the residential function often obscures the second problem, that is spatial development of the production and service function. This may be due to the fact that for decades suburban areas were considered to be rural areas, where economic activity (including employment) was focused on agri-processing production. The edge between the city and the village used to be relatively sharp in Poland. The last twenty years have reduced this sharpness. The Authors consider the recognition of urban sprawl as expression of housing to be a simplification. It seems that the development of the residential function in suburban area is equivalent to the development of economic functions, especially the production activity of small and medium-sized enterprises (SMEs), as confirmed by the research carried out. This is significant for the following reasons:

- **Firstly**: the monothematic nature of the process of diagnosing suburban-area development, narrowed to the migration of urban population to rural areas (neighboring large cities), is a simplification reduced to the mechanism of getting a better apartment.
- Secondly: urban sprawl entails costs and is therefore perceived negatively. The question arises how to limit this process in a democratic society. The path of legal and planning regulation turned out to be ineffective. In this case, maybe external migration will be stopped by investment in the attractiveness of midtown boroughs? The specific population situation of six cities (Rzeszów, Warsaw, Wrocław,

Kraków, Zielona Góra and Gdańsk) results from the overlapping of two tendencies: the emigration of the residents of these cities to suburban areas and the migration of the residents of other cities to the areas that are more attractive professionally and in terms of settlement (the case of Gdańsk).

- Thirdly: a comprehensive suburbanization process, in which housing activity is accompanied by economic activity, would be ideal. The target vector is the strive to balance the place of residence with the place of work. Of course, this is an unattainable goal, but rationalization of the territorialization-of-space-usage factor plays a significant role.
- Fourthly: it seems interesting to answer the research questions of: how and to what extent can a group of economic entities (SMEs) affect the form of metropolis creation and functioning? Is it possible to identify the seeds of metropolitan functions in suburban areas, which are complementary to those functions in city centers (e.g. innovation)?

The concept of the Polish spatial model of suburbanization propounded by the Authors was prepared in reliance on the analysis of the literature on the transformation of Polish cities and based on the research carried out in the TMA. According to the Authors, the highly-significant role micro and small enterprises play in the creation of suburban areas is a characteristic feature of the Polish suburbanization process. It can therefore be concluded that the Polish spatial model of suburbanization is based on a unique element, that is entrepreneurship nests. The research carried out allowed areal (territorial) distinction of economic activity that is on a higher level than its average in the TMA (location quotient). These areas have been identified as entrepreneurship nests. The term covers two main concepts: areas (territories) with relatively higher economic activity, exhibiting features of unit dispersion and, at the same time, spatial clustering, as well as small-scale territories exhibiting features of activity spread (diffusion) to the neighboring units. As such, we can speak of the mechanism of territorial-activity multiplication. Comprehension of this mechanism enabled development of three models of development phases in Polish suburbanization:

- 1. The phase of "self-realization" in which the social factor dominates, i.e. self-realization by increasing the prestige and the quality of life. In this phase, the process of migration to rural suburban areas was not the opposite of the migration from rural to urban areas. Both of these processes entailed different causes and effects. the migration to cities was motivated by employment and eventually by the fact of getting an apartment in the city. The conditions for self-fulfillment are determined by material status. Wealthier residents move from blocks of flats to homes in suburban areas. This migration concerns the middle class. The rule that new housing projects are not preceded by development of infrastructure (technical and social infrastructure) is of significance, which results in spatial disorder and housing monoculture. According to the Authors, this is a phase of imperfect external suburbanization, with many negative consequences.
- 2. The phase of "chaotic melange" illustrates the effect caused by the period of systemic transformation. The liberal spatial planning system, synthesized with the eruption of entrepreneurship, causes expansion of extensive land development that is dependent on the investor's preferences. At the same time, socio-spatial diversity, without signs of segregation, has been increasing. Influential localizations of largescale commercial facilities, transferring patterns from Western Europe, appear in suburban areas, but only in this sector. Work-school-home interrelations are still oriented towards the city center. Spatial planning is still ineffective and limited by the municipalities' poor preparation for carrying out sustainable development.
- 3. The "metropolization" phase that is currently beginning. Mechanisms emerge for creation of local entrepreneurship with a tendency for network connections. This is in line with EU Urban Agenda supporting suburban areas in: the creation of jobs and skills in local economy, the balancing the value of natural resources, the preference of circular economy. This orientation of development will be possible with regard to the creation of functional metropolitan areas under multi-level management

limiting spontaneous urbanization. The public-space creation deficit and shortage of different services are particularly significant, as illustrated in Fig. 7.1.

The results of the research carried out in the TMA indicate that there are two strong entrepreneurship nests - Chwaszczyno and Straszyn (stage I in Fig. 7.2). With regard to the type of activity, the size and the period of operation, the SME-sector enterprises operating there do not differ from the entities located in other cities and municipalities under examination. The only distinguishing feature is the localization intensity of SME activity, especially industrial activity, in the entrepreneurship nests examined. Urban analyses and analysis of the architectural structure allowed inference that the time of enterprise establishment in the entrepreneurship nests overlaps with the period of urban-structure development. Emergence of residential buildings has consequently intensified the development of entrepreneurship. This has been confirmed by the analyses of SME-location determinants, which show that localization decisions were mainly influenced by personal factors related to the entrepreneurs' place of residence in given locations. It can also be stated that the entrepreneurship corridors formed are characterized by distinct localization factors, such as the quality of life alternative to the central-city offer, transport accessibility (at main road lines), the benefits of the localization near central-city borders (at the edge of central-city contact points). The growing of entrepreneurship around the transport corridors is also a feature noticeable on the scale of the towns themselves. This process took place over time and was successively complemented by the development of the settlement unit. It seems interesting that the dynamic development of entrepreneurship in selected towns is not disturbed by the lack of a developed public-transport system. With regard to the transport-infrastructure factor, access to the public road network is sufficient for dynamic development of entrepreneurship.

It is forecasted that, at a further stage of metropolis development and SME-size expansion, networking may occur between the growing entrepreneurship nests. Further development of the SME sector in suburban areas, and thus expansion of entrepreneurship nests (stage 2



III. METROPOLIZATION

emergence of entrepreneurship nests

- the strengthening of interrelations and the networking



Fig. 7.1. The metropolization phase Source: own elaboration.

in Fig. 7.2), will result in the creation of a characteristic Polish model of an edge city (stage 3 in Fig. 7.2). In the United States, edge cities are believed to be based on regional retail parks, office and industrial parks. In Poland, clusters of micro and small enterprises may become the base of edge cities.

The Authors clearly emphasize that generation of conditions for entrepreneurship-nest development in suburban areas constitutes a potential for creation of sustainable development within the work-home-services-leisure interrelations. For entrepreneurship development to really contribute to sustainable development and bring measurable benefits for the entrepreneurship nests (understood as a municipality, city/town), local authorities should effectively encourage entrepreneurs not only to conduct business, but also to settle taxes in a given area. In this way, economic-activity development, combined with an increase in the municipality's income, will have greater positive impact on the improvement of the quality of life and infrastructure, and thus the influx of new entrepreneurs to a given area. As the research shows,

however, further improvements are indicated in this regard.

The answer to the question of what type of suburban-area structure and form will arise due to the depletion of the simple energy of uncontrolled urban sprawl constitutes an important element in this study. After all, this process will not last forever, considering the spatial-management instruments used by the State, regions and local authorities (municipalities, districts). For this purpose, five models of functional interrelations between the central city and the suburbs have been developed, in relation to the evolution of the after-effects:

- I traditional / historical model (city and suburbium);
- II garden suburb;
- III *American dream* (rapid development dictated by mass production and consumption);
- IV *urban sprawl* (extensive spilling of cities into metropolitan areas);
- V *edge city* (a new form of metropolitan regions, areas functioning via interrelations between different centers).



Fig. 7.2. Spatial models of Polish edge-city development within the context of entrepreneurship nest existence Source: own elaboration.

As models I–V become saturated with functional structure, the role of SMEs is expressed increasingly clearly. Within the sphere of a perspective projection of the suburban area, the edge city is crystallizing itself. Two relations are, of course, most important in this model:

- the central city with global connections and the concurrent loose links with the suburbs;
- the "edge" between the weak remnants of a degraded center and the strongly developing suburbs with

network connections, taking over the former function of the center.

Real concretization of the above models is possible using an individualized form of the Polish variant of suburbanization. The distinguishing feature of the individual form of suburban area is the creation of entrepreneurship nests as a strong driving force for spatial development. The Polish edge-city model does not assume a sharp reduction in the center (the case of Detroit). It is based on intensive crystallization of entrepreneurship nests, with growing network-connections, which do not, however, weaken the metropolitan center, but rather generate supralocal and even global links (e.g. production of cosmetics that are present on global markets).

Summing up, it can be stated that the Polish model of an edge city is definitely more balanced in terms of economic, social and ecological functions. Its base should be entrepreneurship-nest networks, with growing functional links to the place of residence, services and recreation. The core of the city (the center) seems to somewhat "share" its significance with the local system, without losing the attributes of prestigious metropolizations (e.g. world festivals, fairs, campuses).

The models presented do not fill the spectrum of SME-activity presentation in entrepreneurship nests. They rather constitute an initiation of a scientific discussion, development of which will depend on the need to study this issue within a wider environment. The Authors are aware of the problem essence, which is why it is necessary to consider the issue of SME-sector enterprises in more depth, in order to describe the possibility of a Polish edge city operating on the basis of entrepreneurship nests. It seems, however, that based on the research carried out, it is possible to select the first factors influencing large accumulation of SMEs in entrepreneurship nests.

The ultimate conclusion deriving from the research results is the model of SME-development stimulants, which describes the most important aspects identified in urban and economic analyzes

The main determinant strengthening the process of SME localization in suburban areas seems to be the housing conditions based on single-family housing,



Fig. 7.3. Model of the stimulants of SME-development in suburban areas Source: own elaboration.

adapted to the needs and ambitions of the entrepreneurs - residents, investors. It has been noted that, with regard to SME development, the conditions allow the use of the existing resources (e.g. starting a garage business) and combination of family life with business activities in the same location (not necessarily in the same building, but in the same town). This is important due to the limited financial resources of micro and small enterprises and their ability to erect new facilities. In this context, the enterprises emerging in suburbs can be perceived as elements of sustainable development within the work-housing-service-recreation interrelations. Spatial stimulants were also identified, which constituted an additional impulse for SME development. The main stimulant is the transport system with communication corridors and transport nodes of regional importance.

The above-presented model of the stimulants of SME development in suburban areas begins the research on the issue of SMEs in metropolitan context. As such, additional questions arise:

- regarding the development of the urban form of entrepreneurship nests, in the context of internal and supra-regional connections;
- regarding the sustainability of the development process;
- regarding the impact of contemporary migration and globalization processes on the shape of entrepreneurship nests.

Nevertheless, it seems that SMEs, due to their structural features, constitute an important element in the development of a modern metropolis and guarantee its sustainable development.

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The work is multidisciplinary in nature, as it combines the issues related to social sciences (economics) and technical science (urban planning), which allowed a new approach to the analysis of the phenomenon of suburban structures and, as part of that - to analysis of the issues related to the development and spatial concentration of business entities. In this context, the Authors have developed a number of new concepts associated with the issues analyzed, i.e. "entrepreneurship nests" and the "bandwidth of entrepreneurship".

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The most interesting considerations refer to the essence of suburbanization, its course and the attempts to control this process in the USA. The Authors have successfully collided the theoretical intentions with their practical implementation, pointing to the complexity of the game of space, in which the impact of the market and the public choice intertwine. The monograph constitutes a significant step forward in the discernment of the suburbanization mechanisms, under Polish social, economic and spatial conditions. It undertakes an important and significant topic of an applicative dimension. The Authors' observations and conclusions indicate that this phenomenon has no universal model. They also suggest its possible evolution under Polish conditions, emphasizing the multifaceted and complex nature of the processes constituting it. The monograph contains specific and practical observations enriching the knowledge of suburbanization, for the economists and urban planners as well as the public administration (the decision makers, spatial planners).

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