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THE POST-SOCIALIST URBAN TRANSFORMATION OF TIRANA IN HISTORICAL PERSPECTIVE:

Mapping the ideological dimension of urban growth.

BLERTA DINO

Space Syntax Laboratory, The Bartlett School of Architecture, UCL
blerta.dino.14@ucl.ac.uk

SAM GRIFFITHS

Space Syntax Laboratory, The Bartlett School of Architecture, UCL
sam.griffiths@ucl.ac.uk

KAYVAN KARIMI

Space Syntax Laboratory, The Bartlett School of Architecture, UCL
k.karimi@ucl.ac.uk

ABSTRACT

In contrast to planned cities, where subsequent growth tends to occur mainly at the urban periphery, in contemporary Tirana this trend has been accompanied by the striking densification of existing neighbourhoods through the appropriation of previous public spaces. This transformation of Tirana's built environment has occurred within a very short space of time during which the radically top-down urban planning ideology associated with the communist regime was succeeded in 1991 by an equally radical 'bottom up' model, characterized by mass urban migration and unregulated capitalism. This paper applies space syntax to the question of post-socialist urban transformation. It seeks to understand the extent to which the ideological dimension of morphogenetic processes in Tirana gave rise to distinctive patterns of growth.

Space Syntax has a rich tradition in historical studies of urban growth processes. Griffiths (2012) has identified four approaches to 'spatial history' (Griffiths, 2012). This paper's approach is consistent with the second category, that of 'syntactic growth processes'. The research made use of historical cartography and a contemporary aerial map of Tirana to produce a time-series of syntactic models which endeavours to explore the city's growth processes from a configurational perspective. Four distinct historical stages are identified to represent the evolution of Tirana's urban form through contrasting ideological regimes: 1921, 1937, 1989 and 2016. The GIS-based 'cartographic redrawing' method pioneered by Pinho and Oliveria (Pinho & Oliveira, 2009a, 2009b) has been adopted to systematically study Tirana's morphogenesis, working backwards from the contemporary model to remove non-existent elements and readjusting to the changed shape of the urban fabric as needed. In presenting this research, the emphasis will be on the latter period as the prime focus is on the specific character of the post-socialist urban transformations of the city. On the basis of this analysis the research finds that, consistent with the arguments of Tosic (2005) Tirana's expansion is consistent neither with the typical pattern of urban growth on a western model, nor even that of a 'one size fits all' post-socialist transformation (Tosics, 2005). On the contrary, its distinctive features must - in the first instance - be interpreted in the context of Albania's twentieth-century history.

KEYWORDS

Tirana, post-socialist, informality, space syntax, network analyses

1. INTRODUCTION

Mapping and analysing Tirana's growth under contrasting planning models and political ideologies is the main purpose of this paper. This objective will be achieved through examining four historic periods respectively, 1921, 1937, 1989 and 2016. The tool adopted to study the consistent urban development of Tirana is Space Syntax, hence the historic periods are drawn as axial representations from: a) historic maps (1921, 1937), b) hand drawn masterplan (1989) and c) GIS referenced high resolution aerial images (2016).

The case study of this work, Tirana, is introduced in details in the second section where information is given on the main political milestones that have been transforming the capital spatially. It begins with a brief introduction of the largest city of the country and continues with accounting for the reasons why the above mentioned four periods were chosen to represent the capital in our analyses. The third part sets out the methodological approach that was taken to accomplish this study, from the digitalization process of Tirana, to the introduction of space syntax as the main tool adopted in running the network analyses; both axial and segment analyses. The last two parts of the paper present some initial thoughts deriving from the spatial analyses and how the work intends to further develop taking into account the results at the city scale.

2. SPATIAL HISTORY

Consistent with the aim of this paper is to lay down how contrasting political ideologies and political circumstances have been influencing and shaping the spatial configuration of Albanian cities. We seek to understand the growth of Albanian cities from a spatial perspective at distinctively different social, political and economic models. In general terms, morphological histories are distinguished by a concern to understand morphological transformation in the social context of morphological 'events' – in the sense of historical occurrences with a direct bearing on the evolution of urban form (Griffiths, 2012: 6).

Through the case study of Tirana we want to shed light on the social logic of such processes, aided by the modelling of the configurational space itself. The spatial and ideological historical milestones have already been described in two previously published papers. Dino et al (2015, 2016) identified the main historical evolution of Tirana into a contemporary city, describing: development of the city through contrasting historical moments, historical context in a wider geopolitical perspective (the Balkans and Eastern Europe), how ruling political regimes affected spatial growth and what planning models have been implemented, morphological transformation, main forms of architectural styles, land use transformation and evolution of urban cultures. However, a brief summary of the most important historic events is presented in the following paragraph.

2.1 TIRANA CASE STUDY

Tirana has been a small town established around the 17th century, time when Albania was part of the Ottoman Empire. Until the beginning of the 20th century, Tirana was an organic town with narrow curvy streets and low rise buildings. The town had two main function which were sharply divided spatially, the centre was the socio-economic hub with the mosque and the bazaar whereas the rest of the built form consisted of purely residential units (detached houses) (Aliaj, 2003; Kera, 2004). Tirana became a city as it was claimed the capital of the country in 1920. There were several reasons that contributed to choosing Tirana as the capital of the country and some of the most important ones include: a) there were no foreign army bases settled around Tirana, b) Tirana was located at the center of the country, c) through the port of Durres it was closer to the outside world and d) Tirana was a town situated in a vast plain and could meet the government needs for new administrative buildings and residential

areas (Kera, 2004). First attempt to modernize Tirana was made during the rule of King Zog in 1923, when Austrian and Italian architects were contracted to design a masterplan for the city with contemporary features such as: wide boulevards, new square in the centre of the city, orthogonal road system with orthogonal neighbourhoods, wide streets lined with buildings of contemporary architecture and ring radial road network (Aliaj, 2003). The period to follow the end of World War II, was the beginning of nearly five decades of trueful Soviet style socialism. Prevailing city planning models included: abolishment of private ownership at all levels, introduction of zoning as concept, provision of social housing (mainly standardized mass production) and a mono-centric city model (Aliaj, 2003). The centre possessed the most distinctive characteristics and it was the focal point of all political, administrative, educational, and recreational activities of the whole city, whereas the urban edges consisted of agricultural lands and industrial sites. All public spaces were busy throughout the afternoon hours, with abundant pedestrian traffic which at the time was encouraged by the absence of private cars, notably low incidence of crime, daily cultural practices of visiting family and relatives or evening strolls, standardized work schedule across working force (7.00 am to 3.00 pm). However, what the totalitarian regime had constituted changed rapidly with its fall in 1991. Soon after, in early 1992, a new 'trend' of bottom up development emerged, giving rise to informal growth initiated by the citizens themselves. Privatization and the occupation of land and buildings opened the city to rapid development which was mainly reflected in: heavy traffic, construction of shops (kiosks), houses and squatter settlements (Felstehausen, 1999). In less than a decade Tirana's metropolitan area almost tripled its population from 225,000 to 600,000 inhabitants (Felstehausen, 1999).

3. METHODOLOGY

The next section presents the application of space syntax approach in the evolution of Tirana's growth during the last two centuries. Hillier and Hanson (1984) developed space syntax theory as a method that defines configurational attributes of street networks (systems) and relates them to patterns of use, social activity and cultural meaning (Hillier & Hanson, 1984). The advantage of implementing such an approach in understanding Tirana's growth is that it allows for the consistent study of street networks across different urban scales, whilst it enables comparison among local and global structures. Hillier (2012) demonstrates that cities share two fundamentally similar structural characteristics (Hillier, 2012). They have few long or continuous lines establishing the foreground network which enables movement attracting economic activity that in turn stimulates further movement (Hillier & Penn, 1996). The long lines are set against many short ones creating a background network of predominantly residential activity. While the foreground network is economically driven, facilitating movement through the city, the background network tends to impede movement and is culturally orientated, differing from city to city.

The analyses are split into two parts: the first part 3.2 includes axial analyses whereas the second part 3.3 looks at segment analyses throughout the four historic periods.

3.1 MAPPING URBAN GROWTH

The mapping of the four historic periods that have been analysed in this research have been drawn from three different kind of cartographic sources. The first two periods 1921 and 1937 have been drawn as axial representation of historic maps which were collected during field work conducted in Tirana. These two historic maps have been georeferenced and superimposed on ArcGIS platform and have been drawn in diachronic order, adding or erasing axial lines that did not exist during the earlier period or that were new during the later period, going backwards and forwards. As the four periods have a considerable inconsistency in regarding the road network among them, the first two periods when compared to the latter two periods, the cartographic redrawing method (Pinho & Oliveira 2009a, 2009b) has been utilized only for redrawing 1989 map from the 2016 period. The first axial map of contemporary Tirana was drawn from georeferenced aerial images superimposed with road center line map of 2007. All the axial lines were drawn individually rather than automatically converting the road center line

map and then simplifying the results. Randomly, across the city the road center line map does not reflect the reality of all paths and movement corridors. This is prominent especially, in areas consisting of apartment blocks built pre-1991 -originally designed with vast public spaces-that have been built up (after 1991) creating new movement patterns that have accommodated for the changes. As illustrated by Figure 1, in frequent cases there are urban situations (such as parked cars) that inform on where paths should be going through even when not flagged in the road center line map. The ratio of officially mapped road network (road center line) versus actual (physical) road network -as it can be observed though a very random case presented in Figure 1 - is significantly high. This means that an unrealistic scenario that barely reflects the movement flow of Tirana is being used as an official dataset. Situations like this reflect the chaotic situation of postal addresses in Albanian cities through the post-socialist transition periods; where rather than a full address (only the ones that have been built after 1991) landmarks have been used as referral points.

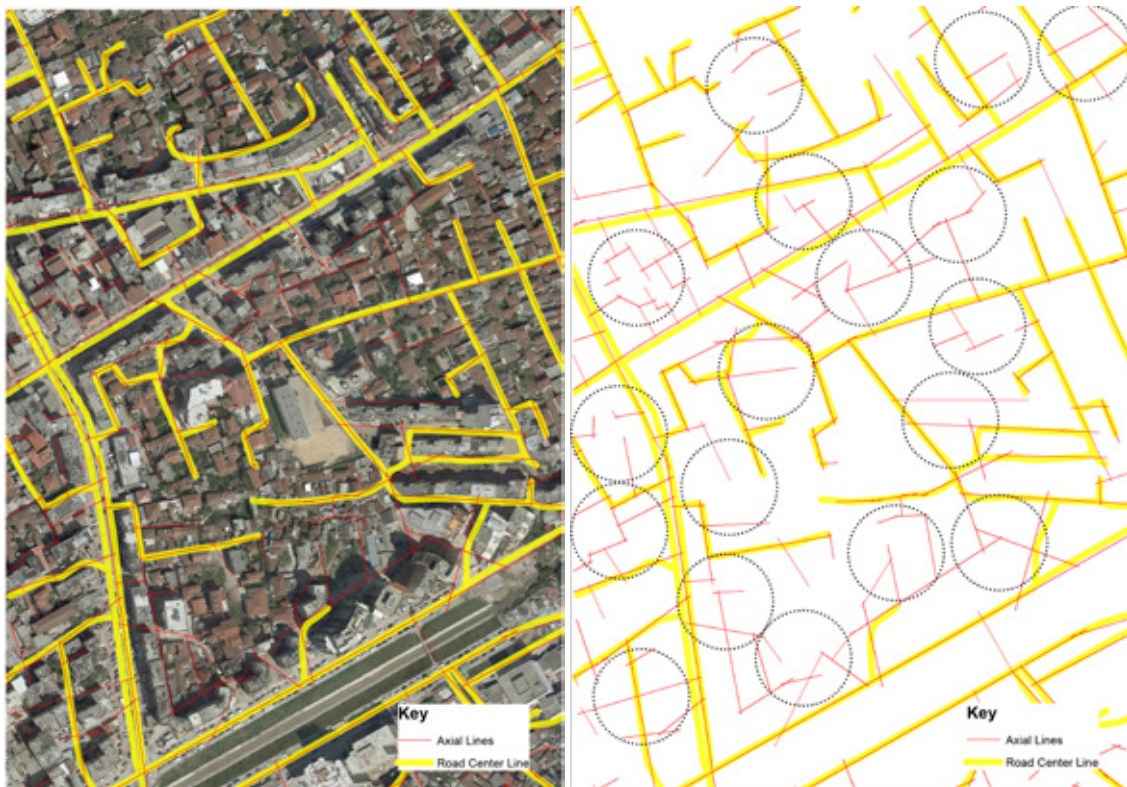


Figure 1 - Road center line map overlapped by axial line map.

The excellent quality of the aerial maps has allowed for maximum clarity when zooming in at a local scale throughout the city, and has eased the task of counting for all existing routes. However, this cannot be said for both periods as the earlier period (1989) visibly differs in quality when compared to the aerial images. The hand drawn masterplan of Tirana is the only cartographic source that could be collected envisaging the built form during the socialist period. Unfortunately, it is in poor condition with several disproportional, blurry or even missing information areas. Hence, it has been a challenge to redraw this map due to lack of clarity in regarding crucial morphological information. Besides graphic imperfections caused by scarce quality of scanning, the masterplan itself has an array of configurational issues. For instance, plot boundaries were not always drawn using the same rules, the scale of the buildings is not consistently drawn for all units, also paths and streets were not highlighted in all cases. Thus, assumptions have been made when necessary in drawing the axial representation of movement network across the city. The rationale behind the assumptions consisted of constantly checking with the paths of the 2016 map, also when the possibility was presented discussing it with locals who do have a good memory of 'what' was 'how' before. All possible ways of representing the most accurate information as an axial representation of the historic road network have been

exhausted –this to ensure reliable and close to reality environments which than could be thoroughly analysed.

3.2 AXIAL ANALYSES

Space syntax literature has a rich tradition in studies of historical evolution of cities across continents. Chronologically listed, Perdikogianni (2003) contrasts the evolution of Cretan ‘organic’ cities –Heraklion and Chania- by identifying their spatial and functional patterns. Dai (2004) studies the evolution of the Suzhou throughout the last seven centuries (1229-2004). Gemil (2005) analyses diachronically urban patterns of the Romanian city of Bucharest since 1852. Azimzadeh (2008) looks at different historical periods of Gothenburg from 1644 to 2004 with mayor emphasis on distinguishing urban layers planned through varying models of developments. Shupza (2009) examines the historical growth patterns of twenty three Adriatic cities and uses syntactic variables in modelling the evolutionary trends to determine generic rules of urban growth under specific historical factors (Shpuza, 2009). Pinho and Oliveira (2009b) and Serra and Pinho (2011) focus on the axial map of Oporto throughout its historical process of (morphological)development, consisting of fifteen time series prepared by ‘cartographic redrawing’.

Tirana’s analyses have been carried out with Depthmap software, across the four historic periods this research sets to study. The analyses presented in this paper compromise global (radius n) and local (radius 3) integration, connectivity, global and local intelligibility and synergy. Through this set of analyses we wanted to shed light on how these syntactic component values have been changing through contrasting political regime styles at two different scales, both at global and local scale. Table 1 provides a synthesis of the average metric and axial parameters of the chosen historic periods.

Through global integration we seek to understand the relative depth of each axial line in regard to all other lines in the system. At a local scale, integration can express the level of accessibility up to three steps away. Intelligibility, on the other hand, expresses the degree of linear correlation between connectivity and integration, which can be defined as the integration of each space into the system as a whole- the degree to which what we can see and experience from the spaces that make up the system and what we cannot see. Finally, synergy indicates the degree of linear correlation between local and global integration. Figure 2.1 shows the evolution of the urban layout of Tirana from a small town (1921) to the largest city and at the same time the capital of the country (2016), overlaid on a single diagram.

Map	Number of Lines	Line Length	Global Integration	Local Integration	Connectivity	Global Intelligibility	Local Intelligibility	Synergy
1921	595	156.961	0.695	1.361	2.661	0.261	0.511	0.511
1937	1274	93.251	0.872	1.435	2.539	0.343	0.565	0.608
1989	4172	114.947	1.022	1.79	3.285	0.311	0.545	0.571
2016	14619	83.004	0.561	1.373	2.464	0.228	0.557	0.409

Table 1 - Tirana’s metric and axial parameters: 1921-2016

Tirana’s axial system of 1921 is constituted by 595 lines with an average length of 157m. During this period the average global integration is 0.695. An interesting fact about the main integrator, ‘Rruga e Dibrës’ (1.137), of the system is that it is one of the three street that it still part of the road network of contemporary Tirana, and actually it has almost the same configuration. The average value of local integration (radius 3) is 1.361 with an average connectivity of 2.661 where the most connected line is one of the radial routes around the historic city core (the bazaar). The rest of the roads have perished along the upcoming historic periods. The local structure of the city system in 1921, regarding synergy, has the value of 0.511 which seems a reasonable correlation among local and global integration. Regarding intelligibility, the values reveal how the old town of Tirana performed far better at a local scale where the average value of the

system is 0.511. On the contrary, at a global scale the intelligibility value of the system is rather low 0.261, implying an unintelligible system.

During the second historic period that of 1937, the axial system has doubled the number of lines to 1274, whilst the average line length has dropped to an average length of 94m. The main integrator of the system is 'Rruga e Barrikadave' (1.522), which directly connects with three other lines presenting highest values of integration, followed by 5 orange lines and finally the lowest level of integrators it connects to are short yellow lines along the eastern side. Both global (0.872) and local (1.435) integration average values have increased. Traces of major planning interventions are reflected in this axial system, with more grid-like orthogonal structures especially on the far southern part of Tirana. At this period Tirana is at the early stage of transforming into a 'real' city. Due to the fact that this is the very beginning of implementing the regulatory plan of Tirana, there is still low amount of connectivity among the old and the new parts. The new parts are at the building out stage, hence resulting in a slight decrease of the connectivity value of the system to 2.539. The top-down interventions during the 1930', resulted with a good improvement both in local (1.435) and global (0.872) integration values and did increase the synergy of the system to 0.608 which results the highest linear correlation between local and global integration from the four study periods. Intelligibility is another parameter that is the highest among all the historic periods during 1937. At this stage the average local intelligibility is 0.565 whereas at the global scale it scores an average of 0.343. It must be said that during this period the integration of each space into the system as a whole is considerable, to the point that it is higher even than the average contemporary European cities figure of 0.266; assuming that it must have made the city 'legible' at this point in history (Hillier, 2002).

1989 represent a period by when all the centralized planning regulations had been implemented fully and it constitutes the 'compact' socialist Tirana. Structurally, this is the ultimate layout of the capital before it started to have any bottom-up interventions. This system is made up of 4172 lines (which is about of the average of the UK cities- just 8% less) with an average line length of nearly 115m. During the socialist regime, the city was perceived as a monocentric structure (core of the city) with 'satellites' that provided workplaces (industrial sites) sparsely with residential units around the factories. That is how it can be explained that the axial system has the longest average line length. Mostly due to the fact that these satellites had to be connected with the core, mainly with continues long (axial) lines. Connectivity and integration at both scales too, have the highest average values during this period. Respectively, connectivity has an average value of 3.285, local integration 1.790 whilst global integration scores an average of 1.022. However, there are measures that have a slight decline in values when compared to 1937 system. Intelligibility at both scales has dropped, at the local scale the average is 0.545 whereas at the global scale the average figure is 0.311. Even though both local and global integration values have increased, the synergy of the system still managed to decrease; this due to the fact that the gap between local and global scale has increased where the system has 'improved' more locally rather than globally. Perhaps, a good explanation could be that during this period society was barely living in a motorized era and everything was accessible through walking.

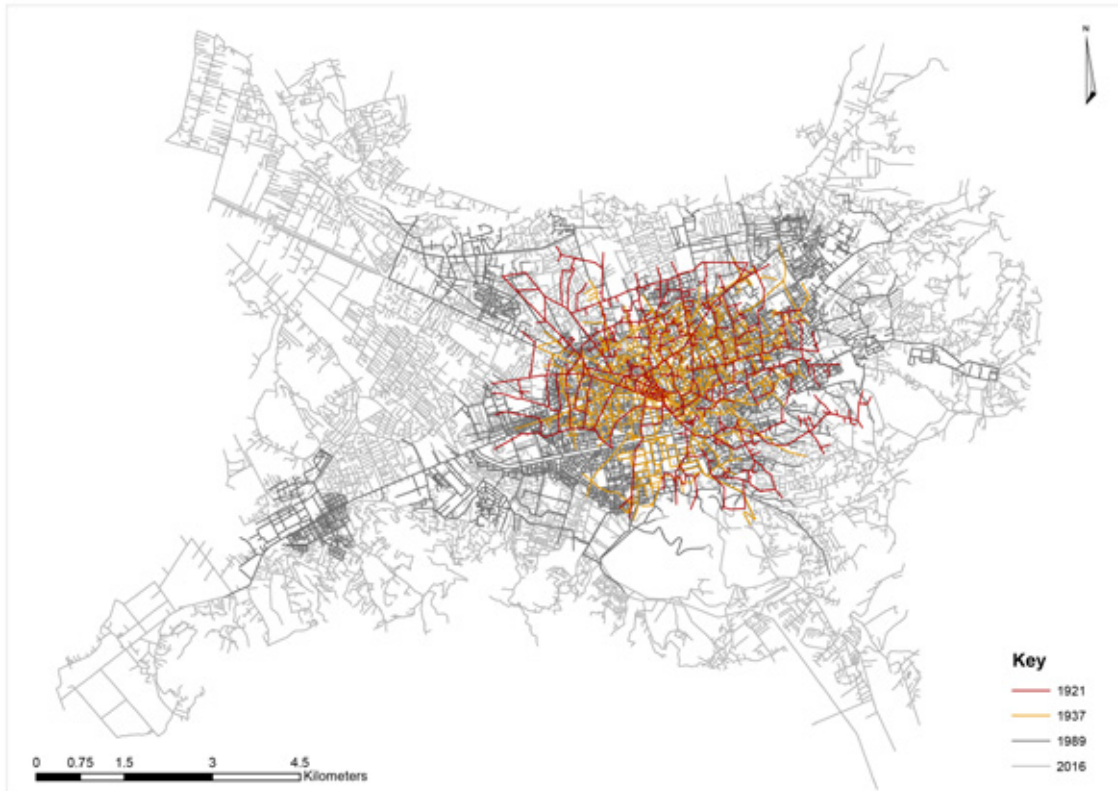


Figure 2 - Overlaid growth of Tirana (axial map).

In 2016 Tirana's axial system is constituted by 14619 (2.9 times more than the average European city) which have an average length of 83m. The number of axial lines has been remarkably increasing from study period one to period four. This kind of dramatic increase in line numbers can be interpreted through the bottom-up initiated growth processes. Growth happened in an ad-hoc style, and the inhabitants who were primarily the ones initiating these processes, built wherever there was a potential for occupying 'public' space. So rather than, extending orthogonally or linearly existing streets or neighbourhoods, the process of accommodating the street to the dwelling became a dominant way of building customs. Arguably as a natural consequence of prevailing building modes, global integration almost halve to 0.561 which is the lowest figure of all the historic periods. In fact, this phenomena is legible bare-eyed by just observing the axial model. The model has not only grown (sprawling) towards the extremities, but it has densified its road network on the inner core of the city (what is visible in 1898 historic period). These intensifications have occurred as short lines, predominantly deepening the system with many to-routes consisting of more than three steps away per origin. In this situation the dark blue lines have essentially grown in number, affecting the relation (and performance) of each axial line in respect to all other lines in the system. Regardless, the huge impact the informal growth processes have had at a global scale, local integration has not been affected that greatly. The 2016 Tirana system has an average value of 1.373 for local integration; which is pretty much an average figure across the four periods but rather low if compared to European cities (2.254). Other parameters that reflect the lowest values across the study periods at the 2016 system are connectivity 2.464, global intelligibility 0.228 and synergy 0.409. In the set of lowest performing parameters we do not see local intelligibility, though. But again, it does make sense as the system has been able to build a strong local network, where the bottom-up processes have been driven by local needs and have been catering for the local needs.

Finally, we could say that for all the compared parameters Tirana is somewhere between the UK and Arabic cities (see Hillier, 2002). Where for certain parameters the system performs closer to the UK cities and other the values are more congruent with those of the Arabic cities.

3.3 SEGMENT ANALYSES

The main two measures that space syntax uses for segment analyses are ‘integration’ and ‘choice’ at different kinds of distance (topological, angular and metric distance) and radii. Usually, for urban a scale, the radii varies from 400m (walkable distance) to 10000m, 30000m up to N(global, meaning the entire system). However, for the case of Tirana, the presented radii results compromise 400m, 800m, 1000m, 2000m and radius n. The reason for not choosing any larger radii between 2000m and radius n is due to the fact that Tirana within the municipality borders throughout the historical stages does not justify picking larger radii’s at all times. During the first two study periods, the city’s diameter was about 4000m. Hence, any metropolitan area radii figure would not be sensible to run.

In an urban situation through ‘integration’ we can assess accessibility measuring potentials of to-movement, whilst ‘choice’ indicates through- movement between any pair of origins and destinations. For the results to be comparable, the measures have been normalized to Normalized Angular Choice (NACH) and Normalized Angular Integration (NAIN) (Hillier et al, 2012).

Map	Number of Lines	Segment Length (m)	Normalized Choice NACH				
			R=400m	R=800m	R=1000m	R=2000m	RN
1921	1238	68.165	0.812	0.972	0.853	0.836	0.815
1937	2605	41.440	0.824	0.819	0.814	0.795	0.786
1989	10664	41.000	0.934	0.928	0.922	0.900	0.864
2016	27300	40.114	0.847	0.835	0.828	0.806	0.755

Table 2.1 - Tirana’s metric and NACH parameters: 1921-2016

Map	Normalized Integration NAIN				
	R=400m	R=800m	R=1000m	R=2000m	RN
1921	1.283	1.059	1.002	0.897	0.782
1937	1.057	0.954	0.944	0.927	0.857
1989	1.107	1.049	1.047	1.090	1.135
2016	0.957	0.831	0.808	0.785	0.770

Table 2.2 - Tirana’s metric and NACH parameters: 1921-2016

The number of lines (segments) has incrementally grown from period one to period four. The ratio of weighted segment number increase reaches its peak during the last stage where the segment’s number grows from 10664 to 27300. The increase in segment numbers has been accompanied with a decreasing segment length from 1921 69m to 2016 41m. Table 2.1 and Table 2.2 reveal that to-movement and through-movement potentials are the highest consistently, through all radii’s during 1989 except for NAIN R400m where the highest to-movement potential can be found in the 1921 system (see Table 2.4).

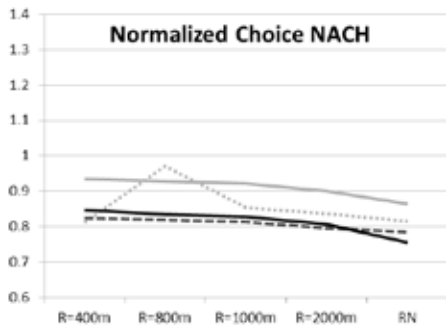


Table 2.3 - Tirana's NACH 1921-2016

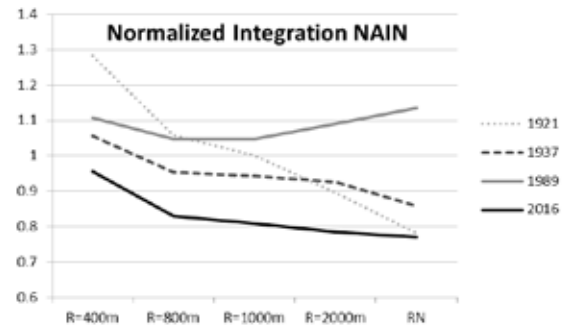


Table 2.4 - Tirana's NAIN 1921-2016

If we want to compare overall performance potential across periods, the analyses suggest that in terms of spatial configuration the city had better chance of performing in 1989 –a period when cities were strictly planned. However, if we combine spatial structure (configuration) with other aspects of society such as urban life and economic development, period four gives rise to the fulfilling these necessities. As soon as the top-down planning model relieved its 'pressure'-associated by the fell of the socialist regime-, the self-regulating processes begin to intervene in the socio-spatial structure of the city. As all these bottom-up interventions were not regulated to any extent, random growth structures started to emerge. In the first two decades of post-socialism these self-regulating interventions have been mainly economic driven. No planning regulations, development restrictions nor capacity studies were coordinating growth in Tirana (see Figure 3.1 for urban growth of Tirana, visualizing global radii NAIN and NACH analyses). Subsequently, the results are visible not only as part of overall social dissatisfaction but also, ultimately it is part of the results of the configurational analyses (see Table 2.1 and Table 2.2 to sense decline in movement potential). Besides the discontentment's that relate to lack of infrastructure, public engagement and services, Tirana is a hardly legible city. Tourists and visitors often find it hard to move in the city and find their destinations, and it is an even harder task to accomplish to be able to go back to an origin point in any of the organically grown areas of the cities.

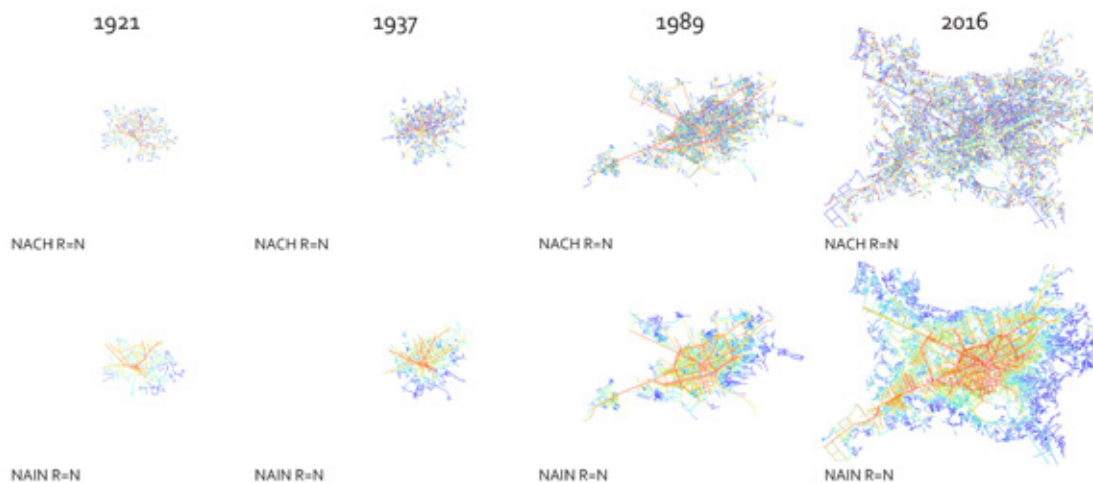


Figure 3.1 - NACH and NAIN at RN for: 1921, 1937, 1989 and 2016.

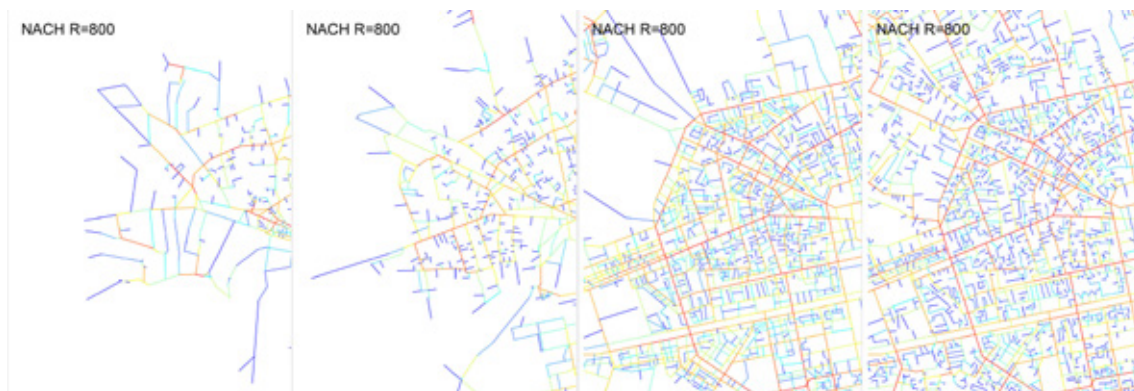


Figure 3.2 NACH R=800m (zoomed in area) showing transformation throughout the study periods (1921, 1937, 1989 and 2016). vv

In order to visually clarify the description of how growth influenced emerging structure in the case of Tirana across all study periods, Figure 3.1 shows a zoomed in part of the city at NACH R800m. The reason why this radius was chosen to represent through-movement relates to the fact that -regardless of Tirana's sprawl and a society that is heavily motorized- walking to routine destinations is still an essential part of daily life. There are two things that can be observed by just carefully comparing across the periods. First, the structure has been consolidating towards a more orthogonal grid until period three (1989). Second, relates to values of through-movement potential, where a substantial transformation of light blue lines to dark blue lines has occurred from 1989 to 2016.

4. SYNTACTIC GROWTH PROCESSES

Hillier argues that historically, city centres not only grow and shrink, but also shift and diversify and with growth to large town or city level, a whole hierarchy of centres and sub-centres usually appears diffused throughout the settlement (Hillier, 1999: 107). Consistent with this argument, our analyses show that in Tirana a new structure of centres and sub-centres arose, mainly as a consequence of the bottom up planning culture. As a matter of fact, this can be supported in particular during the fourth historic period (2016) when numerous new centres and sub-centres have been organically spreading across the city allocated naturally as part of the informal process. Karimi (1997) in his research on organic cities has identified that such urban environments tend to maximise the integration of the centre in order to accommodate prime urban activities, whilst trying to reduce segregation of the city from outside and the rest of the city from the centre through expanding major routes (Karimi, 1997: 14). In the case of Tirana what is noticeable from the syntactic analyses -in particular if we look at the axial analyses throughout the study periods- is that global measures have been fluctuating up and down with significant decrease in 2016. Since the cease of the top-down planning interventions, the system has testified a great amount of interventions in its orthogonal structures with short, multiple step lines spread persistently across existing neighbourhood (block) structures. This has contributed to the increase in global depth of each line in respect to all other lines of the system. At the local scale, however, certain measures such as intelligibility or integration have changed at a lower rate -with no significant transformation during the post-socialist period. Karimi's (1997:15) claim that 'deep analyses of organic structures can reveal the principles and laws of urban growth which are based on an evolutionary fulfilment of the inhabitants' needs during the process of spatial formation' can be clearly observed likewise in the case of post-socialist Tirana.

5. CONCLUSIONS AND FURTHER WORK

We have been able to present a few findings about the evolution of the urban network in regarding local and global, to- and through- movement potentials. The aim of this paper has been only to compromise analyses of road network evolution. Assessing morphological transformation of the built form as a co-existential part of this growth process is planned as future work.

Hillier et al (2007) have noticed that at each scale there is a natural areaisation of the city into a patchwork of spatially distinguishable zones (Hillier et al, 2007: 275). Further step would be to identify morphological patters established by a rigorous study way. Even though patterns are not necessarily significant in all urban situations argues Marshall (2005:34), they do exist as a variable alongside others and should be taken into consideration. Samuels (2008:58) expresses that typomorphology can be used for managing change of inherited urban form. Additionally, in the other direction it can inform innovations with a clear idea of the structure of what is introduced and how it fits into the wider structures and processes' (Kropf, 2006: 73). Further, in depth analyses and their rationalization can help in understanding the complex urban situation of post-socialist Tirana. Rigorous configurational and morphological studies should be able to ease and aid future decision making in regarding city scale planning interventions.

REFERENCES

- Aliaj, B. (2003). 'A Short History of Housing and Urban Development Models during 1945-1990: Tirana.'
- Azimzadeh, M. (2008). 'Urban design and planning ideas, the generators of layers in the urban spatial systems'. *ACSP-AESOP 4th Joint Congress July 6-11, 2008 Chicago, Illinois*.
- Dai, X. (2004). 'The Chinese city Suzhou in seven hundred years: An investigation of the relationship between the changing functional pattern and its spatial structure in the urban transformation process', UCL (University College London).
- Dino, B., Griffiths, S., and Karimi, K. (2015). 'Informality of sprawl? Morphogenetic evolution in post-socialist Tirana.' *City as Organism. New Visions for Urban Life-ISUF Rome 2015-Conference Proceedings Volume 1: 643-655*.
- Dino, B., Griffiths, S., and Karimi, K. (2016). 'Autocratic planning systems challenged by unregulated urbanisation: Urban transformation in post-socialist Tirana, Albania.' *The Regenerative City, PUARL 2016 Conference*. San Francisco, California
- Felstehausen, H. (1999). 'Urban growth and land use changes in Tirana, Albania: with cases describing urban land claims.' Land Tenure Center, University of Wisconsin-Madison.
- Gemil, A. (2005). 'The sequential development and the consequent urban patterns of Bucharest', UCL (University College London).
- Griffiths, S. (2012). 'The use of space syntax in historical research: current practice and future possibilities.' In *Proceedings of the Eighth International Space Syntax Symposium*. Santiago de Chile: PUC
- Hillier, B. (1999). 'Centrality as a process: Accounting for attraction inequalities in deformed grids.' *Urban Design International 4*(3-4): 107-127.
- Hillier, B. (2002). 'A theory of the city as object: or, how spatial laws mediate the social construction of urban space.' *Urban Design International 7*(3-4): 153-179.
- Hillier, B. (2012). 'The genetic code for cities: is it simpler than we think?' *Complexity Theories of Cities Have Come of Age*, Springer: 129-152.
- Hillier, B. and Hanson, J. (1984). 'The social logic of space', Cambridge university press.
- Hillier, B. and Penn, A. (1996). 'Cities as movement economies.' *Urban Design International 1* (1), 49-60.
- Hillier, B., Turner, A., Yang, T., and Park, T. (2007). 'Metric and topo-geometric properties of urban street networks.' *Proceedings Space Syntax. 6th International Space Syntax Symposium, Istanbul*.
- Hillier, B., Yang, T., and Turner, A. (2012). 'Normalising least angle choice in Depthmap and how it opens up new perspectives on the global and local analyses of the city space.' *Journal of Space Syntax*, 3(2), 155-193.
- Karimi, K. (1997). 'The spatial logic of organic cities in Iran and the United Kingdom.' *Proceedings. Space Syntax 1st Intl. Symposium*. London. pp: 1-17.
- Kera, G. (2004). 'Aspects of the urban development of Tirana 1820-1939.' *Conference proceedings. 7th International Conference of Urban History: European City in Comparative Perspective*. Athens.
- Kropf, K. (2006) 'Crisis in the typological process and the language of innovation and tradition', *Urban Morphology 10*, 70-7.
- Perdikogianni, I. (2003). 'Heraklion and Chania: A study of the evolution of their spatial and functional patterns.' *Proceedings of the Fourth International Space Syntax Symposium*. London: University College London.
- Pinho, P., and Oliveira, V. (2009a). 'Cartographic analysis in urban morphology.' *Environment and planning. B, Planning & design*, 36(1), 107.
- Pinho, P., and Oliveira, V. (2009b). 'Combining different methodological approaches to analyze the oporto metropolitan area.' *Proceedings of the 7th International Space Syntax Symposium*, Stockholm, KTH Royal Institute of Technology.
- Marshall, S. (2005). 'Urban pattern specification.' *Institute of Community Studies*, London.
- Serra, M. and Pinho, P. (2011). 'Dynamics of periurban spatial structures: investigating differentiated patterns of change on Oporto's urban fringe.' *Environment and Planning B: Planning and Design*. 38: 359-382.

- Samuels, I. (2008). 'Typomorphology and urban design practice.' *International Seminar of Urban Form ISUF*. Versailles, France.
- Shpuza, E. (2009). 'Evolution of Street Networks in Adriatic and Ionian Coastal Cities.' *Proceedings of the 7th International Space Syntax Symposium*, Stockholm, KTH Royal Institute of Technology.
- Tosics, I. (2005). 'City development in Central and Eastern Europe since 1990: the impact of internal forces.' *Transformation of cities in Central and Eastern Europe: Towards globalization*, 44-78.