SPATIAL STRATEGY PLAN AS A METHODOLOGICAL APPROACH IN ENSURING ACCESSIBILITY: THE CASE OF ISTANBUL (1128)

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Abstract. This study aimed to investigate the question, 'Can the spatial strategy plan be a tool for ensuring accessibility?' In the first stage of the study, six general objectives were determined for the Istanbul Metropolis. In the second main stage of the study, 17 needs were identified by discussing which facilities were necessary to ensure accessibility. Using the collective structure of the spatial strategy plan, special professional fields and institutions related to these topics were identified. A 'Relational Wheel' was devised to illustrate the relationships between access needs, the fields of study these needs are the subject of, the institutions that should work on these issues, the analysis methods they will use, the outcomes they might obtain when they complete their work, and the relationship of these outcomes to the initial objectives.

Keywords: Strategic Spatial Planning, Accessibility, Walkability, Sustainability, Multiplier effect.

1. Introduction

Comprehensive planning has kept planning in the technical domain by focusing on instrumental rationality and placing planner expertise at the heart of the planning process (Sanderock, 1998). A range of approaches, such as defensive, progressive, and egalitarian planning, were born as criticisms of comprehensive planning. The field was then shaken to its foundations by the view of Marxist geographers and sociologists, Harvey (1973) and Castells (1977) chief among them, that planning is a function of the capitalist state**.**

The recent transformation of the global socio-economic order has produced new problems and focal issues in urban areas, e.g. increasing urban complexity, environmental challenges at every scale, rapid depletion of resources and increase in pollution, a widespread increase in poverty, and an ever-increasing amount of natural disasters. As a response to these challenges, strategic approaches have once again come to the fore of urban planning (Albrechts, 2004; 2006). Where traditional methods have been criticised for their rigidity and insufficiency, strategic spatial planning, a more flexible approach, has become prominent, with two main root causes: globalisation

processes and the introduction of postmodern thought to urban planning in the later 1980s (Ersoy, 2007).

While postmodern thought places emphasis on the consensus of everybody involved, it also points out that there are other methods of obtaining information beyond positivist processes (Blotevogel, 1999). It has thus contributed to the creation of a communicative arena wherein stakeholders establish horizontal relations, inspiring a paradigm shift towards communicative rationality.

This new approach is based on the idea of communicative action developed by Habermas and supported by work carried out by Forester (Communicative planning, 1989, Argumentative planning, 1993), Sager (Communicative planning, 1994), Innes (1995), Healey (Planning Through Debate, 1992; Inclusionary Discourse, 1994; Collaborative Planning Discourse, 1994; 1997, 1998) and supported by many other others (Allmendinger, 2000). The core logic behind this paradigm is that communication is a means of solving spatial problems (Boswell, 2000)..

Strategic spatial planning as a concept, which inspired Habermas's concept of strategic action, was initially described by Yiftachel (1989), and can be considered as a collective action-oriented model (Alexander, 1966). Friedmann in 2004 defined strategic spatial planning as 'unplanned planning', a term which speaks to the multitude of different interests and flexibility of the model; that interconnectivity is a form of collaborative planning that underpins the governance regime, especially under local conditions with high levels of diversity (Gualini, 2005). Strategic planning has also been referred to as an active social process (Healey et al., 1999), one which can have a transformative effect on inter-institutional relations, which is a view shared by Mazza (2000), who pointed out that strategic spatial planning at its core is about designing a coalition around shared strategies and considered those two ideas inseparable, as each only becomes functional in the other's presence. For Albrechts (2004), strategic spatial planning is not a single method or tool, but rather a set of concepts and strategies that must be continually adapted for each individual set of conditions in order to achieve the desired results.

Strategic spatial planning is capable of responding to the changes outlined above, by dealing with the effects of widespread globalisation on cities (Ersoy, 2007). As it allows interaction and communication between stakeholders in the way post-modernist philosophy envisioned (Ersoy, 2007), it is becoming more pervasive as an urban planning approach, particularly given the equal importance it assigns to how planning processes are organised as well as the actual content of any given plan.

According to Albrechts (2004), strategic spatial planning as experienced in the public sector addresses a finite number of fundamental strategic areas. The process involves a detailed evaluation of the environment, in order to spot both strengths and weaknesses as well as to identify trends, influences, and resources. Taking any uncertainties into

account, a long-term plan is developed and a framework created, which must be able to not only influence and manage the flow of events and new forms of understanding, but also develop situation-appropriate means and methods of action. As such, strategic spatial planning both identifies and unifies stakeholders and allows for a much broader degree of participation than traditional urban planning.

For Sartorio (2005), the fundamental elements of strategic planning include the necessity of a long-term perspective; comprehensiveness with regards to the scope of the plan; a degree of sophistication produced not by expert knowledge but rather the input from as many stakeholders as possible; interconnectivity between all invested parties; and a process-oriented mindset.

Strategic spatial planning therefore has at its core active participation, open dialogue, accountability, and a cooperation and reconciliation dialectical paradigm, all of which is itself rooted in relational geography. As a normative and selective process that focuses on the concepts of relational space, strategic spatial planning emphasises the significance of horizontal relations between stakeholders, aims to work more with relations and processes than objects and functions, and tries to create a collective vision based on societal acceptance. Assuming the role of a method that can provoke and influence change, and always keeping in mind the roles and concepts of communicative rationality, it possesses the potential to connect previously disparate areas, emphasise several different scales and the relations between them, and highlight the possibilities for different places to have different degrees of potential, which in turn require the definition of multiple axes of development (Albrechts, Healey, and Kunzman, 2003).

The literature review has made clear that a core dimension of the spatial strategy plan is deliberative democracy, i.e., discussing until consensus is reached in order to settle on a certain idea, which itself can serve as a replacement for a Newtonian, absolutist conception of time and space, as pointed out by Friedmann in 1993, who highlighted the multiple time-space geographies that overlap in the non-Euclidean new world. Planners, armed with new conceptions of time-space (Graham and Healey, 1999) argue that space must be understood as relations and processes and not just as an object and a form. Planning has as such recently assumed a more wide-ranging role with regards to influencing both local and global dynamics within the broader context determined by relational time-space geography.

The two core foundations of the spatial strategy plan involve the potential spatial organisation of the city in question, and the means of designing the process that facilitates those who are affected by the plan to collaborate in order to further the advancement of the urban system. In line with the philosophy behind the concept, any collaboration between the pertinent stakeholders should include every stage of the planning process, including decision-making, implementation, monitoring, and

evaluation. The organisational structure of the spatial strategy plan doesn't only include the public sector, but also involves the private sector, multiple interest groups, different experts in a range of fields, and non-governmental organisations in the planning process. No longer the sole decision-maker, the planner has instead assumed the role of one of several actors in the broader process, and indeed acts as a facilitator of the work as well, which shift in function aligns with the more general philosophy that underpins spatial strategic planning and contributes to the core goals of focusing on processes and relations.

This study aimed to investigate the question, "Can the spatial strategy plan be a tool for ensuring accessibility?". The aforementioned features of the spatial strategy plan have been used as a tool for ensuring accessibility in Istanbul. In the first stage of the study, seven general objectives were determined for the Istanbul Metropolis. After the objectives were determined, the situation determination phase was started, and special spatial analyses related to the theme of each objective were made. As each analysis comprised a different number of parameters, a multiplier coefficient was determined to quantify each analysis's impact on the final synthesis sheet, which was created using an overlapping method and the first-, second-, and third-degree intervention areas of the city of Istanbul were determined at the neighbourhood scale. The walkability parameters put forward by various theorists in the existing literature were grouped in relation to each analysis and further analysed to determine a hierarchy, with Accessibility found to be the most important parameter.In the second main stage of the study, 17 needs were identified by discussing which facilities were necessary to ensure accessibility. Using the collective structure of the spatial strategy plan, special professional fields and institutions related to these topics were identified. A "Relational Wheel" was devised to illustrate the relationships between access needs, the fields of study these needs are the subject of, the institutions that should work on these issues, the analysis methods they will use, the outcomes they might obtain when they complete their work, and the relationship of these outcomes to the initial objectives. In the following sections, these development stages of the Istanbul Spatial Strategy Plan are presented.

2. Accessibility strategic spatial planning: Istanbul

2.1. Creating Objectives From Regional Dynamics in the Context of Transportation

Istanbul finds itself in a promising position to compete with world cities in the global race for development thanks to several key factors, namely: its geographical location (which is of historical, cultural, and political importance); its multifaceted interaction networks; its historical, cultural, and natural richness, all of which contribute to its unique identity; its high economic performance; and the strong, dynamic social infrastructure it has built. This section presents a summary of the analyses carried out

on economic diversity and empowerment, social-spatial justice, earthquake and disasters, matters relating to public space, and the climate crisis and ecology, all shaped around transportation and infrastructure, in order to better understand the regional dynamics of Istanbul.

Cultural consumption in İstanbul, as well as the bulk of the tourism and creative sectors, are concentrated in a region that includes Beyoğlu, Beşiktaş, Şişli, the Historical Peninsula and Kadıköy, an area also known as the 'culture triangle'. However, creative workplace clusters are not evenly distributed throughout the area, and the potential offered by the region is not being fully utilized. Despite the historical and cultural diversity Istanbul has to offer, visitors to the region find themselves bottlenecked at certain points, leading to an imbalance in the pedestrian and traffic pressure points. Similarly, vital services such as education and health are concentrated in the central parts of the city and inner peripheries; and while public transportation facilities are well-developed in the inner peripheries and city center, traffic poses a significant threat. As a result, the randomly distributed functions that stem from unplanned spatial development lead to social-spatial inequalities.

The spatial imbalance of Istanbul's service sector employment, combined with the asymmetrical progress of service development between the two halves of the city, contributes significantly to daily travel distances. As the volume of journeys between the two halves increases, the amount of traffic on the bridges naturally increases as well. Istanbul's own economic structural shift from industry to the service sector was necessitated by the effects of industry on the natural landscape, with the bulk of the industrial work being directed outside of the city, which in turn affected the daily travel required to be undertaken by workers. Housing areas have developed along with the industrial work, in large part due to worker preference of living close to the workplace.

A considerable risk factor for Istanbul is traffic density in the historical center, which is quite high, and exceeds the existing parking capacity. This problem is only exacerbated by the lack of maritime public transportation services. Another risk is posed by the development of large projects that negatively impact natural and cultural values. It's the location of these mega projects that determines the development direction and population distribution of Istanbul, rather than urban policies rooted in location selection criteria; this situation affects both population density in the districts and the vehicle density accordingly. Despite a rapidly increasing need for road and transportation following on from sudden project decisions made by the central government, public transportation remains insufficient, while private vehicle ownership has increased and, with it, carbon gas emissions, all of which negatively contributes to climate change.

The inadequacy of the existing infrastructure is further highlighted by sudden population growth in the periphery and rapidly developing industrial projects, all of which contribute to reduced quality of life. Natural tourism is threatened by projects that pierce the northernmost natural landscape of the city, while poor location selection decision-making for unplanned spatial developments has led to the possibility of power plants overlapping with settlements or the existence of energy facilities that have been placed close to residential or natural areas.

Istanbul is notable for its high coastal potential, but this potential is not currently being used enough, due to the difficulty of accessing the coast. The excessive use of motor vehicles in transportation is doubly problematic, for environmental reasons (like decreased air quality) as well as an increase in traffic. To remedy this, incentives should be provided to the use of rail systems in public transportation by prioritizing taking steps that reduce greenhouse gasses. One of the ways the climate crisis manifests in Istanbul is heavy rainfall, which has further damaged the infrastructure in recent years in addition to causing flooding and instances of coastal collapse.

Accessibility in transportation is related to the unequal use of public spaces between the sexes. Security is another issue that shouldn't be ignored; at present, Istanbul's transportation system does not serve the elderly, women, children, and the disabled effectively and safely.

But though Istanbul is lagging behind when it comes to newly developing transportation technologies, progress is being made. Vehicle charging stations were built in the Şişli and Kadıköy districts, where population is high, although the use of electric vehicles in public transport remains low.

Any transportation network plays an important role where natural disasters are concerned; however, access remains a crucial element, and in that sense, Istanbul is not ready for a potential earthquake from a transportation perspective (among other points-of-view from which it can be considered unprepared). By developing an emergency transportation plan, uninterrupted access between the determined energy transportation network and certain points can be ensured.

Vitally, Istanbul's multi-actor management structure and the lack of importance assigned to the topic of participation impacts all of these issues. Furthermore, the lack of communication between units resulting from distinctions between public institutions leads to both infrastructural and transportational inadequacy. The physical development of the city has only been planned with a focus on economic growth; other important elements of life, such as the natural and the social, are ignored. Istanbul has always been the scene of power in Turkey, and the current conflict between the local and central governments can be seen in Istanbul itself. This problem, ostensibly a managerial one, affects every urban issue, transportation included. Relevant examples

seen through the context of transportation include increased metro construction activities with the change of local administration as well as central government decisions, e.g. the third bridge, which damage the natural landscape.

Based on the aforementioned regional dynamics, seven objectives have been determined for Istanbul, with transportation as the focus.

- 1: Ensuring equal and fair access to transportation and infrastructure services by all segments of the society
  2: To create a resilient transportation and infrastructure system that is sensitive to climate change and considers the protection-use balance of the ecosystem
- 3: To ensure the integration of transportation centers and urban functions with a compact transportation network
- 4: To create a human-oriented transportation system by increasing the share of alternative transportation vehicles in urban transportation
- 5: To develop transportation and infrastructure systems that create inclusive, information and communication technology networks
- 6: Creating risk scenarios for possible disaster situations in transportation and infrastructure systems, ensuring their resilience and resilience
- 7: Establishing the planning process in which the governance system is adopted, in which various stakeholders are involved in the process of ensuring coordination in the establishment of transportation and infrastructure systems, development of implementation tools for the control mechanism and management of financial resources

2.2. Identification of Intervention Areas Along the Walkability Axis

Having determined the spatial strategy plan objectives for the Istanbul region, their relationship with Walkability was examined and its potential to be a wide-ranging solution that addresses each objective was discussed. Following the determination of the focal issue (walkability-accessibility) and despite the regional dynamic analyses that had been put forward, it became clear there was a need to divide Istanbul once more into structural spatial parts in line with the aforementioned objectives. As a result, areas with high intervention and potential became clearer with the given framework. The following is a brief description of the construct (the target - the relationship between the objective and walkability - the structural spatial analysis of the objective - the parameters used in the analysis) and a brief description of the relevant literature that contributed to certain stages of the construct.

Walking isn't just a mode of transportation: it's also an important way for people to feel visible, represented, and like they're participating actively in public life (Krambeck, 2006). As a form of ambulance, it's notable for being fair, equitable, and inclusive of a multitude of socio-economic strata. But those characteristics can't be experienced without the provision of a balance between vehicles and pedestrians in any given space. The importance of this equilibrium is only heightened when disadvantaged groups—such as people with disabilities, the elderly, or parents with young children—are concerned (Forsyth and Southworth, 2008).
Walkable environments, by definition, offer a secure environment for all pedestrians, increase the level of social interaction within a given urban system, and enhance the strength of the social ties being built by all participants (Forsyth and Southworth, 2008). Given the vital importance of walkable spaces in the arena of social cohesion, ensuring they're available in livable communities is of significant importance (Dumbaugh, 2005). We can also say that environmental justice is directly linked to increased walkability, and that making spaces walkable can be considered a way to achieve the first goal of providing equal and fair access to transportation and infrastructure services by all segments of society (Forsyth and Southworth, 2008,).

During the next stage of the study, Istanbul was divided into structural spatial segments in line with the first objective. An analysis of inequality in transportation was carried out by examining these spaces under the parameters of poverty, low-income housing estates, gender inequality (education, number of children, access to economic and life resources), security, transportation costs, and ready access to public spaces.

As an environmentally friendly method of transportation, walkability can be considered a basic condition for creating sustainable cities. Increasing walkability not only reduces traffic congestion, but also leads to a decrease in air and noise pollution, as well as a diminishment in vehicle dependency (Kramback and Shah, 2006). When accomplished, it should be possible to prevent uncontrolled urban sprawl, which is one of the major problems facing Istanbul, which itself leads to excessive energy consumption and ever-increasing greenhouse gas emissions, further exacerbating the climate crisis. Creating walkable spaces is therefore not only an important goal, but a matter of high priority given the imminence of the climate crisis.

Consequently, we can say that the broader goal of 'creating a resilient transportation and infrastructure system that is sensitive to climate change and that takes care of the conservation-utilisation balance of the ecosystem' can be worked towards by increasing the preponderance of 'walkable' environments.

Istanbul was again divided into structural spatial parts related to the above goal, and an analysis on the areas causing ecological destruction was created by focusing on levels of traffic, amounts of air pollution, population figures, increased amounts of private

vehicles, frequency of buses, number of industrial projects which have an adverse effect on the environment, and the amount of agricultural, natural, and forested areas.

Walkability may be increased by developing compact, polycentric, or network city forms, and by restricting and limiting the development of the city; reducing the distances between core spaces like workplaces, homes, commercial centers, and public transport stops (Hildebrand, 1999; Jabareen, 2006). As such, walkability is also related to the goal: 'To ensure the integration of transportation centers and urban functions with a compact transportation network'.
To perform an 'Access to Services Analysis' with the above goal in mind, Istanbul was divided into structural spatial parts by examining travel attractions, the distribution between service and industrial sectors, access to services, and rural neighborhoods.

The human-oriented approach to transportation is based on the core philosophy that transportation planning should have as its main focus pedestrians and their needs, in order to better shape urban development around sustainable transportation with the integration of controlled automobile use. As such, walkability is directly related to the goal of 'creating a human-oriented transportation system by increasing the share of alternative transportation vehicles in urban transportation'.

For that goal, Istanbul was divided into structural spatial parts related to it, creating a 'Human Centric Transportation Potential Analysis' by focusing on alternative transportation vehicles, pedestrian access, public transportation opportunities, irregular urbanised areas, traffic density, and pedestrianised areas.

More livable, sustainable, and intelligent city forms with high population and building density require walkable spaces, which also promote increased usage of public transportation. Walkability's importance also extends to other areas of importance in the field of urban form, including Smart Growth, New Urbanism, Location Efficient Development, and Transit-Oriented Development (Newman and Kenworth, 1996; Hildebrand, 1999; Jabareen, 2006).

Above, we noted that reducing dependency on vehicles is one method of preventing uncontrolled urban sprawl. The consequences of doing so include reduced infrastructure costs, and a resultant efficiency increase in the use of public resources, which should involve a knock-on effect for developing more economical life options. One way to use the surplus left over from these reduced costs could be the field of technology. Thus can walkability be said to be related to the objectives of, 'Developing transportation and infrastructure systems in which inclusive, information and communication technology networks are created,' and 'Making urban infrastructure systems resistant and effective via development'.

An analysis of 'Technological Systems and Infrastructure Potential' of the city was carried out by dividing Istanbul into structural spatial parts by examining mobile communication points, wifi access, infrastructural features (water, natural gas, and electricity specifically), the amount of electric vehicle charging stations, electric scooter preponderance, and parking facilities.

Narrow roads and one-way traffic features in urban and suburban transportation can be problematic for a number of reasons, but one of the most important when it comes to the case of Istanbul (as with other areas that are at risk of earthquakes) is the intervention challenge they pose following natural disasters. Increasing walkability, on the other hand, by definition leads to more resilient urban systems, as the intervention challenges following natural disasters are reduced. As such, walkability can be considered to play a vital role in 'Creating risk scenarios for possible disaster situations in transportation and infrastructure systems, ensuring their durability and resistance'. Finally, to investigate the above goal, a 'Disaster risk areas analysis' was created, involving the division of Istanbul into structural spatial parts, focusing on settled catchment areas and areas that are at risk of disaster.

The parameters used for each of the analyses mentioned above were evaluated over three points. The analyses obtained by establishing vertical relations were then brought together in the next step by use of an overlapping method, and two core area forms were determined at the neighborhood level: 'walkability intervention areas' and 'areas with high walkability potential'.

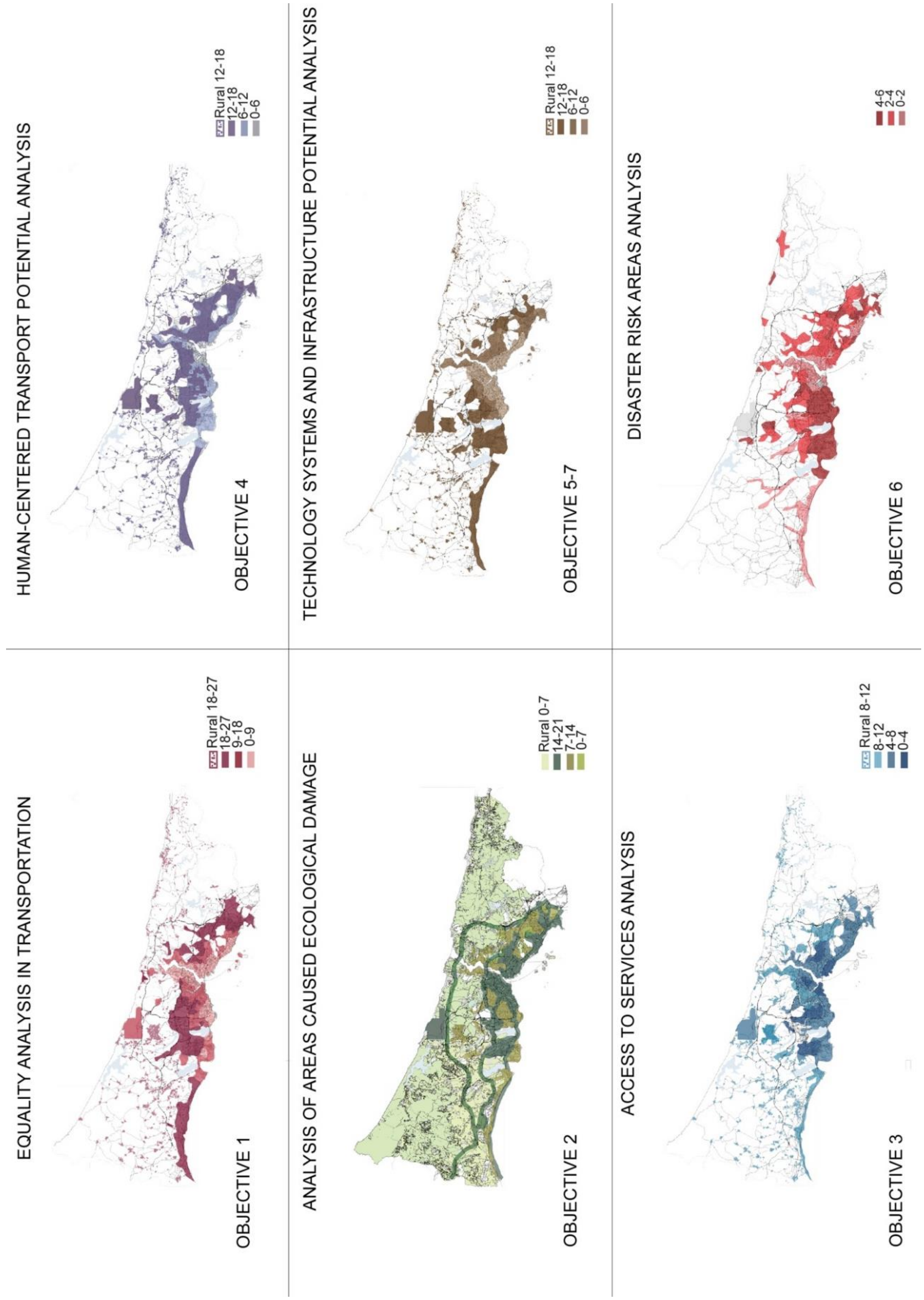

Figure 1. Objective Oriented Spatial-Structural Analyses

First-degree intervention areas are generally located on the outer periphery of the city. Second-degree intervention areas are generally located on the outer fringes but relatively close to the shore. Potential areas are located in the inner parts of Istanbul (around the Bosphorus and the historical peninsula), which is mostly characterised as the center of Istanbul.

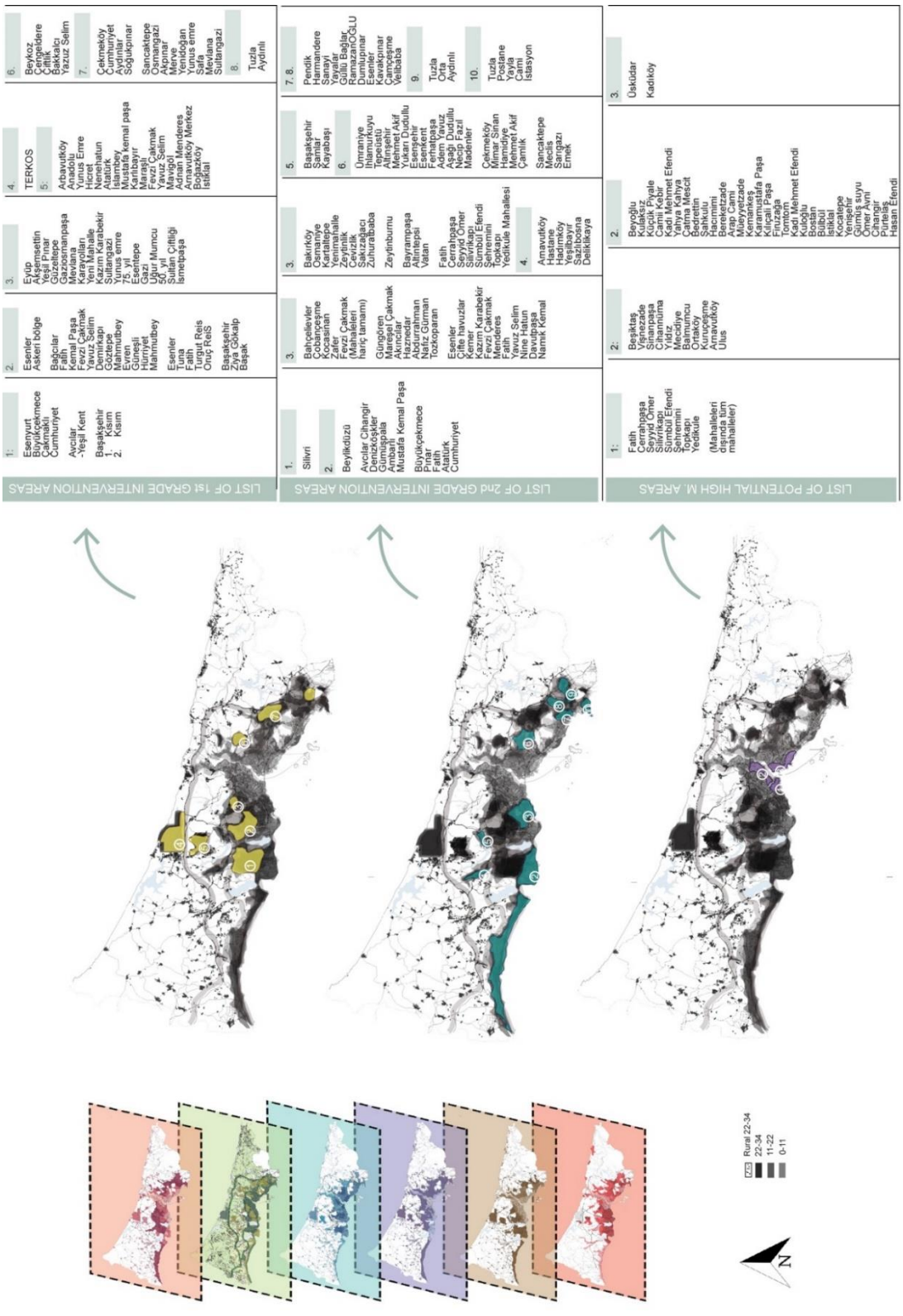

Figure 2. Areas of Intervention and Areas With High Potential

2.2. From Mobility to Accessibility

The next stage of the spatial strategy plan required a detailed examination of walkability as a concept, with the goal of identifying specific, measurable parameters which could then be further analyzed to determine their own importance, as well as which actions would need to be taken in order to fulfill each one.

Nine different parameters that contribute to any given space's walkability were drawn from the existing relevant literature: attractiveness; comfort; security; the sidewalk network's quality; the quality of the street texture; the connectivity of the road network; the level of connection between open space systems; the level of connection between transportation systems; and accessibility.
Alfonzo (2005) proposed five walkability parameters—feasibility, accessibility, safety, comfort, and enjoyment—and outlined a hierarchical relationship between them. As feasibility was possible for all participants, this study focused on accessibility as its top priority, since when accessibility is accomplished, a multiplier effect will be observed, i.e. all the other parameters will be improved as well.

Below is a brief description of the parameters and the relevant literature from which they were identified. In addition, this section sets out how the walkability parameters relate to the focal issues of urban planning identified in the analysis of Istanbul's regional dynamics before the objectives were set in section 2.1., such as economic diversity and empowerment, social spatial justice, earthquakes and disasters, issues related to public space, and climate crisis and ecology (all centered around transportation and infrastructure).

Aspects relating to the attractiveness and comfort of a space included walkable environments, well-maintained and clean sidewalks, ample room for pedestrian movement, and the presence of natural landscape elements, visually appealing scenery, buildings or artifacts of historical or aesthetic relevance, and works of art (Krambeck and Shah, 2006). It is thus understood that the attractiveness and comfort parameters are both related to several broader topics, among them cultural heritage, public space, the climate crisis and ecology, and economic diversity and empowerment.

Pedestrian safety in a walkable environment is a vital element of walkability. Measures that can be taken to increase physical safety include taking into consideration the width and closure of the street; placing limits on vehicular speed; installing speed bumps on roads; separating vehicular and pedestrian traffic where appropriate; and creating safe pedestrian crossings where necessary (Lambert, 2005; Southworth, 2005). Walkability is itself affected by perceived safety levels, as areas with higher perceived safety are themselves more walkable. As such, the security parameter can be considered to be related to the social spatial justice and public space focal issues.

The quality of the pedestrian network is related to the physical design of the streets themselves and aims to increase each pedestrian's comfort levels in the public space. 'Unhindered movement 'refers to the ability of people of all ages and capabilities to walk without interruption in a space (Duany et al., 2010). Walkable environments require pedestrian access networks to be directly linked to various modes of transport, including non-motorised transportation vehicles, public transport (such as buses, minibuses, trains, trams, etc), and private transport The pedestrian network parameter is related to the focal issues of social spatial justice, public space, and earthquakes and disasters.

Since street texture quality directly affects walkability (Southworth and Owens, 1993), walkability can be evaluated according to different types of street texture. Grid-iron street texture provides the easiest movement to vehicular and pedestrian traffic (Southworth and Owens, 1993), because by providing robust connections, it offers opportunities for shorter periods spent traveling, as well as a multitude of alternative possible routes. Modified-grid street textures make possible the integration of all transportation modes with regards to ease of movement (Duany et al., 2010). On the other hand, curvilinear street textures provide a limited number of connections, intersections, and access points, so even though they offer advantages in the arenas of security and privacy, their walkability capacity is relatively low (Southworth and Owens, 1993). Like pedestrian network quality, street texture quality is related to the focal issues of social spatial justice, public space, and earthquakes and disasters.

The connectivity of the road network is related both to the continuity of the street texture and pavements (Kolody, 2002). Connectivity can be ensured or enhanced by making available uninterrupted alternative routes between any two given destinations for pedestrians, cyclists, and disadvantaged groups (Litman, 2016). Road network connectivity is most strongly related to the focal issue of social spatial justice. Open space systems can improve walkability when connections between natural areas, local areas, and gathering places are combined with a strong street network that offers pedestrian access and good quality of roads (Southworth, 2005). The provision of uninterrupted movement for pedestrians and introduction of open areas on sidewalks, e.g. by offering pedestrian road continuity and freedom from physical obstacles, also increase the walkability levels of the space. Participating in activities and accessing public spaces and gathering areas through walking play a vital role in enhancing social life and creating a livable environment, which in turn increases walkability (Montgomery, 1998). Road network connectivity is most closely related to the focal issue of social spatial justice.

Lastly, an important element of livable and walkable environments is reliable access to meeting areas and spaces that involve public services (Lotfi and Koohsari, 2009). As

Jacobs (1995) and Southworth (2005) noted, measures of accessibility include access to education, health, administrative and religious service areas, meeting and public gathering places, public transport and parking facilities within a maximum of 800 meters (i.e., walking distance), and uninterrupted access to the above via the pedestrian network. In order to provide orientations, both permeability and readability are necessary, where permeability refers to the degree of physical and visual access provided by an environment to people, and readability indicates the extent to which a person can cognitively understand any given urban environment's plan (Lynch, 1960; Carmona et al., 2010). A space can be said to be successful in terms of orientations if its users can make a mental map through its urban elements (Lynch, 1960); street patterns that involve short and direct route possibilities provide both high permeability and high readability (Kolody, 2002). Accessibility can be considered to be related to the focal issue of social spatial justice.

By achieving accessibility and walkability, a multiplier effect will be observed across several other areas, such as economic diversity and empowerment, social spatial justice, earthquake and disasters, matters relating to public space, and the climate crisis and ecology, all shaped around transportation and infrastructure.

Once the importance of accessibility among the Walkability parameters was once again understood, accessibility needs were identified (figure 2.).

The next section describes the methodological approach that would facilitate the definition of the planning process, including the spiral interrelationships of the entire process described so far, from the identification of Istanbul's regional dynamics to the dentification of accessibility needs.

Figure 3. Walkability in Relation to Different Dimensions and Accessibility

2.3. The Relational Wheel: A Comprehensive Approach to Urban Planning

Urban systems are complex, interconnected entities by definition, with multiple different stakeholders playing individual roles in their overall cohesiveness. It therefore stands to reason that urban planning should as a field adopt a multidimensional, dynamic approach to devising methodologies that can be used to further the creation of equitable, fair, and sustainable urban systems. However, traditional urban planning has had a tendency to be too linear to accomplish this goal, leading to a narrow-minded view of its goals and the pertinent analyses that need to be undertaken in order to accomplish them.

By way of response to these issues with the field, the Relational Wheel method offers a modern, holistic approach to urban planning in general, and the issue of accessibility specifically, based in this case in the region of Istanbul. Providing accessibility offers a multiplier effect, in that as a byproduct of achieving accessibility, several other goals will be achieved as well. To that end, seven goals were devised by examining Istanbul under the lens of crucial urban planning focal issues, namely: economic diversity and empowerment, social spatial justice, earthquake and disasters, matters relating to public space, and the climate crisis and ecology.

The Relational Wheel, at its core, is a graphical representation of the relationships between these seven goals, core accessibility needs, focal issues in the field of urban planning, the stakeholders that have a role to play in achieving accessibility, and the analyses that need to be undertaken in order to make the realisation of accessibility—and, as a consequence, the other seven key goals—a reality. It also makes clear the aforementioned multiplier effect realised by achieving accessibility, in that by making urban systems truly accessible, there will be a significant knock-on impact throughout multiple other elements of those urban systems, such as stakeholders, focal issues, and core needs.

Core accessibility needs encompass a wide range of urban components, each of which is vital to a functioning urban system. A few examples of these components include services (such as markets, health services, and community gardens); wellness needs (like affordable housing, safe public spaces and streets, and job opportunities); and infrastructural elements (e.g. hospitals, schools, and public transport). Providing accessibility necessarily means ensuring equal and fair access to all of these core resources for all residents, irrespective of their socio-economic conditions or physical capabilities. The core accessibility needs can also be broadly grouped under the focal issues that were initially used to define the seven main goals.

Another key element of the Relational Wheel lies in defining the methods different actors will use in the stages of decision-making, implementation, monitoring, and evaluation. Decision-making is made easier by highlighting which core accessibility

needs must be taken into consideration (by moving horizontally from the stakeholder in question inwards towards the first concentric circle of the wheel). With regards to the implementation of specific analyses (which are themselves defined in the outer ring of the Relational Wheel), it becomes immediately clear where that work should take place by looking at the additional elements included between the final ring and the seven key goal bubbles. Stakeholders can also understand which other stakeholders they may need to interface with in order to achieve their goals by looking at the other actors in their segment. Finally, to help each stakeholder better understand how to monitor and evaluate the consequences of the analyses they undertake, each of the key goal bubbles includes a series of consequences that will have occurred as a result of having accomplished the main goal.

As an illustrative example, consider the challenges required in making the 'healthy and affordable housing for all' accessibility need a reality, which is related to the social spatial justice focal issue. One example of a stakeholder involved in making this possible is a corporate housing administration, which needs to work with several other related stakeholders to perform an analysis of inequality in transportation on the relevant parameters (transportation facilities, gender equality, safety, etc) to identify areas of intervention. In the identified areas, implementing interventions to address the accessibility need for 'healthy and affordable housing for all' will ensure the accomplishment of the more general goal of ensuring equal and fair access to transportation and infrastructure services for all segments of society. As part of this analysis, key intervention areas will be defined, identifying where the greatest potential for improvement lies. Lastly, as a consequence of having achieved this goal, the intervention area in question will experience higher levels of visibility, safety, equality, environmental justice, etc. (Figure 4.)

The Relational Wheel, therefore, isn’t merely a graphical representation of the multifaceted, interconnected nature of complex urban systems; it also provides a modern, comprehensive framework for key stakeholders to streamline the decision-making process, reduce collaborative friction, and maintain a holistic view of the consequences of providing accessibility. As it is based on two core features of the recent strategic spatial planning methodology, namely the communicative rationality paradigm and relational geography, the Relational Wheel may offer certain advantages over traditional, linear urban planning decision-making processes.

Finally, the relational wheel has a structure that can adapt and transform according to the local context. By considering the local dynamics of different cities, the content of the relational wheel can be reshaped and adapted to the city's planning process by including stakeholders, parameters, spatial analysis, etc. that are specific to that city.

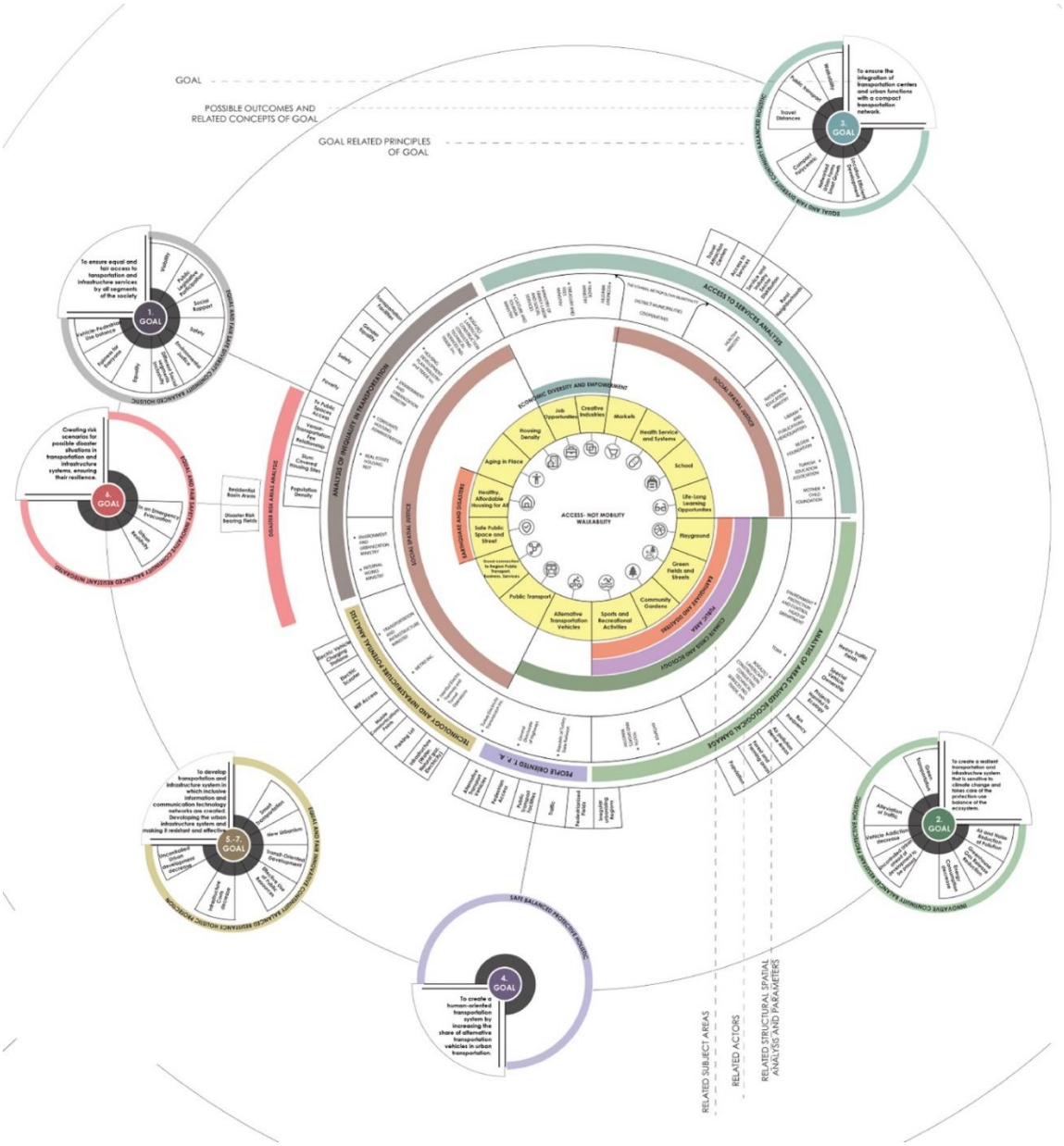

Figure 4. The Relational Wheel

3. Conclusion

Over time, planning has shifted focus from being rational to being communicative in nature. This paradigm shift has resulted in the emergence of the spatial strategic spanning approach, which can be defined as constituting elements of relational geography, participatory planning, establishing horizontal and vertical relations,

flexibility, long-term, inclusive, holistic, collaborative, process-oriented (Albrechts, Healey, and Kunzman, 2003).

By working within the holistic framework of the spatial strategic planning approach, it has been understood that a wide range of issues cannot be considered separately, i.e. unbalanced and unjust transportation and infrastructure, earthquake and disaster risk, insufficient economic diversity, and matters related to public space must all be examined together, especially in the case of multi-layered cities such as Istanbul.

The above elements of the spatial strategy plan were used as a tool for ensuring accessibility in Istanbul. The first stage of the study involved determining seven general objectives for the city; once they had been defined, the situation determination phase began, and special spatial analyses related to the theme behind each objective were carried out. The synthesis sheet itself was created using an overlapping method, and intervention areas for the city were determined at the neighborhood scale and prioritised via a grading system (first, second, and third-grade).

Having carried out the analyses and a review of the relevant literature, a correlation was determined between walkability and other dimensions, and it was determined that the most fundamental parameter was accessibility (Alfonzo, 2005). Ensuring accessibility would create a multiplier effect, and as such it was identified as an important tool in ensuring sustainability. Because different focal issues exist in an interconnected relationship with each other, these 'spiral' relationships must be established in every planning process, and any final planning decisions must respond to these relationship networks and offer solutions to more than one problem.

The second main stage of the study involved identifying 17 needs by discussing which facilities were necessary to ensure accessibility. By using the collective structure of the spatial strategy plan, professional fields and institutional stakeholders related to these topics were identified; and by using the flexibility of the spatial strategy plan as a methodological approach, a Relational Wheel that can adapt and transform depending on local context was devised. The Relational Wheel was created to illustrate the relationships between access needs, the fields of study those needs are the subject of, the institutions that should work on these issues, the analysis methods they will use, the outcomes they might obtain when they complete their work, the relationship of these outcomes to the initial objectives.

The Relational Wheel, in using features of strategic spatial planning, further emphasises the following concepts:

- Especially in complex metropolitan urban systems such as Istanbul, an integrated planning approach must be developed, taking into account the social, cultural,

economic, and organisational development strategies of the city as well as the physical development of the city, keeping the focus all the while on the living space

- Relational Wheels, the coordinated work of decision makers and other stakeholders, and the influence of local collaborations and organisations emphasise the importance of adapting to the multidimensional structure of the city
- The selectivity of strategic spatial planning, its focus on what really matters, is reminiscent of Lindblom's progressive planning model. In the method developed based on the progressive planning model, it is emphasised that the problem should be solved by considering the parts rather than the whole so that the interventions are more effective (Göksu, 2008)
- The Relational Wheel focuses on concepts of relational space and place, focuses on relations and processes (as individuals play different roles in different networks), brings together actors in arenas located at the intersections or nodes of relational networks, and establishes new relationships, including in the political system. As such, the developed method will contribute to increased individual and collective potential, encounter solutions to problems, and force structural change to take an active part in the multifaceted planning, decision-making and implementation processes.
- In order to break the dominance of the technical bureaucratic vision, which closes off the future from other possibilities, the processes involved in creating a collective vision become clear.
- Instead of focusing only on integrating objects and functions, the developed method also focused on the process, describing horizontal integration between administrations and vertical integration between spatial scales
- An action-oriented plan process is defined that clearly states the need for effective links between political authorities and active stakeholders. What is meant here is not merely the presupposition that a plan will be implemented in its own accord, but that the plan should be considered as one of the tools that can provoke or influence change

Employing the Relational Wheel also revealed that accessibility is a crucial element among a wide range of problems, and that by tackling the issues related to providing accessibility, planners will necessarily address interrelated problems, thus creating a multiplier effect in the future. Furthermore, the Relational Wheel highlighted the flexibility of the spatial strategy plan, its adaptability to the complex structure of a city, and its potential to be an important tool in ensuring sustainability.

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