Abstract
This article describes the differences in perception of urban space, functional relations and needs of the inhabitants, observed in Polish cities and compared to American cities, focusing on the current approach to new development in Kraków and Phoenix in Arizona. The article particularly articulates such problems as transit and parking in view of the city’s functionality as well as their ecological and esthetic impact.

Keywords: city, Polish city, urban planning challenges, city zoning enforcement, aero-ecology, transportation, parking challenges in old city centers, public space

Streszczenie
W artykule opisano różnice w interpretacji przestrzeni miejskiej, funkcjonowania miasta i potrzeb mieszkańców, które mogą być zaobserwowane w miastach polskich i miastach amerykańskich. Różnice te nakreślone zostały przede wszystkim na podstawie Krakowa oraz Phoenix w Arizonie z naciskiem na problemy komunikacji i miejsc parkingowych oraz wpływu ekologicznego i estetycznego tych dwóch aspektów funkcjonowania miasta.

Słowa kluczowe: miasto, miasto polskie, gospodarka przestrzenna, egzekwowanie zasad zagospodarowania, aero-ekologia, wyzwania komunikacyjne w starych centrach miejskich, przestrzeń miejska
A vast majority of people have created, in their mind, an idealized image of a city in which they would like to live. For most, that city is aesthetically stimulating, clean, safe, wealthy in efficient public services, economically, culturally and educationally diverse; as well as devoid of racial, economic and ethnic divisions. But, that same majority will agree that this is not the city in which they live. The condition of world’s cities rarely meets the expectations of urban dwellers and is often the reason for their dissatisfaction and frustration.

The Principal Urban and Architectural Commission (Główna Komisja Urbanistyczno-Architektoniczna) set up on behalf of the Ministry of Infrastructure and Construction believes that spatial development in Polish cities is in a state of clearly visible and palpable crisis [1, p.16-34]. Many urban planners agree that the art of urban design drastically declined at the turn of the 20th and 21st centuries. Paradoxically, urban environments created during previous centuries are often more flexible, durable and interesting than those established by modern planners, who surrounded by an arsenal of technological tools (from lighting, microclimate control to engineering and material inventions) lack legal avenues allowing for effective management of urban development. The Commission claims that European laws and policies are not being respected in the development of modern Polish cities. Ignored are, among others, the provisions of the Landscape Convention adopted by the Council of Europe in Florence in October 2010, as well as the provisions of the Leipzig Charter, which recommends special attention to urban space, of any size, as it encompasses irreplaceable economic, social and cultural values [1].

The result of such lawless behavior is a visible lack of cohesive urban fabric, low standards of urban infrastructure (especially in the newly built residential and office developments), chaotic commercial areas, insufficient and random parking system (often contributing to paralyzed vehicular traffic), streets littered with advertising and an overall devastation of heritage – both environmental and cultural. Additionally, due to the lack of legal venues which allow control over the quality of architectural assets (development meets only basic requirements of Local Spatial Plan (Miejscowy Plan Zagospodarowania Przestrzennego – MPZP and historic preservation requirements)), lack of public participation and lack of coordination with infrastructural investment and economic appropriations, planning takes on a solely administrative and technical form. The observed crisis is a direct result of insufficient coordination of investment projects exacerbated by a lack of consistency in supervision and enforcement of spatial development principles. Such development does not protect the public interest and significantly impedes the functioning of the city, reducing the quality of social, cultural and economic space. Understandably, urban development ought to be based on the paradigm that any urban space, also private, is a public matter. The Commission believes that in order to ensure urban development in harmony with the principles of sustainability and
protection of cultural wealth contained within the urban tissue, it is necessary to create coherent and thoughtful spatial plans, in accordance with European and national laws. Such development enables coordination of investment processes thus avoiding disputes and conflicts and ensures a consistent implementation and enforcement of development plans. This is, of course, only one of the methods of managing the city’s growth. There are examples of cities where other methods of control have proven successful. Houston, Texas can serve as one of the examples of such cities. Houston successfully developed without a zoning ordinance producing a well-formed urban center rich in interesting architecture, public space and cohesive streets. The development of the city is based on economic factors exemplifying traditional free market rule, where the control over land use of private land is considered unlawful. However, it is important to remember, that a lack of ordinance does not eliminate the requirement to follow and enforce national and local building codes and requirements [13, p. 31–34].

Weather with or without zoning, cities have their genesis in a global need to create human clusters with a greater density of inhabitants, a need for intensification of interpersonal contact as well as an increase in productivity and creativity outside of agriculture. Cities are inhabited by people with a diverse cultural and social structure, employed mainly in trade, industry, services and crafts. Despite the fact that city dwellers share huge cultural differences and geographical distance, and the cities they have created differ in layout, function or size – their components, method of use, social meaning and general outline vary minimally. Despite vast distances separating towns and cities in various parts of the world, industrial, transport (air, port, railway), service, religious and tourist cities have a global presence. The size of the city determines the per capita income of its inhabitants; size influences their creativity (statistics show that a higher number of inventions and patents is filed in larger cities) and their productivity – in large cities, residents work more efficiently; including walking at a faster pace [11]. Large urban centers, with a high concentration of residents, allow for a more efficient use of infrastructure, as there are fewer roads, pavements, gas stations, cables, water and sewage pipes for every inhabitant. Unfortunately, along with size and density comes an increase in criminal activity as well as higher morbidity (for example: large cities have a higher number of AIDS cases) as well as challenging administration due to the vast diversification of residents’ needs.

The unique characteristics of urban residents, mentioned above, did not appear immediately but rather followed the lengthy and gradual development of large cities, which dates back to the fourth millennium BC. A better documented, global proliferation of cities intensified during the Middle Ages giving rise to new city laws and innovative spatial concepts of urban development. The Muslim cities and large cities of the Far East (Beijing) experienced a similar development as European cities of that time. Unfortunately, a lack of knowledge about the consequences of dynamic urban development, especially in the area of public hygiene and ecology led to the stratification of urban population and an economic division of the central district and workers’ districts, causing insufficient organization and unhealthy, toxic living conditions in narrow tenement houses, basements, mansards or overcrowded outbuildings.
The second half of the nineteenth century had a significant impact on the way many modern cities were shaped. In order to repair the urban tissue created as a result of the rapid and marginally controlled urban development of the previous centuries, new concepts of urban development began to be implemented. They consisted predominantly of separating burdensome urban functions (such as industry) from less onerous zones (service or residential) and by creating land use sections based on functional zones. In the 1920s, a committee, which adopted the name Congres International d’Architecture Moderne (CIAM), was formed under the leadership of world’s pioneers of architecture and urban planning such as Le Corbusier, Walter Gropius and Mies Van der Rohe. Their ideas and new knowledge about public health translated into concepts of modern urban design and were written in the Athens Charter (Charte d’Athènes) adopted in 1933 at the CIAM congress in Athens. These ideas, such as the garden city (Ebenezer Howard, Letchworth, England), gave shape to new urban units, which were built according to the rational standards of a healthy living space established at that time, transferring urban residents from outdated urban development to modern, well communicated, organized and hygienic buildings – a city was ready to serve many different people [7].
After the Second World War, urban development focused on the reconstruction of cities destroyed as a result of hostilities and on their simultaneous modernization based on previously implemented theories. The city as a functional unit was to provide housing, work, rest and transit. Housing, however, held the most important position in urban design. Its surroundings included open space for recreation, and a place of work within close proximity. Communication serving as a connector between these functions was of secondary importance. However, the constant influx of people and the popularization of automobile meant that city boundaries were increasingly redefined and existing communication systems proved to be insufficient. Lacking thruways, speedways and adequate parking cities began to "choke", giving rise to a "city for cars" equipped with multi-lane expressways and non-collision intersections. In addition to wide arteries, thruways and access routes, in many cities in the world and most European cities, modernists introduced large-scale multi-family housing developments, or colloquially speaking, "blocks of flats". Those generated a new series of challenges for contemporary urban planners concentrating a large population in one place. Urban planning goals of sustainable development, maintaining the city’s identity, providing a sense of security, intensive social life and efficient healthcare proved to be a difficult challenge for contemporary urban planners, just as they were during the entire long history of the city. The goal of contemporary planners, like in previous periods, is to regulate and streamline...
development processes and mitigate conflicts which arise during urban growth. Knowledge about urban development and residents’ needs increases with time, but remains insufficient as controlling urbanization also requires enormous financial expenditure and relies heavily on effective management methods.

In Poland, an unstructured system of spatial management, described by the Architectural and Urban Commission, entails many undesirable social problems, which include pathologies, frustration or conflict – all resulting from social alienation caused by difficult communication in urban centers, closed suburbs, lack of attractive green areas, public space or public services. The disorder in spatial management consisting of inadequate coordination of construction projects, disorderly building placement along main roads and arteries as well as general chaos of the architectural forms originates in a lack of enforcement of regulations controlling urban development. This causes inefficient infrastructural expenditures, unforeseeable and thus unprofitable development of public transport and reduced appeal for investors resulting, consequently, in unfavorable demographic processes, and above all, deepening depopulation of centers in favor of suburban areas [9].

Rehabilitation of existing urban fabric offers a partial solution to the objectionable development direction. Existing historical buildings, often a context for the development of further components of the city, can influence formal and functional transformation.¹ The historical buildings of the city centers devoid of their original program become balanced by mitigating the waste associated with their demolition or, alternatively, the phenomenon of sprawl. However, they must be subject to certain functional, technical and technological adaptations, changes in ownership structure and an improvement of the surrounding public space. In many Polish cities, the ownership situation is the biggest obstacle standing in a way

¹ Let’s remember that the Krakow Market Square was not built as a multi-story hotel and shopping district. It achieved its current look as a result of a multigenerational process of transformation and adaptation of existing urban tissue.
of successful adaptations and modernization. In the United States, the expropriation right for the benefit of public interest is a helpful solution; the law makes it possible to take over private property if it constitutes a special social need.

At the same time, the revitalization of existing urban tissue must take place in a way that does not further contribute to the degradation of infrastructure, communication capabilities and the quality of public space. An example of an undesirable direction in the field of revitalization may be the creation of hundreds of thousands of square meters of office space in the very center of Krakow; in places where communication and parking are already a major challenge for current inhabitants and other users. The scale of new investments must depend on the possibilities of existing infrastructure. Development of such as large-scale business parks or multi-thousand-inhabitant housing estates, should be created outside historical urban centers, as was the case with the Paris office-exhibition-residential-commercial district – La Defense. Krakow’s “La Defense” could be created, for example, in a place like the old foundry plant (Kombinat), and be part of the revitalization project connecting the areas of the former steelworks to the city. Smaller scale projects using today’s technological capabilities could be created in the historic center, where the infrastructure allows for unburdened use.
In Phoenix, the general plan regulating the type, scale and quality of build environment is very carefully enforced. Thanks to this, contemporary development is consistent, especially considering the urban origins of Phoenix, where on low-cost land there has been an uncontrolled sprawl of single-story buildings. Planners in charge of urban development decided to change the city’s character by implementing the ideas of sustainability into the city’s General Plan, thanks to which, a new center emerged. The streets are defined by coherent structures and functional public space. European traditions of the commercial street combined with the American vehicular addiction harmoniously co-exist. Alongside automotive conveniences, such as wide arteries or below and above-ground parking, a diversified public transport continues to develop. It is worth noting that a harmoniously functioning city center depends to a large extent on traffic flow. The efficient use of multi-story parking garages eliminates the need to search for space while maintaining the fluidity of vehicular flow. The availability of parking, diversified public transportation and pedestrian pathways within the strict city center relieve congestion and facilitate transit.

Living for a part of the year away from Phoenix, in the center of Krakow, I observed that I need a car very sporadically, but I do own a car. Furthermore, all my neighbors own cars. The car is and will be a part of human culture for many decades to come; its propulsion system may change, it may become autonomous, but everything seems to indicate that it will not disappear from the streets. Therefore, eliminating parking spaces in cities or designing apartment complexes, in places where regulations allow for the construction of less than one parking space per housing unit is a lack of understanding of human nature and the law of diffusion of innovation\(^2\) and is responsible for such problems as observed in Krakow’s Zabłocie, Czyżyny or the Old Town (Stare Miasto). It does not matter how beautifully harmonized is the urban layout, how well designed the architecture and surrounding open space, if the streets are littered with cars parked or immobilized by traffic it creates chaos, disorder and frustration.

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\(^2\) The theory of diffusion of innovation seeks to explain how, why, and at what rate new ideas/innovation spread. The ideas/innovation must be widely adopted in order to self-sustain but only a small number of people is willing to adopt new ideas most follow what is tried and true. Using a car to move around is the standard behavior.
In the very center of Kraków, it can take even 40 minutes to find a parking space near one’s home. Both residents and visitors often have no choice but to circle in search of the ever more valuable parking space. At the same time, parking spaces are eliminated in order to move vehicles farther away from the Old Town area, encourage pedestrian traffic and introduce more greenery to the center. And yet, the inhabitants of the center, the most ecological inhabitants of the city, who have taken over the existing tissue and urban infrastructure, without contributing to the phenomenon of sprawl should have the same rights and access to parking as other residents. Let’s consider what is worse; cars that efficiently enter and leave readily available parking after completing their business in the center or those circulating and obstructing the flow of traffic in the narrow streets of the Old Town area? Parking garages of any kind (both underground and above-ground) inside the Old Town area are often met with loud objections. However, they are necessary and successfully exist in cities such as Paris or New York, as well as in many other historic cities. Properly located, they allow cars to be off the streets and provide a safe and comfortable space for pedestrians. Limiting parking spaces in the center seldom gives the desired results. Before the parking reform in the center of Paris, numerous attempts showed that limiting the number of spaces instead of reducing the number of cars in the streets caused a significant slowdown in traffic [2].

Fig. 17. Manhattan – West Side Theater District parking locations, source: http://downtownmanhattanbeach.com/mapparking/

Fig. 18. Multistory parking in Manhattan, source: New York Times, http://www.nytimes.com/2007/02/25/automobiles/25PARK.html

Fig. 19. Central Paris, underground parking in the center of the city, source: ParkClick, https://parclick.fr/parking-paris?q=Paris&lat=48.8566&lng=2.3522&z=14&df=2017-12-31+10:00&dt=2017-12-31+12:00&ft=1

Fig. 20. Parking entrance in the historic center of Paris, source: Wikimedia, https://commons.wikimedia.org/wiki/File:Parking_garage_in_Paris,_France_2010.jpg
An example of efficient parking is Manhattan, where residents have learned to reserve a place near their destination. Despite the large number of cars and very intensely knit urban fabric, the parking problem in Manhattan was effectively solved thanks to technology.

In many cities, innovation offers systemic solutions which help improve the functioning of cities, or increase their attractiveness. Contemporary American cities, especially new ones, do not negate the car era, at the same time experiencing a return to a classic definition of the urban fabric. It can be observed in the high-quality public space and a high spatial order achieved through clearly defining street and square interiors, giving a rank to elevations and edges as well as differentiating scale. The result is an urban arrangement striving for harmony, orderliness and proportionality. Urban planning based on the creation of a positive and negative urban space begins to replace the once typical American cities, devoid of modulation, with a concentration of functions along or at the intersection of streets. In conjunction with effective communication, such urban space can serve as an example of urban planning for the future. Coincidentally, the urban coherence of Phoenix's center (as well as many other cities) is partly due to the reluctance of municipal authorities to carry out drastic spatial experiments. Experimentation is often entombed in a long list of rules and provisions bringing context and repetition to the forefront as a weapon against unnecessary spatial experimentation.
New, to cities like Phoenix, elements such as multi-family housing and retail buildings incorporated between the existing office structures revitalize the once deserted downtown. Their higher density and spatial variety give character to the frontage and defines the image of the street. Going beyond the downtown, they displace single-family housing, which during the urban boom of recent decades created extensive suburbs, contributing to the negative phenomenon of sprawl. However, all these projects are accompanied by one common denominator. Rational spatial development is based on and faithfully follows clearly defined building and zoning plans, which sets principles for the type of buildings, location, height, energy efficiency, traffic, parking or infrastructure determined, in such a way as not to interfere with the use of existing urban structures. The urban development carried out in such a manner by city authorities are inseparable features of sustainable urban development. In the urban layout of the city of the future, the public zone not unlike the stage in a theater is a backdrop for a spectacle with the participation of residents, where strangers meet, giving each other a sense of security while maintaining anonymity. At a time when technology has modified the concept of place and interpersonal relationships – the emerging public space appears also in the virtual world, just as much as in the physical space – its attractiveness consists of simultaneous familiarity and anonymity – the possibility of free exchange of views, freedom of speech, dress and behavior. Here, the high density of population (greater anonymity) becomes a guideline for the development of the city of the future.

With a high density of population and an awareness that no city in the world has managed to completely void itself of cars, many European cities like Paris or London, and on the other side of the ocean – Phoenix, as well as particularly affected by vehicular traffic – New York managed to encourage car owners to change the type of vehicle or the use pattern to improve the aero-sanitary and traffic conditions of the city. The above-mentioned cities (maybe until recently, with the exception of Phoenix) enjoy diversified public transport that gives inhabitants the opportunity to move around without a car. In each of these cities, however, we notice intense vehicular congestion, especially during rush hour. This means that a large group of residents is not interested in using public transport and are ready to expose themselves to frustration associated with standing in traffic just to use their own car. The automobile is in the nature of generations X and millennials. For many, a car is a symbol of status encoded in their personal culture; it is their business card, a serotonin spike. Understanding this need, Paris authorities encourage motorists to make subtle and gradual changes consisting, initially, of avoidance of cars on certain days of the week, followed by a ban on moving around Paris by vehicles older than 20 years and by 2040 a complete elimination of combustion vehicles. In many European cities, Paris among them, on street short-term car rental (Let’s Go, Autolieb, Getaround, etc.) substitutes, for many, the necessity to own a car. These small modifications, considered drastic by many motorists, still do not propose the elimination of vehicles from the city and are coupled with constant improvements and modernization of public transit and the availability of adequate parking [2]. Previously described access restrictions or reductions in available parking do not convince those for whom the need for independence achieved by moving in their own car is culturally encoded.
Phoenix, which, despite many changes in the development plan aiming at concentrating the urban tissue and creating pedestrian zones alongside multiuse buildings, will probably never be a pedestrian city. Authorities, knowing they would not be able to eliminate vehicular traffic, instead introduced a series of conveniences for electric cars and carpools. Both are privileged to use additional traffic lanes (intended for public transport vehicles, carpool and alternative fuel cars) as well as preferred parking spaces. Charging stations are located in every shopping center and inside public parking garages. Instead of acting against human nature, cities become ecologically responsible as a result of change rather than elimination.

Vehicular traffic within city centers (historic or not), which for the past decades has been generating much controversy, also generates innovative architectural and planning solutions. Growing cities and their increasingly denser population, often accustomed to vehicular commute, constitute a societal, planning and ecological threat. That threat, many claim, can only be alleviated through a minimization of car use. However, many designers see parking and vehicular traffic as necessary to the life of a city and the fulfillment of modern societal needs. They, however, view those functions as convertible elements, dependent on necessity and
changeable in response to fluctuating conditions. This view seems to mimic the way historic centers function, inheriting new functions they become convertible in order not to be obsolete. Once we consider an urban framework to be permanent, it becomes a dinosaur, whose extinction is inevitable. Shanghai streets, built 10 years ago, today are devoid of urban logic and subject only to demolition and reconfiguration. However, in many cities, such an approach is considered unsustainable and ecologically irresponsible. In an effort to avoid creating such dinosaurs, New York architects consider the possibility of multifunctional urban fabric – convertible based on the city’s needs and parking lends itself famously to such considerations. A competition for the most innovative parking structure projects offered valuable special solutions in addition to providing creative functional space. These projects embellished surrounding urban fabric by introducing public space, interesting form and technology into a mundane use. The first place in the competition was awarded to a Manhattan Midtown West project which combined parking with public garden space on the roof of the structure as well as a cemetery (for many valuable in close proximity) in the lower levers of the structure. Additionally, areas of the parking were convertible to storage space based on need [4]. Most projects, maintained the vehicle as part of city life and ongoing global urbanization without creating massive vehicular graveyards within suburban areas (such as proposed by the idea of “park and ride”, fashionable in many European countries – marginally successful in the United States).

Fig. 29. Parking Tower by Jonathan Benner and John Bassett, source: www.combocompetitions.com

Fig. 30. Parking garage project expanded functionally by introducing a cemetery and park function, source: https://www.fastcodesign.com/3032279/a-parking-lot-that-doubles-as-a-cemetery

Fig. 31. Convertible Manhattan parking garage project by Mason Fung, source: CoDesign.com

Fig. 32. Convertible Manhattan parking garage project by Mason Fung, source: CoDesign.com
Contradictory to the New York ideas, in the old town center of Kraków, residents are successfully discouraged by the increasingly cumbersome traffic conditions compounded by parking difficulties. This year, again, more parking spaces were eliminated from the historic center. The authorities deleted 20% of the existing 22 thousand spaces, that is over 4 thousand spaces, in a city which already suffers from a parking problem [3]. The remaining spaces are not restricted but available to all who pay for parking. How does this planning philosophy differ from breaking the building standards in the new residential developments by not providing adequate resident parking? Will eliminating spaces offer the desired solutions rather than further paralyze or desertify the city center? If Paris is to be an example, we can learn that it will not achieve the desired result.

Surplus vehicles in cities have been a noticeable problem for decades. The obvious solution seems to be the introduction of functions which will reduce that problem. The city has to live, grow, develop, morph and satisfy the physical and psychological needs of its inhabitants. There are many ways which allow for a gradual reduction in vehicular traffic, however making life more difficult for its inhabitants hardly seems like the correct solution. Each period in the history of urban planning provides new learning and a broadening of planning methods all based on research and interdisciplinary information flow. Further planning must draw from that knowledge and not subdue to the pressure of developers and special interest groups but rather respect the rule of law and the needs of city dwellers. Whenever they are forced to pray for more parking near their homes it is a testament to the lack of understanding on the part of city officials and an utter feeling of helplessness towards those who are to represent them [8].

Fig. 33. Kraków inhabitants react to a reduction in available old town parking by organizing a mass to ask the Holy Mary for help, source: Gazeta Krakowska, 12/10/2017

Fig. 34. Kraków inhabitants react to a reduction in available old town parking by protesting the City Hall, source: Gazeta Krakowska, 12/10/2017

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