Urban Decentralisation as a Conversion Process for Restoring Structures of Urban Space

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***Abstract*—In terms of their geographical definition, decentralised and central locations are inseparable from each other. Centres influence cities, both in their dominance over competing cities and in their regional development – decentralised locations in the context of such urban structures are an important stimulus for innovation. Centres exert significant influence on the evolution and development of density of the location, on the economy, the environment, social infrastructure and on society in general. These interlinked factors describe urban space, meaning the concentration of a wide range of products and services on offer in a confined space.**

***Index Terms*—decentralisation, urban processes, living and working conditions, new technology**

I. Introduction

Processes of decentralisation are leading to increasingly longer distances between the urban core and peripheral districts of a city. Both in spatial and social terms, a gap exists between urban centres and decentralised districts in cities. Such potential differences gradually endanger urban space.

What does decentralisation signify in an urban context? What urban processes are there and do they lead to spatial dispersion? To what extent have information and communication technologies contributed to decentralisation and led to new living and working conditions in urban areas?

II. Urban Decentralisation and Regional Planing

Decentralisation refers to a process of suburban settlement that takes place far away from the urban centre [1]. The concept of spatial centrality correlates with (geographic) decentralisation. From a geographical perspective, decentralisation cannot be postulated without the notion of centrality (in other words, starting from the centre). Over recent decades, decentralisation in the urban context has become a term used to describe multiple processes of urban development. Viewed from the urban centre, the decentralised location becomes an economic and political determinant of urban processes as a result of spatial expansion (thereby leading to spatially relevant points of reference not being taken into consideration).

While centralisation represents a complete range of requirements for a centralised environment, decentralisation serves as its counterpart.

Decentralisation in an urban context signals a lack of infrastructural development and inadequate provision of necessary means of control and use (which represent urban spatial structures). Extensive use of private transport, the individual's desire for more "open space" as well as information and communication technology strengthen the spatial redundancy of decentralised development.

"The meaning of the term "decentralisation" cannot be adequately explored unless it is understood as a constituent element of the conceptual pair: "centralisation/decentralisation". Hence it is used to designate opposing strategies of organisational developments [2]." The terminology used for decentralisation results from economically relevant processes of centralisation generated by globalisation [3]. The example of the urban image picture illustrates this in the form of the structural change of the urban corpus (from the tertiary sector to the quaternary sector). Rising prosperity and the use of new information and communication technologies implies the spatial splitting of residential areas from work places as well as the outsourcing of companies from urban centres [4], [5]. In this context, the weighting of economic factors in regard to spatial development assumes a much greater significance. The city and its centrality are no longer exclusively considered from a geographical point of view. The factors that describe urban space are gradually measured in terms of economic developments (which bring city space to its limits from a geographical perspective). Consequently, this points to the neglect of necessary social processes [6]. The influence of information and communication media (and the Internet in particular) implies a uniform spatial distribution (of regional disparities) [7]. Hence spatial planning is required to deal with ever-expanding "post-industrial disparities" and lead them together into an urban structure. The challenge lies in the holistic consideration of the city in order to convert areas of agglomeration which have

Manuscript received January 1, 2016; revised May 1, 2016.

doi: 10.18178/ijscer.5.4.337-340

remained constant since the beginning of the decentralisation processes into a unified urban landscape [8].

III. Decentralisation through Processes of Urbanisation and Suburbanisation

"Compared to the concept of urban drift, which is solely based on demographic and structural aspects of settlements, urbanisation also embraces socio-psychological and socio-economic components [9]." Urbanity in post-modern urban society is a social and societal way of life which focuses on the structures of urban space.

Wirth declared that urbanity is a life form in spatial contexts in terms of determinants, the number of inhabitants, size, density, social and societal contexts and the extent of colonisation (over time) [10]. The extent of colonisation plays an essential role in understanding processes of suburbanisation since these are initiated by dispersion processes (period). The relationships between the density and size of a given "area" (urban space) are intrinsic to any discussion of urbanism, city, suburbanisation, de-urbanisation, dispersion and shrinking processes. Consequently, the urbanisation (of urban ways of life and lifestyles) leads to suburbanisation and dispersion processes which are related to the decentralisation of urban areas.

In recent decades the functional understanding of urbanity has led to massive spatial alternation. In postmodernism, urbanity also designates an affectively instrumentalised ideology of mankind, one which is characterised by spatial modulation and the consequent loss of urban space. The range of terminology which forms urbanity today is considerably more complex due to categorised dimensions. It is more complex in terms of the plethora of requirements (social ways of life) and in regard to spatial structure (the structure of the city area resulting from construction).

"In highly industrialised countries [one can observe] the expansion of cities resulting from urban exodus to the surrounding area and the concomitant intraregional shifting of the focal points for growth from the core area (centre) of a town to the urban periphery and the suburban area (suburbia)." Suburbanisation is measured by the increase in the share of the population and employment opportunities in the surrounding area or employment levels in areas of agglomeration and the decrease in the corresponding share for the urban core [11]." Here, it is vital to emphasise the dynamic development that has resulted from motorised private transport and the dispersed positioning of shopping centres (shopping malls). A gradual process of suburbanisation occurs at different levels in this regard. In general, such levels become evident through the shifting of functions to decentralised locations and are categorised as follows: suburbanisation of industry, suburbanisation of the population, suburbanisation of commerce and the suburbanisation of services [12].

IV. Ex-Urbanisation, De-Urbanisation, Counter-Urbanisation and the Importance of Infrastructures and Decentralised Locational Developments

"Ex-urbanisation is the shift of settlement and population growth from metropolitan areas to neighbouring and still predominantly rurally structured regions which are still linked by commuter traffic networks to the (metropolitan) urban region. Reasons for ex-urbanisation can be found in the preference for such spaces to be used for residential and commercial purposes [13]." Yet this results in economic processes which do not take a very real human scale into consideration: the costs of infrastructure fall in and around the urban fabric to the detriment of the shrinking surrounding regions. Different kinds of infrastructure already exist as a high-quality asset at municipal or local authority level. They have to be made available for the spatial expansion of ex-urbanisation or suburbanisation accompanying development.

According to Dege, "ex-urbanisation" is a process of spatial growth which should be viewed in conjunction with counter-urbanisation and suburbanisation processes. The reason is down to the steady growth of agglomerations in recent decades. In this regard, the significant infrastructural costs of schools, universities and industrial zones in dispersed locations leads to further suburbanisation in the "peripheries" [14]. Decentralised locations become sites that "belong to the centre" in the urban context. However, they are not linked (in terms of infrastructure) to the urban network on the supply side. This creates an imbalance, caused by planning affiliation on the one hand and a move towards autonomy in the administration on the other. "De-urbanisation is accompanied by a transformation of the existing balance of specific competitive advantages, through the use of new technologies for example. This results in new stimuli for urban drift in regions offering favourable conditions, so that deindustrialisation tends to occur primarily in favoured regions [15]." In regard to ex-urbanisation processes proceeding from suburbanisation processes, this means that sites in the previous "centres" undergo a similar process of spatial extension. In terms of its flexibility, the potential of spatial development resides in the spatial adaptability of the surrounding areas and their communities. "Counter-urbanisation is a special case of de-urbanisation which involves ex-urbanisation. It includes deindustrialisation in core production areas and agglomeration disadvantages in large urbanised areas together with the enhanced accessibility of smaller cities and rural areas. It describes a loss of importance on the part of big cities in favour of smaller cities and rural areas. The causes were the increases in retirement migration and the growing number of commuters as well as the decentralisation of the workforce in favour of employment in rural areas [16]." According to Berry, this process results from many overlapping effects which ultimately lead to changes in spatial structures. In addition to other factors, he attributes this selection to the following points: the number of inhabitants is rising

faster than real estate values, a negative coefficient in the concentration of production sites and a self-regulation of inter-related factors due to property values and income levels [17]. Counter-urbanisation occurs exclusively as a special instance of ex-urbanisation, but is essential in order to understand the loss of urban spatial structures. For his part, Mitchell suggests that the shift to peripheral locations is due, among other things, to technical innovations and the versatile use of the Internet [18]. The demands (are) for far more informal spaces as well as more natural and recreational space (a healthy environment) in the urban context. Not all basic needs of the "new economy" can be implemented in the city centre (the existing physical space). Hence dispersed space is gaining in (economic) importance compared to the city centre (with "recreational qualities" defining new "liveable" spaces). As a symbol of urban spatial structure and an urban way of life, the city centre is becoming neglected due to its lack of adaptability. Here, the resulting conclusion is that the frequency of commuter traffic is declining in the core cities [19]. The new "decentralised centres" which have emerged from suburbanisation (and de-urbanisation) lead to a shift in the volume of traffic towards dispersed areas. As a result, "higher" spatial potential is attributed to dispersed locations, which in turn leads to companies and service providers establishing their businesses in "industrial zones". These have a high frequency distribution in dispersed locations. On the basis of their distributions, location and infrastructure, they become "centralised" control points from peripheral locations (which has the benefit of shorter commutes and illustrates the decline in commuter frequency).

V. The Dispersion and Absorption Process as a Dynamic of Spatial Modulation and Ways of Life

Dispersion processes or absorption processes result from "the dynamics of demography". In an urban context, they occur at increasingly more frequent intervals due to population growth, the use of new information and communication technologies (Internet) and the resultant modes of living and working. Ravenstein defines the correlation of migration in accordance with three regularities. This grouping is based on motive(s), distance (from the place of birth) and the migration behaviour of men and women. The same grouping follows a classification of migration in five points referring to local migrants, short-journey migrants, migration in states, long-journey migrants and temporary migrants [20].

Motorised private transport, combined with decentralised residential areas of the "New Economy" which themselves depend on the opportunities that have opened up as a result of the new communication media, will not become any less as a result. Here, the distance to the "place of business" plays a role. This reference is fed back to individual commuter movements from peripheral areas to dispersed locations. Dispersion and absorption processes should be regarded as special instances of ex-urbanisation, sub-urbanisation and de-urbanisation for a broader consideration of inward and outward migration or the displacement of residential areas. A mathematical model explaining dispersion and absorption processes is provided by the distance or gravitational model proposed by Zipf. This hypothesis (the "P1P2/D hypothesis") explains the interrelationships of "demographic dynamics", a term referring to the number of inhabitants, the regions (P) and their distances (D).

As dispersed spaces in conurbations continue to grow, they account for a greater number of the population than the city centre, thus decreasing the distance between the point of origin and target region. Growth is quantifiable in each area. Hence a standard of information needs to be established and apply to the "regions" in order to be significantly comparable to other locations [21]. Dispersed locations should be regarded as potentials for spatial diversity and focus accordingly on processes of dispersion and absorption.

VI. Re-Urbanisation, Segregation and Decentralisation, as Well as New Ways of Urban Living and Working

"The most recent development of conurbations is characterised by an increase in the proportional size of the population and number of employment opportunities within city centres contrasted with a decrease or stagnation in the surrounding area (a reversal of the suburbanisation process) [22]."

The centralised – and highly developed economic locations offering restricted individualisation (shopping malls, for example) require districts with higher levels of individualisation. Compensatory areas based on processes of decentralisation have to be implemented for this reason. A balance between the spaces – which leads to a balanced conglomerate and ultimately shape urban space [23]. As a focus of the re-urbanisation wave, urban space is supposed to provide places to live for the "New Economy". After all, both dispersed and peripheral locations compete with each other. The re-urbanisation process further exacerbates such spatial segregation, leading to a classification of spaces and to the development of new ways of urban life. This dual process reinforced the spatial individualisation and formation of a new milieu in which subcultural classes emerge and disappear.

VII. Conclusion

Suburban spaces and their processes must first be categorised if we are to recognise the potential of decentralised locations (resulting from suburbanisation processes). In effect, the pivotal issue here is one of "dispersed suburbanisation" which indicates a greater rate of growth than peripheral spaces because they more directly relate to the city centre.

The influence of information and communication media determines a uniform spatial distribution of regional disparities. In summary, the alignments which have been identified in the spatial development of companies can equally be explained in terms of the "New

Economy" and the "Old Economy". Spatially, this is illustrated by a similar distribution of options for locations in the agglomerations. Dohse interprets this as a kind of path dependency and also assumes that as a result, the hierarchy of cities apparently remains unaffected or cannot be fully reversed.

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