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Architecture-Built Environment-Interiors

Mapping Dubrovnik: Towards an Alternative Approach to Overtourism

Supervisor: Carolina Pacchi

Student: Magda Borovina, 10966153

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ABSTRACT

This thesis explores the spatial condition of overtourism in Dubrovnik within the broader context of global urban theory and Mediterranean urban dynamics. It argues that overtourism is not simply a matter of excessive visitor numbers, but a spatial and symbolic concentration produced through the interaction of global mobility systems, heritage branding, and seasonal urban rhythms that generate fluctuating intensities across the year.
Through a multi-layered mapping methodology, the thesis examines how conceived representations of Dubrovnik as a heritage destination shape perceived patterns of movement and transform lived urban experience, revealing the disjunction between marketed imagery and everyday urban realities. Drawing on Lefebvre's spatial triad and rhythmanalysis, alongside imageability frameworks inspired by Lynch, the research identifies the historic core as a site of intensified symbolic authority and infrastructural pressure, while surrounding districts remain comparatively marginalised.
Building on this analysis, the project advances an alternative strategic framework. Rather than dispersing tourism geographically, it proposes a redistribution of symbolic agency through the recalibration of experiential intensity and pedestrian continuities, aiming to rebalance spatial and social hierarchies. Mapping is positioned not only as a diagnostic device but as an operative urban design instrument capable of informing spatially grounded and culturally sensitive interventions for a more resilient Dubrovnik.

KEY WORDS:
Dubrovnik, overtourism, global urban theory, urban cartography, spatial agency, polycentric urbanism, rhythmanalysis, spatiotemporal recalibration, adaptive urban strategy, symbolic redistribution

ABSTRACT

Questa tesi esplora la condizione spaziale dell'overtourism a Dubrovnik nel più ampio contesto della teoria urbana globale e delle dinamiche urbane mediterranee. Sostiene che l'overtourism non sia semplicemente una questione di numero eccessivo di visitatori, ma una concentrazione spaziale e simbolica prodotta dall'interazione tra sistemi globali di mobilità, processi di heritage branding e ritmi urbani stagionali che generano intensità fluttuanti nel corso dell'anno.
Attraverso una metodologia di mappatura multilivello, la tesi analizza come le rappresentazioni concepite di Dubrovnik come destinazione patrimoniale plasmino i modelli percepiti di movimento e trasformino l'esperienza urbana vissuta, rivelando la disgiunzione tra l'immaginario promosso e le realtà urbane quotidiane.
Basandosi sulla triade spaziale e sulla ritmanalisi di Lefebvre, insieme a quadri teorici sull'imageability ispirati a Lynch, la ricerca individua il centro storico come un luogo di intensificata autorità simbolica e pressione infrastrutturale, mentre i quartieri circostanti rimangono relativamente marginalizzati.
A partire da questa analisi, il progetto sviluppa un quadro strategico alternativo. Piuttosto che disperdere il turismo geograficamente, propone una redistribuzione dell'agenzia simbolica attraverso la ricalibrazione dell'intensità esperienziale e delle continuità pedonali, con l'obiettivo di riequilibrare le gerarchie spaziali e sociali. La mappatura viene così intesa non solo come strumento diagnostico, ma come dispositivo operativo di progettazione urbana, capace di orientare interventi spazialmente radicati e culturalmente sensibili verso una Dubrovnik più resiliente.

KEY WORDS:
Dubrovnik, overtourism, teoria urbana globale, cartografia urbana, agenzia spaziale, urbanismo policentrico, ritmanalisi, ricalibrazione spazio-temporale, strategia urbana adattiva, redistribuzione simbolica.

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INTRODUCTION

In this thesis, the topic of overtourism's effect on heritage cities in the Mediterranean will be examined. This phenomenon will be carefully explored through the case study of Dubrovnik due to the scale of its issues with overtourism compared to its size, clearly exacerbating its effects (Camatti et al., 2020). This compact environment offers a unique opportunity to examine the intertwinement of the processes and relationships that cause overtourism in Mediterranean heritage cities. The homogeneity of the local population and their deep connectedness and appreciation for the landscapes in which they reside also contributes to the reason Dubrovnik has been chosen as a case study (Peručić and Puh, 2012; Abbasian, Onn and Arnautovic, 2020). This thesis aims to uncover a multifaceted and multidisciplinary method of approaching the issue of overtourism by examining the intertwinement of the systems and connections which constitute it, focusing on Mediterranean heritage cities and their local identities. Rather than solely relying on quantitative indicators or regulatory controls, the proposed approach engages with the socio-spatial, cultural, and experiential dimensions of the urban fabric, acknowledging that contemporary urban conditions are interconnected on a global scale and shaped by lived experiences just as much as measurable data.

The long history of Mediterranean heritage cities is deeply intertwined with the development of tourism (Franklin, 2003). Ancient trading routes and pilgrimage sites across the Mediterranean served as the foundations for systems of landmarks and infrastructure which evolved into tourism as we know today. Tourism is intensely interconnected with the experience of an urban landscape, causing tensions between the local's and the tourist's idea of what the heritage city should look like, feel like and how it should operate and represent itself (Richards, 2022; Pendlebury, Short and While, 2009). These tensions manifest into overtourism when the dissonance is too high (Dodds and Butler, 2019; Mihalic, 2020). Overtourism is therefore understood as a structural imbalance between representation, capital flows and lived rhythms of the city (Mihalic, 2020; Lefebvre, 2004; Peeters et al., 2018).

From an architectural perspective, uncovering a fragment of how we experience heritage cities could aid in future design and urban policy solutions for overtourism based on the local identity instead of the tourist gaze (Richards, 2022; Milano, Novelli and Cheer, 2021). Here, identity is understood as an evolving set of habits, practices, relationships, and perceptions that enable the urban fabric to adapt on its own terms, rather than a fixed nostalgic preservation of the past (Massey, 1991; Lefebvre, 2004). In this context, identity functions as a form of resilience, allowing recalibration in response to global pressures without disrupting local socio-spatial rhythms (Cheung and Li, 2019; Lambert and Allen, 2016; Lefebvre, 2004). Personally, the initiative for this research is an interest in understanding possible solutions for intensely felt overtourism issues in my hometown of Dubrovnik. Having felt this phenomenon firsthand, I am very intrigued by finding an alternative method of approach to address the issues it creates.

In this thesis, the possibility for an alternative method of approach to overtourism in Mediterranean heritage cities is examined through answering the question:
'How can the focus on local identity in urban design solutions, policies and systems recalibrate the socio-spatial and temporal imbalances generated by overtourism into a more adaptable and resilient urban landscape?'

The focus is directed to mapping the layers which constitute the urban fabric and their influence on the experience of place. The thesis statement supports the idea that a holistic method of approach to overtourism emerges when a deep intertwinement of the local habits, practices, beliefs, and perceptions occurs within policy making and design processes which shape the urban fabric (Lefebvre, 1991; Corner, 1999). This approach is considered 'alternative' because it extends beyond visitor control and regulation, instead engaging directly with the production of space, identity and lived experience as fundamental structuring forces of the city (Lefebvre, 1991; Dodds and Butler, 2019; Peeters et al., 2018).

The framework of this dissertation is divided into four chapters, tackling the development of overtourism in Dubrovnik. The main methodology considers the agency of epistemology and its intertwinement with the local identity in analysing the city of Dubrovnik (Corner, 1999; Harley, 1999; Wood, 1992). It is supported by a holistic mapping approach of overtourism affected areas followed by the development of strategies and design solutions characterized by adaptive change. In doing so, the thesis reinforces its claim of proposing an alternative approach to overtourism by demonstrating how identity-led recalibration informs spatial strategies and policy trajectories.

CHAPTER 1- Global Urban Condition and Mediterranean Urbanism

Planetary urbanisation characterises the epistemological reality of the contemporary global urban condition. Urban theory has been situated within frameworks of the Global North for a long time, calling for a shift in perspective. In postmodern times we should aim to decentre urban theory to open our mind to exploring different stories across global urban fabrics (Castán Broto, 2020).

The mosaic of different urban fabrics tells the story of different possibilities to understand and interpret what is urban. The increased interconnectedness of people, experiences, culture, capital, systemic processes, and infrastructure acknowledges everyone's participation in constructing the idea of the postmodern city (Robinson, 2016; Robinson and McFarlane, 2012; Roy, 2020).

Historically and presently, the Mediterranean offers a diverse mosaic of landscapes characterised by an overlapping of multiple temporalities unified by sociocultural norms and practices, intrinsically manifested through architecture (Cavalcanti, 2020). Over time, the urban fabric got denser and for the people that experience it every day it produces many connections and symbolisms. This is evident in the people's persistence to keep their space within their vernacular through informal settlements and construction (Ferulano, 2020), community based economies, and mixed land use patterns (Leontidou 1990, 1993; Lindón, 2020). These fragments of the urban fabrics intertwine and create socio-spatial harmony unique to the Mediterranean. Tourism, defined by the UNWTO as "the movement of people to places outside their usual environment for not more than one consecutive year for leisure, business and other purposes", brings a disruption to this rhythm and puts pressure on existing structures (Manera and Valle, 2020; UNWTO, 2018). As material and ephemeral layers of the urban fabric bend to the tourist gaze, representation and expectations overpower lived experience and local practices, diminishing the quality of life for the local population (Peeters et al., 2019). Within this condition, overtourism emerges as not just excessive visitor numbers, but as a systemic imbalance between representational, economic, and everyday spatial logics. Overtourism reflects a misalignment between scale and temporality of tourism flows and the manifold dimensions of the carrying capacities of the urban fabric. This dynamic mosaic of urban landscapes shows resilience through its adaptive qualities displayed throughout time. These qualities allowed tourism to blossom in the Mediterranean but with the pressures of a fast paced globalised world and modern tourism related ideologies, it is struggling to keep up. Tourism highlights contrasts and uneven development uncovering complexities within the dense urban fabrics.

Mediterranean urban landscapes sit at the edges of Global North and South creating a site of alternative perceptions of urban trajectories exaggerated by the postmodern wanderlust. This liminality is not to be understood as a fixed geographical in-between, but a relational condition produced by uneven integration within global systems. These landscapes are at the same time included and excluded from the dominant, Global North based, narrative (Brickell et al., 2020). Mediterranean's heritage and culture attract the Global North to seek new experiences in the sun. However, when it comes to acknowledging the richness of the Mediterranean urban landscapes within contemporary urban theory, the interest in the heritage and culture becomes almost non-existent outside the context of leisure and tourism related economic profits.

However, this interest was not always so superficial. The phenomenon of tourism has a rich history, evolving interwoven with societal hierarchies (Kokhan et al., 2019; Papadopoulos, 1986). During ancient times most travel was performed either in the form of pilgrimage, trade, or conquest. The purpose for travel was tied to communal values and survival. Around the Mediterranean, various sites rose to prominence for either religious, trade or imperial reasons. Sometimes, these reasons overlapped creating layered centres of cultural development. These cultures in turn shaped the urban fabrics and many layers we still see and interact with today. Despite size, this gives Mediterranean urban landscapes a monumentality in carrying historical and cultural values through symbolisms. These symbolisms are one of the main products offered by tourist cities in the Mediterranean.

With time, the notion of travel shifted from stemming from communal values and survival to educational and personal development motives. From the 16th century, travel gradually secularised, although only the upper class travelled in this manner. The way you travelled and the reasons for which you travelled were highly determined by your class. From being a necessity, travel became an indicator of class. This was specifically embodied in the Grand Tour which focused on the Mediterranean as a starting point of exploration for young Northern European elites (Franklin, 2003; van der Borg, Costa, and Gotti, 1996). For the first time travel has a phenomenological manifestation in the urban fabric where it is experientially read and examined rather than serving a means to an end as in ancient times. This experiential reading served as an epistemological background for the imposed imperial dominance of the Global North. These readings are present even today through the tourist gaze and the projected images of touristic cities in the Mediterranean.

These shifts in understanding the meaning of travel generated infrastructures which supported it such as roads, sleeping shelters and other hospitality related establishments, like taverns. These left their mark in the socio-spatial dynamics which continued to evolve and generate the tangible and intangible infrastructure which supports tourism today. In modern and postmodern times, with the rise of the working class, travel shifted from a phenomenological experience to a commodity measured in likes on social media. The virtual aspect creates complexities in the image of the city which are intensified by tourism.

Industrialisation produced accessible modes of transport which gave us the ability to speed up our accumulation of experience, making it a measurable, standardised performance. Governments used this performance as a developmental driver for their county's economy creating infrastructure such as the Xenia Hotels Program in Greece during the second half of the 20th century (Georgiadou et al., 2017). The idea of soaking in centuries of local history in a few days makes connecting to local culture a competition rather than true understanding and connection. This harms the Mediterranean by turning it into a consumable superficial commodity, more of a theme park rather than a living mosaic of urban organisms in which you should immerse yourself. The theme park consisting of hotels, resorts, attractions, landmarks, transport, hospitality and entertainment infrastructure, supports the emergence of mass tourism. Sites of beauty and culture transform into products for mass consumption and leisure. Modernity's shift from industrial to experiential based economies set the foundations for the rise in the importance of the service industry. Everyday life becomes performance projected to visitors. And the satisfaction level regarding the interaction with the performance determines the perception of a place.

Consumer culture makes the Mediterranean a victim of the tourist gaze (Franklin, 2003). The lived and imagined city generates a paradox in the experience of the urban which creates a dissonance between the local and tourist populations. These tensions bring an uncomfortable atmosphere which manifests as overtourism. Overtourism is also exacerbated by globalisation, technological advancement, and economic conditions. The interconnectedness of the globalised world is both a driver and an inhibitor of everyday processes affecting the quality of life for locals (Vourdoubas, 2023, 2025). Representation becomes as, if not more, important as the lived experience, exaggerated by the rise of social media. Barcelona, Venice, and Dubrovnik exemplify the pitfalls of tourism hidden behind the economic gains at different scales. Barcelona's residents are protesting against tourism, Venice is facing physical decay of infrastructure that supports tourism and Dubrovnik is fighting seasonal congestion exacerbated by mass tourism (Fregolent and Vettoretto, 2017). The rhythms of everyday life are systemically disrupted by tourism fluctuations and desires.

Today, travel is still viewed through the lens of class division creating different perceptions of the same place at a global scale. The advantage here is that we can learn more from multiple perspectives, but the disadvantage is that some of those perspectives find it difficult to coexist. This makes creation and representation of a place extremely important. The narrative of a city should come from within rather than conforming to external ideas of the image of the city in order to save itself from separating from the local authentic identity. Paradoxically, the more it makes itself visible, the more it needs to maintain that image which it is projecting, making the production of space inextricable from its consumption (Mika, 2021).

The postmodern desire of authentic cultural experiences is influenced by social media representations before it is even experienced on site, leading to superficial and disappointing experiences. The urban landscape is generated by recognisable representations rather than the lived experiences. Authenticity becomes a commodity creating a cultural paradox where local and global forces play tug of war.

By revealing the layers which constitute the urban fabric and understanding their relationship to the global urbanisation processes, the Mediterranean urban paradox can be mitigated and changed for the benefit of the local population rather than tourism related profits.

Thinking about the urban condition in the Mediterranean through the lens of the Global North urban templates positions it as incomplete or insufficiently modern because of their non-industrial developmental trajectories. However, such readings will miss the Mediterranean urban landscapes as articulated urban logics generated from dense social networks, mixed land uses, climatic adaptations and historically layered spatial practices (Leontidou, 1990; 1993). Rather than existing peripherally to urban theory, Mediterranean urbanism shifts industrial-modern paradigms by putting everyday life, informality, proximity, and sociocultural continuity as structuring forces of the urban.

In this sense, the Mediterranean is understood as not just geographically situated but epistemologically liminal between the Global North and South. It is positioned within global circuits of capital, tourism and representation associated with the Global North, while at the same time sharing development trajectories, climactic conditions and labour dynamic associated with the Global South. This liminality can be understood as a relational condition generated by uneven integration into global

economic systems, rather than as a fixed geopolitical entity. These manifestations in the urban fabric are evident through seasonal labour flows, economic dependency on tourism and infrastructural strain.
Thus, examining the state of the Mediterranean urban condition through the lens of overtourism may offer some insight into how liminal geographies are affected and shaped by global processes as well as how those in turn impact the everyday life of local residents.
The everyday experience is especially important as it tends to get lost in the consumerist desires of global capitalist systems; however, it actually forms the backbone for each person's understandings and feelings about the world around them. Since humans are beings based in emotions and experiences, making us different than all other species, it is crucial to introduce these notions in understanding and generating urban theory. The clash between local experience and global desires is very clearly evident in Mediterranean urban landscapes as liminal geographies positioned between perceptions of the Global North and the characteristics of the Global South.
The Mediterranean, while having a strong self-identity, also has a strong historical identity with habits, networks and patterns being developed for hundreds of years and deeply embedded in the urban fabric. This is what tourists come to the Mediterranean to see but in their short stay, a true connection with the reflections of the past in the present are not made. Instead, an image based in the tourist gaze is overlaid over the actual lived experience of the Mediterranean urban landscapes creating a distorted image which hinders relationships and expectations of locals and tourists. This can be interpreted through Harvey's spatial fix; when tourism operates as a mechanism reorganising urban space with surplus capital to absorb economic pressures, in the process often reshaping housing, labour and infrastructure (Harvey, 2001).
This distorted image produces, as well, confusion in the temporalities which produce the urban fabric. Already existing intersecting temporalities of local practices essentially constitute the urban fabric and connect to global flows. The temporalities of seasonality related to tourism disrupt these rhythms introducing new expectations for systems which have limited capacities already filled with local temporalities. The negotiations of these temporalities have socio-spatial consequences where identities are based in economic performance.
Lefebvre's concept of rhythmanalysis distinguishes between cyclical rhythms rooted in climate and everyday and linear rhythms imposed by industrial and capitalist systems (Lefebvre, 2004). Tourism introduces intense linear rhythmic surges through cruise schedules, flight timetables, and seasonal labour cycles. These intersect with slower cyclical everyday rhythms. Misalignment between them causes arrhythmia within the urban fabric.
This manifests in all socio-spatial layers of the urban fabric, creating complexities which current strategies fail to address. In this context, tourism can be introduced as a critical liminal lens, offering perspectives of temporary, seasonal, and permanent experiences which embed themselves into the urban fabric across multiple temporalities. It should, therefore, not be reduced to visitor numbers alone but interpreted as a structural imbalance between representation, capital flows and everyday carrying capacities of the city.
Tourism can also be connected to particularly prominent issues of climate change

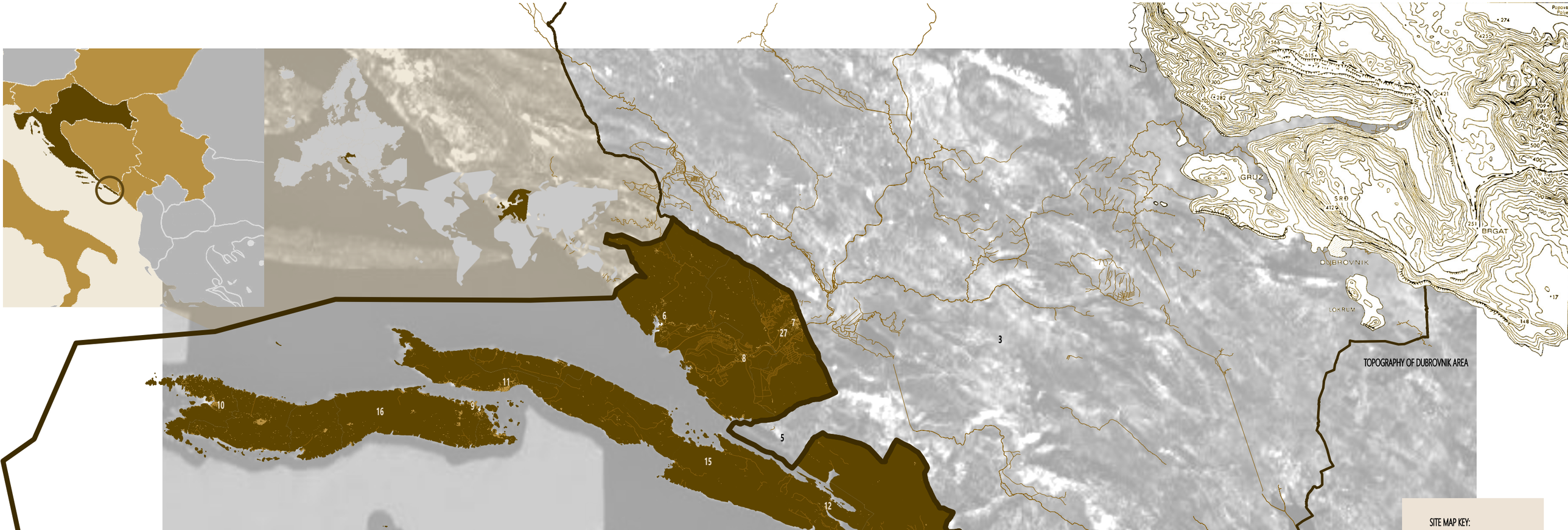
(Bulkeley, Tozer and Lecavalier, 2020) and adaptive strategies necessary to manage global disasters exemplified through the COVID-19 pandemic. These can be examined together as strategies to improve our health since our everyday lives are deeply connected to the state of our environment.
The economic aspects of tourism push the ecological capabilities to their limit, making them extremely vulnerable to climate change (Pendlebury, Short and While, 2009). Greenwashing tends to exacerbate these limits, focusing more on satisfying global sustainability agendas rather than the needs of the local population. This calls for a re-imagination of development trajectories to focus more on emphasising the local ideologies within the cultural and economic systems based in ecological awareness which is characteristic of the local practices and climate (McGuirk, 2020).
The global impact of the COVID-19 pandemic exposed the dependency of governments and businesses on tourism. This was deeply felt in the Mediterranean because it relies too much on the global flows. When the flows stop, the empty city gets lost without infrastructure that supports independence and reclamation of space by the local population (Desmaison, 2020). The creation of this infrastructure requires consideration of alternative and adaptive strategies, more focused on the needs of the locals. From the example of the pandemic, it is obvious that the touristic city cannot support endless growth, which is the current trajectory of most tourism strategies implemented today.
Urban resilience is created through infrastructural but also social, environmental and governance capacities (Harb, 2020). The approach to achieving urban resilience is best situated in examining and improving existing local practices. External practices should only be considered as precedent not as a ready-made solution. This way global flows and local identity can negotiate instead of clash.
Due to the global-local dichotomy of tourism, it becomes a lens through which the Mediterranean city understands itself (Grüneisl, 2020). Its rich heritage and embedded local practices accumulated throughout history make the dichotomy expressed in the urban fabric clearly legible, making the Mediterranean a unique part of the world where the issue of overtourism can be explored.
Some prime examples of Mediterranean cities affected by overtourism are Barcelona, Venice, and Dubrovnik. They all suffer from the same problem at different scales. With size the urban fabric gets more complex, involving more actors and processes, as well as external globalising influences. Therefore, the scale of Dubrovnik compared to the size of its overtourism issue offers the perfect playground for exploration. If overtourism is understood as a structural spatio-temporal imbalance embedded into liminal Mediterranean urbanism, then regulation strategies like crowd control and numerical caps are insufficient. Strategies have to address the condition by engaging directly with the socio-spatial production and organisation, temporal rhythms, and power relations of the urban fabric. Dubrovnik's scale and intensity offer a precise site through which an alternative approach can be examined.

CHAPTER 2- Manifestations of Overtourism in Dubrovnik

Within the globalising developmental forces of planetary urbanisation, tourism emerges as an organising force of the Mediterranean city, rather than just an external shock (Milano, Novelli and Cheer, 2021; Mihalic, 2020), unearthing a mosaic of fragments operating at various scales, from neighbourhood to global, expressed through local habits, practices, processes, systems and relationships (Thorns, 2002; McFarlane, 2023). Tourism is intertwined into the urban fabric in many layers, so it is important to understand how its origins, development and effect on a place are related to its evolution (Brenner and Schmid, 2015).
In order to understand the trajectories and influences of tourism, it is important to be aware of the conditions under which we produce the multiple forms of knowledge, based on which we create strategies for overtourism. These conditions should be transparent, multidisciplinary and with agency in relation to the local habits and practices (Foucault, 2002).
To begin this journey, overtourism must be understood as a systemic, rather than sectoral issue caused by excessive visitor numbers (Alsharif et al., 2025; Dodds & Butler, 2019; Peeters et al., 2019; Koens, Postma and Papp, 2018). Governance institutions tend to focus more on statistical evidence like Tourism Carrying Capacity (TCC) Index, which articulates the infrastructural and environmental limits, instead of how the everyday interactions with the systems in place affect the local population (Pico Gutiérrez et al., 2022). An attempt to assess this relationship was found in the Resident Perception Index (RPI), which measures the tolerance of the local population to tourism induced alienation. While useful, it only scratches the surface of the complexity of the urban fabric, so it is better used as a starting point in understanding the severity of overtourism related issues.
To go deeper into the experiential aspects of overtourism, it is important to acknowledge that this phenomenon is intrinsically connected to consumerist desires, global mobility systems, representational trends, and unbalanced governance structures which construct the complex urban fabric (Wachsmuth, 2014; Zemła, 2020; Weber & Eggli, 2019; Milano, Novelli and Cheer, 2021). This means that the possibility of understanding overtourism should come from understanding how it fits into each layer of the urban fabric. The flows of relationships between fragments that make up the urban fabric intensify some experiences while diminishing others, exposing processes which characterise the postmodern urban condition (Dear and Flusty, 1998; Ellin, 1999).
The Mediterranean, specifically Dubrovnik, was chosen due to its densely layered urban fabric. The small scale of Dubrovnik clearly exhibits how rich histories, informal practices, cultural connections evolve into a postmodern urban landscape, resisting planning models imposed by the Global North (Leontidou, 1990;1993). Due to its size and historical persistence, the people of Dubrovnik have developed a very strong connection and appreciation for their home. With the development of a globalised consumerist world, Dubrovnik started to package its history and culture as a product whose value depends on external validation (Jencks, 1977), in order to survive the games of capitalism. This put a strain on the connection between the local people and Dubrovnik, creating contradictions between visibility and saturation that comes with it. External validation is usually based in the satisfaction with the difference between imagined and lived experience, reducing the experience of the city to a

of the city to a product to be consumed (Massey, 1991).
To start understanding Dubrovnik's issues with overtourism we must first map out the past and present conditions which generate the urban fabric which is very intertwined with tourism. Making maps has been a longstanding practice of understanding and depicting an area. Historically, the making of maps is tied to producing evidence which supports the dominant power relationships, institutions, and attitudes (Edney, 2011; Wood, 1992; Harley, 1999).
We can draw parallels from this to today's tourist maps which severely affect targeted areas. These maps can be produced through different lenses such as historical, cultural, policy related, environmental and social. Together they depict the urban fabric and through them we can begin to understand how we got to the tourist map which today shapes the city by telling tourists which sites are obligatory for the 'full experience of Dubrovnik' (Monmonier, 1991).
The maps will be used to document the context, showing past and present conditions which generate the urban fabric of today, in which the manifestation of the phenomenon of tourism unfolds (Corner, 1999). Consequently, the issue of overtourism will be explored through mappings highlighting the intersection of existing spatial structures and postmodern tourist gaze.
The creation of maps will have a documentative approach to describe the urban fabric of Dubrovnik from which the issue of overtourism emerged. The maps will aim to capture the complexity of Dubrovnik from multiple scales. Therefore, the maps will be created in the following sequence:

1. Site map- geographical and morphological information
2. Evolution- historical development information
3. Environment- ecological relationships information
4. Urban- architectural and spatial information



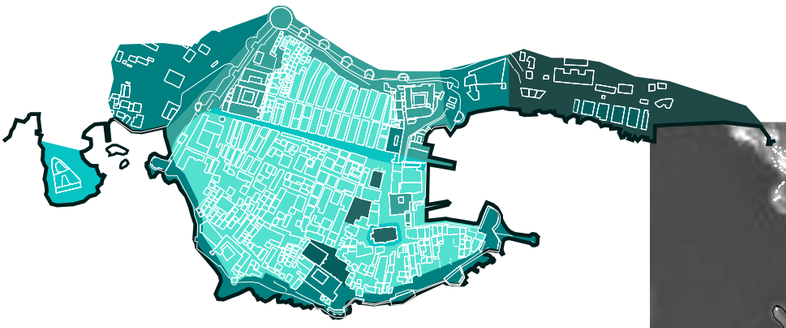
SITE MAP KEY:

1 DUBROVNIK
2 ZATON
3 BOSNIA & HERZEGOVINA
4 MONTENEGRO
5 NEUM
6 PLOČE
7 METKOVIĆ
8 OPUZEN
9 KORČULA TOWN
10 VELA LUKA
11 OREBIĆ
12 STON
13 SLANO
14 CAVTAT
15 PELJEŠAC PENINSULA
16 KORČULA ISLAND
17 LASTOVO
18 MLJET
19 KALAMOTA
20 LOPUD
21 ŠIPAN
22 JAKLJAN
23 LOKRUM
24 MRKAN
25 BOBARA
26 SUPETAR
27 NERETVA RIVER VALLEY
28 OMBLA
29 SNIJEŽNICA
30 SRĐ

Drawing 1. Borovina, M. (2026) Site map.

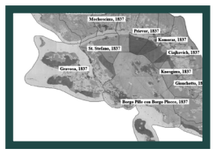
SITE MAP

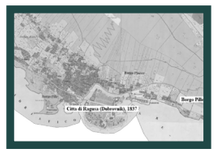
The location of Dubrovnik will be discussed at various scales.
Firstly, the global scale. Dubrovnik is positioned in the south part of the northern hemisphere, called the Mediterranean, on the continent of Europe. Secondly, within the Mediterranean, Dubrovnik is positioned at a curious intersection of different countries with their own specific cultures. Specifically, it is positioned between the Balkans, Eastern; Central and Western Europe, with each offering its influence on the urban fabric of Dubrovnik. Thirdly, Dubrovnik is the southernmost city in the Republic of Croatia, capital of the Dubrovačko- neretvanska county. The county is separated in the north by the Neum corridor in Bosnia and Herzegovina and borders Montenegro in the south. Alongside Dubrovnik some notable cities and towns are Ploče, Metković, Opuzen, Korčula, Vela Luka, Orebić, Ston, Slano and Cavtat. Other notable elements of the county, decorating the Adriatic Sea, are the Pelješac peninsula, and the islands of Korčula, Lastovo, Mljet, then the Elafiti archipelago consisting of Kalamota, Lopud, Šipan, Jakljan and other smaller ones in the north, and islands Lokrum, Mrkan, Bobara and Supetar in the south.
The morphology of the county varies from pebbled beaches to mountainous regions. The coast is extremely indented with many bays, peninsulas and islands, the most notable ones already mentioned. Most of the settlements are concentrated on the coast, spreading into the hinterland, along a narrow mountainous belt follows it. The only exception is the Neretva river valley which breaks through the mountainous ranges into the deep hinterland. Other notable morphological characteristics are river Ombla, from which the city gets its water, the mountain Sniježnica as the highest peak (1234 m) and hill Srđ (415 m) under which Dubrovnik sits.
The morphological structure of the area is fixed and therefore directly influences how spatial structures are expressed over time (Leontidou, 1990). The structures of the cities in this area are bound to its hilly morphology, contact with sea and coast shaped by salt and wind. You can see reflections of the natural landscape in the urban landscape. Afterall, the natural landscape conditions the existence of an urban one.



EVOLUTION MAP KEY:

before 7th c. | 7-8th c. | 9-12th c. | 13-15th c. | 16th c. | 17th c. | 18th c. | 19th c. | early 20th c. | late 20th-early 21st c.





Drawing 2. Borovina, M. (2026) Evolution map.

EVOLUTION MAP

In ancient times Ilirian tribes inhabited the area of Dubrovnik before Roman colonisation (Harris, 2003). Areas in the county such as Korčula island, Elafiti archipelago and regions south of Dubrovnik have been inhabited since before the common era. During the 7th century, Avar and Slavic invasions force the people to move from Epidaurum (today's Cavtat) and settle on a small rocky islet (Harris, 2003). These people saw this rock as a safe refuge and upon it continued to build the small oasis Dubrovnik is today. Rocky morphologies also characterise the area creating ripples in the urban fabric such as compactness and an orientation to the sea. On the other side of the shore a small settlement in the Slavic oak 'Dub' forest blossomed. The two settlements evolved a symbiotic relationship over time.
During the Byzantine rule (9th- 12th century), the Dubrovnik area was semi-autonomous, adopting Christian practices still very evident in today's urban fabric (Harris, 2003). During this time, the city started to become more defined by building fortifications and cathedral complexes. Byzantine and Romanesque remains are still found under the Dubrovnik Cathedral today. Such developments started to solidify Dubrovnik as a mediator between various trade routes (Harris, 2003). Dubrovnik starts to become one of the sites where the phenomenon of tourism is born from, either in form of pilgrimage, trade, or conquest (Papadopoulos, 1986).
The slow and calm development of Dubrovnik into a trade hub, allowed for the rise of the diplomatic Republic of Dubrovnik in 1358, after freeing itself from Venetian rule (Harris, 2003). The city quickly starts to implement urban policies and regulations. Connecting the settlements of Ragusa and Dubrava a central axis was formed, and from it, the identity of Dubrovnik started to embed itself within the urban fabric over time. During this time, the aqueduct supplying the city with clean drinkable water was built, solidifying Dubrovnik as a centre of culture, infrastructure, and trade.
During the Golden Age of the Republic (16th- 18th century), Dubrovnik reached its economic and diplomatic peak as a neutral maritime republic with trading connecting across the Mediterranean to the Middle East. Since its beginning, Dubrovnik was always oriented towards collective identity, resilience, and transparency rather than expansion allowing it to survive for centuries through its masterful practices of diplomacy. An event which has most significantly shaped the urban fabric of the historic core of Dubrovnik is the 1667 earthquake which devastated the city (Harris, 2003; Marić and Obad Šćitaroci, 2024). After that most of the burned down Gothic and Renaissance city elements were reconstructed in a Baroque style.
In 1808 Napoleon's army marched into Dubrovnik under the guise of just passing by on their way to battle with the Ottoman Empire. Instead, they abolished the Republic of Dubrovnik (Harris, 2003), and never since has it had full autonomy as during the Golden Age. It was ruled successively by the French, Austrian, Austro-Hungarian until becoming part of Kingdom of Serbs, Croats, and Slovenes in 1918 after World War 1, then renamed Kingdom of Yugoslavia in 1929.
Following World War 2, Dubrovnik was included into, yet another iteration called the Socialist Federal Republic of Yugoslavia until its turbulent collapse during the Croatian War of Independence, afterwards becoming part of Croatia. The city was severely damaged during the war, and careful UNESCO-driven restoration has made it into the consumable tourist product we know today (Ministry of Culture

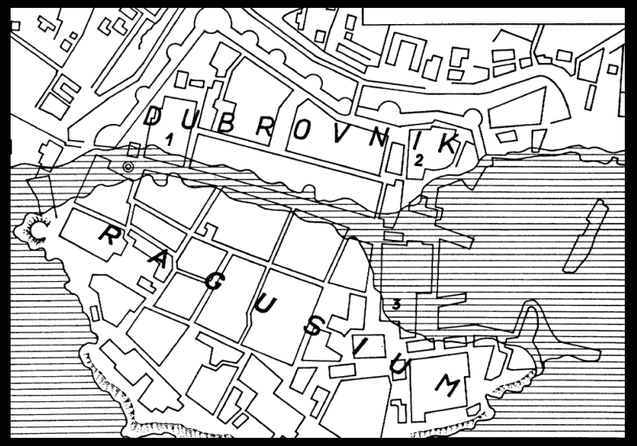


Figure 1. division of the earliest settlement

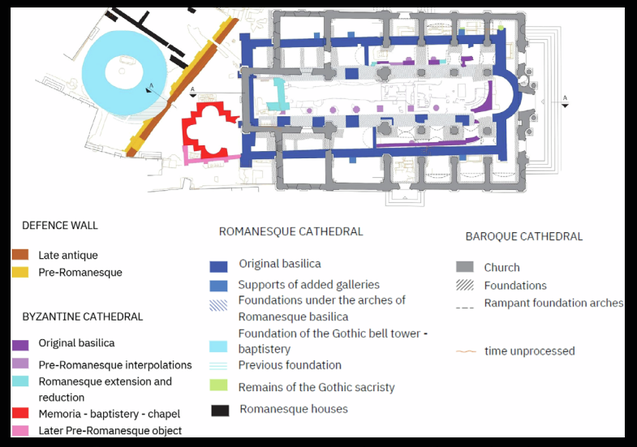


Figure 2. excavations in the Dubrovnik cathedral confirm longevity of settlement

Figure 3. Lazareti complex, once a quarantine area, today a cultural centre

and Media, 2021). As Dubrovnik makes significant profits in the tourism sector, it greatly contributes to the economic performance of all of Croatia (Croatian Bureau of Statistics, 2024; Croatian National Tourist Board, 2024). This makes Dubrovnik stuck in the postmodern overtourism cycles. With a lot of attention directed to the historic core, with time, residents began to expand the city westward, filling areas initially designated for the Dubrovnik's nobility vacation homes, with residential, administrative, and consumerist fragments (Marić and Obad Šćitaroci, 2024).

Since the very beginnings, Dubrovnik has been a kind of safe haven within the volatile Balkan-Mediterranean geopolitical landscape. This was embedded through diplomatic, legal, and urban practices, producing a historical connectedness to security, autonomy, and social cohesion. The Dubrovnik Republic has always positioned its strategies prioritising survival over territorial expansion and military dominance. This allowed them to mediate between the Ottoman Empire, the Republic of Venice, and the Austrian Empire (Harris, 2003).

The evidence of an accepting diplomatic people is still visible in the urban fabric with the presence of a synagogue, an Orthodox church and later Islamic community facilities, suggesting a high degree of religious tolerance at their very geographical intersection (Harris, 2003). It was also one of the first countries to abolish slavery, in year 1416 (Harris, 2003), solidifying its motto 'Liberty is not sold for all the gold in the world' ('Non bene pro toto libertas venditur auro), carved in stone above the door to the entrance of Lovrijenac fort. Aside from being welcoming to outsiders, Dubrovnik has always operated for the benefit of its own people through innovations such as the restriction of the Rector's mandate to one month to prevent the consolidation of power, an early construction of a running water system evident in the fountains still running in the historic centre, and the establishment of a quarantine systems in the Lazareti complex just outside the city walls during the plague outbreaks (Harris, 2003). These innovations contributed to wellbeing and stability embedding resilience within layers of the urban fabric.

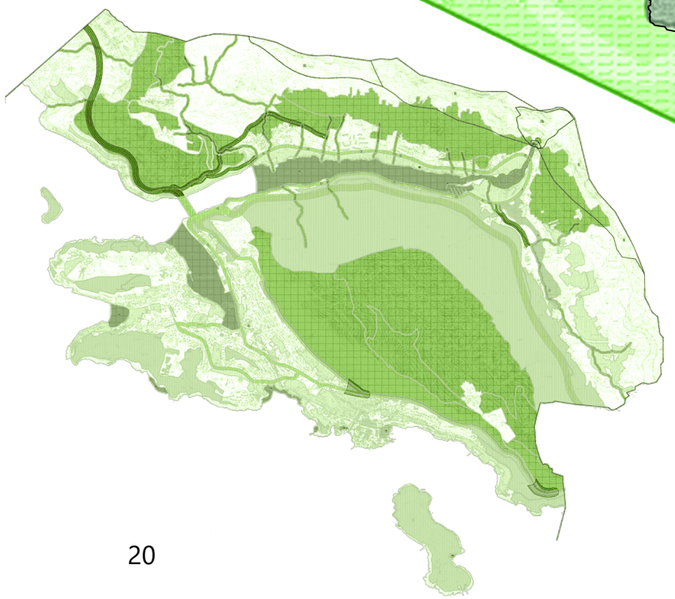
Even after the fall of the Republic, a powerful sense of local identity persisted. When asking any local what they think about their hometown, aside from general everyday life complaints, it is common to hear an appreciation, pride and love for their home which can only be described as a form of local patriotism. This is reproduced through practices, habits, and relationships of the locals, truly making the city their own.

The historical continuity of local identity intensifies overtourism issues (Milano, Novelli and Cheer, 2021). External rhythms disrupt the historical continuity and give the city an unprecedented riddle to solve; how to manage the phenomenon which at the same time destroys you and allows you to survive.

ENVIRONMENT MAP KEY:

- STENOMEDITERRANEAN PURE EVERGREEN FORESTS AND MAQUIS
- COASTAL THERMOPHILIC FORESTS AND MEDUNAC THICKETS
- SMALL THORN BUSHES
- SUBMEDITERRANEAN AND EPIMEDITERRANEAN DRY GRASSLANDS
- ROCKY PASTURES AND DRY GRASSLANDS
- MOSAICS OF CULTIVATED AREAS
- PUBLIC NON-CULTIVATED GREEN AREAS
- CIRCALITTORAL MUDS
- INFRALITORAL HARD BOTTOMS AND ROCKS
- INFRALITORAL FINE SANDS WITH MORE OR LESS MUD
- SETTLEMENTS OF POSEDONIJA
- SPECIAL FOREST VEGETATION RESERVE LOKRUM
- FOREST PARK VELIKA AND MALA PETKA
- SIGNIFICANT LANDSCAPE RIJEKA DUBROVAČKA
- MONUMENT OF PARK ARCHITECTURE PLANE TREES ON BRSALJE

- TERRESTRIAL HABITATS
- UNDERGROUND HABITATS
- BIGGER AREAS OF THE NATIONAL ECOLOGICAL NETWORK
- SMALLER AREAS OF THE NATIONAL ECOLOGICAL NETWORK



- AFFORESTATION
- GREENING
- LAND FORMATION WITH INFRASTRUCTURE BUILDINGS
- SOIL DAMAGED BY EROSION BIOLOGICAL
- BURNT FOREST HABITAT RECULTIVATION
- ENDANGERED AQUATIC ENVIRONMENT
- AREA THREATENED BY NOISE

Drawing 3. Borovina, M. (2026) Environment map.

ENVIRONMENT MAP

Following the evolution of the city we can observe that its expansion is inseparable from the urban fabric. Therefore, the relationship between built and unbuilt areas should be examined.
The built areas are conditioned by the natural environment, so it is important to understand the interconnectedness between them.
Looking at the county scale, roughly the reach of the Golden Age of the Republic, we can observe that the built environment does not dominate. The city is surrounded by vast blue and green areas; however, the built environment is condensed spreading from the historic core northwest.
The supporting infrastructure connecting the county is a web of highways, main roads, side roads, and pathways further interconnected externally by seaports, airports, bridges (like the Pelješac bridge) and winding roads. Internal organisation is attempted through public parking garages and public transport. Supporting systems also include telecommunications, post, energy and water providers and waste disposal.
The local landscape is characterised by urban, forest and sea habitats. Land habitats are divided in evergreen forests and makija bushes and various other grasses and shrubbery. Water habitats are characterised by sand, silt, and rock. Attention to underground habitats should also be made, specifically interstitial aquatic habitats, oyster habitats and limnocrene springs. Notable protected areas include the island of Lokrum, Velika Petka and Mala Petka park, the area of Rijeka dubrovačka, area of Ombla river, hill Srđ and Platana trees in Brsalje area, just outside of the historic core (City Council of Dubrovnik, 2024; Šteko et al., 2019).
Preservation and conservation experts in Dubrovnik have also determined areas of the landscape whose change would crucially affect the look of the area and the image we associate with Dubrovnik. These areas are mostly concentrated near the historic core, with restrictions loosening as you move from it.
Dubrovnik has a dark history with fires, so a big effort is made to monitor the landscape during extreme heats and to implement recultivation strategies into the affected areas. The coastline is affected by erosion calling for preservation strategies. Areas sensitive to noise pollution are mostly located along main roads.
One of the most notable endemic species in Dubrovnik is the Adriatic Iris which pops up during spring. However, the landscape is characterised by protruding pine and cypress trees. There are many olive orchards and vineyards. Various insects, birds, and small animals commonly inhabit this flora. The most notable bird is the black swifts and pigeons. However, most of the unique fauna of the county is located in the Neretva river valley (Dubrovnik Tourist Board, n.d.).
All these creatures enjoy comfortable weather, more or less year round, due to the Mediterranean climate (Dubrovnik Tourist Board, n.d.). Hot and dry summers accompanied by mild and wet winters are reflected in the landscape (Dubrovnik Tourist Board, n.d.).
Locals are also connected to the climate through mood swings based on the weather. In the winter, Jugo, the wind blowing from the south and bringing rainy weather, makes the mood low and locals grumpy. This belief has a historical root; during the Republic of Dubrovnik, important decisions were not made during this weather, and criminal offenses had reduced sentences. When the wind Bura blows from the north,

it brings sunshine and a good mood, although with colder temperatures. Only in the summer, the wind Maestral, considered a wind with few flaws, blows from the sea onto the coast, producing a cooling effect. Local identity has been intertwined with the landscape so much that they end up producing each other (Dubrovnik Tourist Board, n.d.).

Such delicate landscapes affected by global flows raise certain environmental issues, especially driven by tourism (Plan Bleu, 2022). Some include sea pollution from cruise ships, coast erosion, waste accumulation, overcrowding leading to degradation of a place, wastewater management, air and noise pollution and habitat fragmentation leading to biodiversity loss (Plan Bleu, 2022; Peeters et al., 2019). On top of that, due to being located in a high seismic risk area, Dubrovnik should aim to mitigate any possible destruction by earthquakes (Croatian Seismological Survey, 2023).

Figure 4. fire on mount Srđ in July 2022

Figure 5. pollution in the Old Town

DUBROVAČKO PRIMORJE

URBAN MAP KEY:

- LAPAD
- GRUŽ
- PILE
- PLOČE
- RIJEKA DUBROVAČKA
- OLD TOWN
- BUSY ROADS
- PEDESTRIAN PROMENADES

DAKSA

PODBRŽJE

MOKOŠICA

GORNJE OBULJENO

NOVA MOKOŠICA

BOŽAT

KOMOLAC

ČAJKOVICA

KNEŽICA

ŠUMET

ŽUPA DUBROVAČKA

SUSTJEPAN

KANTAFIG

GRUŽ LUKA

PUNCIJOLA

CORAL

COPACABANA

MANDRAČ

MALI STRADUN

MANDRAČ

PRESIDENT

SOLITUDO

VARAMAR

BABIN KUK

NEPTUN

ELITA

STJENE

SUNSET

UVALA LAPAD

OBALA

SPLENDID

ADRIATIK

TITOVA VILA

VIS

RASKA

SEMAFORE

BATALA

PALACE

PETKA

VOGNJOVE

ČOKOLINO

MEDAREVO

MONTOVJERNA

BOURBON

HLADNICA

GOSPINO POLJE

GORICA SV. VLAHA

ARENJI

BELLEVUE

SRĐ

BONINOVO

DANČE

BUŽA

PORPORELA

BOSANKA

BANJE

ZLATNI POTOK

SV. JAKOV

ORSULA

LOKRUM

- COMPLETE PROTECTION OF HISTORICAL STRUCTURES
- PARTIAL PROTECTION OF HISTORICAL STRUCTURES
- ENVIRONMENTAL PROTECTION
- REGISTERED BUILDING UNITS

- RESIDENTIAL
- MIXED
- MOSTLY ENTREPRENEURIAL
- HISTORIC CORE
- PUBLIC AND SOCIAL
- PRODUCTION
- ENTREPRENEURIAL
- TOURIST
- SPORTS AND LEISURE
- PROTECTED GREEN AREAS
- PUBLIC GREEN OPEN AREAS
- CEMETERIES
- FORESTED AREAS
- VALUABLE ARABLE LAND
- ARABLE LAND
- OLD PORT
- NEW PORT

Drawing 4. Borovina, M. (2026) Urban map.

URBAN MAP

Less dominant parts of the county are Dubrovačko primorje municipality to the north, Župa dubrovačka municipality to the east and Konavle municipality to the southeast, making the municipality of Dubrovnik the administrative, cultural, and touristic hub they gravitate towards. Due to the gravitating pull of the municipality and city of Dubrovnik, it will be the focus of the urban analysis.
Situated on the foot of mount Srđ, the city of Dubrovnik is divided into the districts of Lapad, Gruž, Pile, Ploče, Rijeka dubrovačka and Dubrovnik Old Town, further divided into neighbourhoods. Lapad is comprised of Babin kuk, Solitudo, Batala, Uvala, Petka, Medarevo, Gorica Sv. Vlaha and Montovjerna. Gruž encompasses the areas of the City Harbour, Nuncijata and Downtown area. Pile area stretches all the way to from Kono through Boninovo to Brsalje, including fort Lovrijenac, connecting the rest of the city with the Old Town. Spreading to the east is the Ploče area connecting the city with Župa dubrovačka municipality through Sveti Jakov, Viktorija, and Zlatni potok neighbourhoods, with Bosanka situated higher on mount Srđ. Rijeka dubrovačka is a suburban, now mostly residential, up-and-coming neighbourhood comprised of Sustjepan, Komolac, Rožat, Mokošica and Lozica. In its hinterlands Šumet, Knežica and Čajkovica can be found forming another axis connecting the city to Župa dubrovačka. Dubrovnik Old Town considers everything within the city walls as well as including the island of Lokrum as the only public access is from the Old Town harbour. These are the most notable neighbourhoods which can be used to orientate oneself, however locals further specify sub-neighbourhoods within.
The urban fabric of Dubrovnik actively influences and is influenced by time, evident in an array of architectural styles, construction methods, and materials. It is characterised by material permanence, incremental modifications and limited spatial redundancy creating a fabric that is susceptible to intense overtourism effects due to external pressures.
The General Urbanistic Plan of Dubrovnik provides the rules for land use, construction, aesthetic, and restrictions on the urban fabric. It directly influences the architectural character of new build, making sure the aesthetic of Dubrovnik is not disturbed. It prescribes the feasibilities within each cadastral plot in regard to the land use and historical surrounding. Specific prescribed ratios determine buildable floor area within a cadastral plot and in turn dictate the density or an area (City Council of Dubrovnik, 2024).
The urban planning department works closely with the conservation department, further elaborating the complex approach to intervention on the existing and the creation of new buildings. Architectural expressions are bound to the rules, with minimal deviation, such as specific façade treatments like stone cladding or a plaster finish in a neutral colour or prescribed roof geometry and cladding, featuring the signature orange roof tile (City Council of Dubrovnik, 2024). For this reason, most buildings seem to have a similar character across districts, with regulations tightening around the historic core. The urban plan is also very specific about building heights, greenery, waste infrastructure, and parking regulations. Due to a varied hilly topography, specific building constraints exist relevant to position of the cadastral plot within the slopes (City Council of Dubrovnik, 2024). This vision is foreseen to ensure maximum compliance and minimum deviancy in order to preserve the character of the area as much as possible and to incorporate the modern and

and to incorporate the modern and historical urban fabric in the most beneficial way possible.

Most of the city is categorised as mixed residential land use with specific separate commercial, recreational, or institutional categorisations (City Council of Dubrovnik, 2024). Further these mixed areas are characterised by the density of the residential settlements creating various neighbourhoods around the city. Depending on the type of mixed use, each neighbourhood is characterised by the prevalent activity. Very few areas are residential only, with mixed areas becoming more typically quiet and more residential when moving from the main busy roads. Such an arrangement allows for interconnection between activities but at the same time there is an increased risk of congestion in relation to demand (Weber and Eggli, 2019). These congestions are further exacerbated by seasonality and the infiltration of tourists into these spaces.

Another general urban issue in Dubrovnik is parking. According to new urban plans (City Council of Dubrovnik, 2024), new builds must have designated parking spaces within the proposed designs and if that is not possible parking should be provided 100 meters within the building, with amount of parking necessary dictated by land use regulations. There are several parking garages in plan to be built, as an order within the new urbanistic plan. Currently, there are some notable open area parking spaces in Gruž and around the Old Town to help curb the congestion during tourist season, however no new open parking spaces should be conceived as the new regulations allow only closed parking systems as to not disturb the character of the area. This might seem like an overly complicated solution for a city with a big parking issue, however as the area is characterised by compactness, big open parking spaces disrupt harmony within the urban fabric. Another significant design implementation regarding the parking is the necessary tree row to be planted alongside any new parking for aesthetic and heat mitigation reasons.

Lapad can be considered the city's most temporally heterogeneous district characterised by post war modernism and Yugoslavian developments. Its designated land use (City Council of Dubrovnik, 2024) is residential areas, public and social infrastructure, sports, recreation, and leisure areas, including green and open spaces. In the neighbourhoods of Babin kuk and Solitudo, most residential and hotel buildings are built in reinforced concrete, rendered with a plaster façade with little to no decoration.

There are some buildings built in the 21st century but due to planning restrictions they keep mostly the same character; square, concrete and not brightly painted. This is generally a quiet residential area, with most disruptions in the public transport mobility systems. The mobility systems are disrupted during the tourist season, stemming from the Valamar hotel complex and spreading into the city through the Ivo Dulčić road and Pošta Lapad. In this area, some notable beaches are Coral, Copacabana, and Mandrač.

The area called Mali Stradun (Little Stradun), used to be bustling with people but nowadays it is forgotten with only some cafes, restaurants, and shops open (DuList, 2023). Uvala Lapad is considered to be the gravitating point of Lapad district due to its seaside promenade and beaches.

Along the south shore of Lapad bay Sunset, Adriatik, Splendid and Titova vila beach, alongside the rocky north shore of the bay where the indented rocky landscape allows for spontaneous dips. The promenade is lined with cafes, restaurants, and a playground. It connects Pošta Lapad residential area to Valamar hotel complex.

Figure 6. an example of urbanistic rules unifying historic and modern urban fabric in Batala

Figure 7. parking lot in Downtown area

Figures 8. tourists near hotel complexes on the Uvala Lapad promenade

Through Uvala one can also reach Palace hotel complex, Rašica residential area and Petka park, a protected green recreational area.
The roads of the district converge to Semafori, the main crossroads connecting to Obala, Batala and Vojnović. Obala concerns the area of the recently renovated road (City Council of Dubrovnik, 2024) running along the marina. Batala harbour slowly transitions into Gruž district.
Following Ivo Vojnović road, along which is an area of mixed residential and entrepreneurial use; Medarevo healthcare facility area, Montovjerna residential area, Hladnica and Gorica Sv. Vlaha mixed use area, alongside Gospino Polje sports facilities can be accessed. In older parts of the district, like Gorica Sv. Vlaha and Montovjerna, along previously mentioned, you can also find stone-based structures with timber floors and pitched roofs with clay tiles. The modern layers of the urban fabric allow it to adapt and absorb overtourism challenges much faster and better than the Old Town (Pendlebury, Short and While, 2009; Weber and Eggli, 2019). Here again, from Kuneji through Bourbon there is a connection toward Gruž area.
The designated land use in Gruž is port and harbour functions, commercial and service use, residential areas, infrastructure, and mobility related spaces, as well as public and administrative facilities (City Council of Dubrovnik, 2024). The area of Gruž was initially developed as an industrial and port district which is reflected in the pragmatism of the urban fabric. Port facilities and warehouses dominate the coastal area, constructed mostly from reinforced concrete and steel with minimal concern for aesthetics. Residential area of Nuncijata, Kantafig and Gruž-Kono are primarily built with prefab concrete elements during the mid to late 20th century. The heart of the area for the locals is the Gruž Placa, a market where locals sell produce, which has been recently renovated (City Council of Dubrovnik, 2024). Downtown area is primarily an entrepreneurial and economic zone, hence its name. Pragmatism and modernity of this district allow for rapid shifts in use and adaptability, contrastingly to the Old Town. Due to the prevalence of mixed use areas, port related flows, and connection to Rijeka dubrovačka (City Council of Dubrovnik, 2024), vehicular traffic often experiences congestion.
In its proximity to the Old Town, Pile district's land use is related to mobility infrastructure, tourism, residential areas, cultural and heritage spaces, as well as public open spaces (City Council of Dubrovnik, 2024). The district of Pile functions as a threshold between modern residential areas and the historic core. It connects the Downtown business area of Gruž and Ivo Vojnović street, cutting through Lapad, at a crossroads point in the Boninovo neighbourhood. From there a scenic walk takes you to the Old Town, alongside a street through which only public buses are allowed to pass. At the end of the walk you will arrive at Brsalje, including Fort Lovrijenac, acting as a node converging to the gates of the Old Town. This walk is characterised by stone residential and institutional buildings, with construction relying on limestone masonry and thick walls. Increase in the permanence of structures allows for a slower capacity for adaptation. At the foot of the Srđ hill, the residential area of Pile-Kono can be found. Alongside Nuncijata and Gruž-Kono, it has the strongest connection to the Adriatic highway. The aesthetic of the area can be compared to those of Lapad and Gruž. The mobility in this area is mostly congested at Ilijina glavica, a point where traffic converges at an intersection at the edge of the city. Here, coming into city you can access the Downtown or Gruž port area. However, most congestion happens in the direction towards Župa dubrovačka and at the turn towards the Old Town.

Figure 9. recreational area and playground

Figure 10. Gruž Placa market

Figure 11. Pile gate, Brsalje area

Figure 12. crowded entrance of Pile gate

Moving to the east, the district of Ploče is designated for luxury residential areas, tourism and hospitality facilities, beaches, institutional and administrative facilities, as well as green and landscaped areas (City Council of Dubrovnik, 2024). This district is possibly the most closely knit area to the historic core, offers a very layered urban fabric comprised of historic stone villas situated in the terraced landscapes of Sveti Jakov and Viktorija neighbourhoods. Interwoven we can find typical residential buildings, mostly in Zlatni potok, and hotel complexes lined until the Iza Grada area. This represents a dense hybrid urban fabric, displaying flexibility adjacent to the historic core. The area of Bosanka is situated atop mount Srđ, mostly comprised of residential and hospitality areas offering a connection to Srđ viewpoint. The walk through the area to park Orsula offers nice views, however a lack of infrastructural support makes the area not as popular as others affected by the tourist gaze.
Moving away from the bustling historic core, the suburban corridor of Rijeka dubrovačka is designated for primarily residential use, accompanied by industrial, infrastructural, commercial, and service facilities, as well as green areas and maritime facilities (City Council of Dubrovnik, 2024). Historically, the area of Rijeka dubrovačka was a productive landscape but in modern times it has been transformed into an up and coming residential suburban area. Consequently, neighbourhoods of Sustjepan, Komolac, Rožat and Lozica comprise of residential buildings, vernacular stone houses, warehouses and industrial infrastructure along the river, reflective utilitarianism, rather than representational urban aesthetics. While you can find these types of buildings in Mokošica as well, the area is dominated by reinforced concrete residential blocks allowing for a coexistence of vernacular memory and modern expansion. This part of town is mostly residential and quiet, acting as a suburb to the city, with least congestion out of all the districts. Through this area is also the connection to the Adriatic highway, connecting Dubrovnik to the rest of Croatia.
Coming back to the heart of the city, the Old Town, historically designated to support all everyday life actions, continues to do so today. Its land use comprises of cultural, historical, tourism, hospitality, administrative and institutional facilities, including public spaces and protected natural and built areas (City Council of Dubrovnik, 2024). The Old Town is comprised of the historic core sitting within medieval limestone masonry walls, built over centuries, characterised by forts, bastions, and defence platforms. Within the walls many stone buildings can be found mostly dating to 16th and 17th century, characterised by Renaissance and Baroque aesthetic and construction. Most notable areas of the Old Town are Stradun, Prijeko, Peline, Porporela, Od Puča including Luža and Gundulić square. Some of the most notable buildings served as administrative and cultural hubs during the Dubrovnik Republic, such as Sponza palace, Rector's palace, St Blaise church, the Dubrovnik cathedral and the Franciscan, Dominican and Jesuit monasteries.
Contemporary functions compressed into deep historical continuity make this the area least adaptable to pressures of overtourism (Pendlebury, Short and While, 2009). The Old Town is the densest area of the city, in terms of symbolism, congestion and local importance (Peeters et al., 2019).
Adjacent to the Old Town, accessible from the Old Port is the island of Lokrum, acting as an extension of the historic fabric comprised of a monastery complex and some modern hospitality and safety facilities. The island is accessible via boat, however it is prohibited to stay on it during the night, for safety reasons, but also because of legends and myths saying the island is haunted and cursed by the Benedictine

Figure 13. main street Stradun

Figure 14. pedestrian traffic regulation at Pile gate

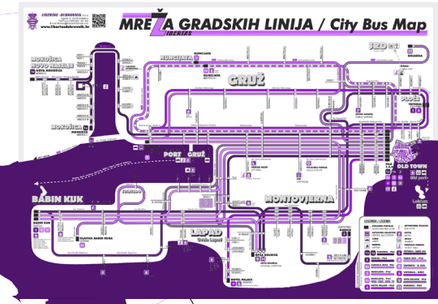
priests that used to live in the monastery. Limited accessibility and the significance of the natural landscape, make this area just as badly adaptable to overtourism as the historic core.
At the foots of mount Srđ the city has been developing, however not inhabiting it, making it serve as a characterising background to the city. Some initiatives to build a golf course have been strongly protested, calling for the preservation of the area (Dubrovački dnevnik, 2025). However, one of the only buildings characterising the area is Fort Imperial constructed in stone to serve for military purposes. Today, it has been turned into a museum, memorial, and a viewpoint from which you can see the whole city, making it popular with tourists and usually avoided in local everyday rhythms.
One thing that can be noticed when walking through the city is the innate connectedness of different parts of town due to its hilly morphology. The constant interchange of up and down allows for a constantly changing perception of the environment- looking from above to the sea or from below to the hills, across which are scattered varied neighbourhoods unified in a multidimensional identity. From one point you are always able to see another one, or more parts of the city, making the relations between parts of town manifold. Within the makeup of the urban fabric the temporal imprints characterise atmosphere and use. Uneven balance between tourism congested areas and areas adaptable to overtourism brings tensions and spatiotemporal conflicts.

Figures 15-17. view of Lokrum from Montovjerna, view of Kono and mount Srđ from Batala harbour, view of Elafiti islands from mount Srđ

CHAPTER 3- Mapping of Dubrovnik

Having collected all the maps in order to understand the current urban fabric of Dubrovnik, we can dive deeper into what this information means in relation to the overtourism issue, highlighting the intersection of existing spatial structures and postmodern tourist gaze (Sheller and Urry, 2006; Franklin, 2003) city from the locals. The process of understanding will be labelled as mapping.
James Corner (1999) defines mapping as not only the practice of tracing the existing urban fabric, but a practice with agency to actively, creatively, and productively explore existing, unseen or hidden forces and while attempting to represent them, discovering a new or different reality. Mapping is seen as a diagnostic tool for informing new overtourism strategies (Corner, 1999; Krygier and Wood, 2018).
The agency of mapping is to uncover lived, practiced, and conceived spaces (Lefebvre, 1991) hidden in the local and tourist image of the city in order to reconcile them. Tensions between these images are also manifested in architecture as a site where local resilience meets global desires (Bertocchi et al., 2020; Koens and Milano, 2023; Lawhon et al., 2020). This calls for understanding planning, representation, everyday practices and lived experiences in order to balance them. Mapping is a tool for mediating between the image and the lived. Corner (1999) emphasises that the agency of mapping is meant to produce new forms of knowledge rather than document existing conditions. Therefore, the information collected in the maps will be explored to produce new forms of knowledge which will inform the strategy for overtourism.
The overarching aim of mapping is prioritising local habits which shape the city rather than representations optimised for external consumption. This can be uncovered through a reading of the maps focused on how global forces and local habits interact in the context of tourism. By cross referencing different disciplines on different scales, the complex mapping is exposed. By exploring the mapping, future strategies are evaluated by adaptability, efficiency, equity and lived experiences, supporting the city's capacity for everyday life and its coexistence with tourism (Fainstein, 2000; Lynch, 1981). These strategies are capable of addressing systemic, relational, and representational dimensions, creating synergy.
Synergy deeply relies on the capability of place to negotiate global and local desires, constantly disrupted by the flows of capital, people and images unified and separated, one technological advancement and consumer trend at a time (Sheller and Urry, 2006; Seraphin et al., 2018). Anticipatory governance and adaptive practices help mitigate the rifts made by the disruptions of various flows which make up the urban fabric (Buitrago and Yñiguez, 2021; Armondi and Balducci, 2021). Seasonal changes exacerbate the structural and experiential fragmentations, constantly renegotiating urban identity (Massey, 1991).
To begin the mapping, a methodology which allows for a reading in the context of tourism, needs to be determined.
To start, the circulation between people in terms of access, control, ownership, and mobility will be examined. This will help determine areas most suitable for overtourism interventions (Bauman, 2000; Sheller and Urry, 2006). These areas will be the starting point for developing a new overtourism strategy for Dubrovnik.
For a clear view into the production of space under tourism, Lefebvre (1991) spatial triad will be used. The perceived space is driven by instinct and comprises of our daily routines, the actions that we live before we process and conceptualise them (Lefebvre, 1991). The lived space is based in intuition and encompasses all of our imaginations, ideas, visions, images, symbols, and theories which we use to understand and live in the perceived space (Lefebvre, 1991). Finally, the conceived space is driven by intellect used to produce representations of space such as maps and designs, usually done by experts, usually creating a gap between the way a space is claimed to be and the way they are actually lived (Lefebvre, 1991). The dynamic interrelation of relationships between the physical conditions, lived experience and institutional control reveals tensions amplified by tourism.
With the production of space divided into three, we can assume each space produces its own image. The perceived, lived, and conceived image, when observed through local and tourist practices, give us a complete image of the city upon which we can build the strategy. Based on the information related to tourism gathered in the maps, Lynch's experiential analysis of the city image will be applied to connect the perceived, lived, and conceived space. Lynch (1960) believes that the city is comprised of images formed through repeated experiences. The compilation of images makes us understand and navigate our environments better. He defines five main elements that comprise the urban image: path, edge, district, node, and landmark. Analysing these elements offers an insight into how space is organised and emotionally inhabited. This covers the spatial aspect of the mapping.
However, the production of space is dynamic and deeply intertwined with temporal perceptions, which are scattered in all spatial aspects. The temporal aspect of mapping will be explored through Lefebvre's rhythmanalysis (2004). This concept explores how space unfolds over time through cyclical and linear rhythms comprising everyday life. This allows the mapping to determine where the pressure accumulates and when and how it disrupts the capacities of the city for pleasant everyday life.
The reading consists of four mappings:

1. Circulation- access, control, and mobility analysis
2. Tourism- representation spatialisation analysis
3. Dwelling- experiential analysis
4. Efficiency- strategy and effect analysis



CIRCULATION MAPPING KEY:

- PUBLIC
- SEMI-PUBLIC
- PRIVATE & SEMI-PRIVATE
- BUSY ROADS
- BUSY WALKWAYS
- CONGESTION ZONES
- SUMMER
- WINTER

STRADUN

PILE GATE

BANJE BEACH

UVALA LAPAD

GRUŽ PORT

GRUŽ-DOWNTOWN

STRADUN

BRSALJE

SUNSET BEACH

UVALA LAPAD

GRUŽ MARKET

LAPAD-SEMAFORI

Drawing 5. Borovina, M. (2026) Circulation mapping.

CIRCULATION MAPPING

This mapping aims to document the relationship between public/private spaces and mobility systems.
Firstly, the private, semi-private, public, and semi-public spaces will be identified. This division allows us to explore who has access, control, ownership and how that influences behaviour and experience. Circulation should also be read across corridors and connectors due to the shift from compact municipal to globally networked systems (Perulli et al., 2019).
Private spaces (house, apartment, room) are spaces which you share with nobody or just carefully selected individuals. Semi-private spaces (communal living spaces, shared work facilities) are ones where you interact with a limited amount of people, who, usually, have been given permission to inhabit and use the space in some way. Public spaces (squares, parks, promenades) are shared by everyone with collective agency, while semi-public spaces (museums, shopping centres) are still open to anyone but under conditions set by the owner.
This division is gradient rather than hierarchical. Semi-private and semi-public spaces negotiate transitions between personal and communal. Further, semi-private spaces mediate between intimacy and community, protecting privacy while allowing for selective social interactions which stabilise everyday routines. They make the transition into the public space easier. Additionally, semi-public spaces simulate publicness, however under specific rules which allow participation. While semi-private spaces offer a buffer zone, for the exchange of personal and communal, where the individual can slowly accelerate into public space, semi-public spaces offer a contrasting buffer zone where public space slows down under specific rules and becomes performatively participatory based on the individual.
Typical users of private spaces are the individuals, household who have all access, control and ownership or invited guests. Behavioural and experiential expectations are set by the individual(s) in an informal, high intimacy and security setting. These spaces generate a high sense of belonging. In semi-private spaces, limited groups are usually residents, employees, or members in some other way, who have been granted permission to access the space. These spaces operate at an intersection of personal identity and collective agency, generating a semi-informal environment structured by ‘membership related obligations’ and driven by familiarity. Semi-private spaces always coexist with private spaces.
Out of all, public spaces have the least imposed access restrictions, open to everyone, however, usually they are owned and controlled by public authorities. This comes with certain laws and conventions overarchingly imposed on the behaviour in these spaces. Following these rules allows for anonymity, however breaking them causes spectacle; fluctuations of both causing movement and constant restructuring of the urban fabric. Contrastingly to semi-private, semi-public spaces are open to everyone but access and behaviour of individuals is not based in personal identity and collective agency but is limited by rules set by the institution, corporation or governing body and conducted by staff members. These spaces tend to curate a somehow performative presence, always testing the boundaries of the set rules producing visibility and exposure for the individual. Semi-public spaces are not dependant for public spaces for their existence as the semi-private space is.
Users of all of these spaces are actually the same people performing different social

roles. These users shape the urban fabric as much as it shapes them. Relationships between individuals in different spaces are entirely situational and based in the individual's emotional proximity to the space. As the individual shifts between private and public spaces, their responsibility shifts from personal negotiation to institutional regulation.

The transition between these spaces occurs through mobility systems which operate as pedestrian, non-motorised (e.g. bicycle), motorised (e.g. car, motorcycle), and public transport (e.g. buses), with supporting flows and infrastructure. This circulation is what supports the living organism of the city which embeds itself into the urban fabric. Pedestrian mobility systems concern all spaces. Motorised vehicles and public transport, with an extremely low use of non-motorised vehicles concern the public spaces. Semi-public mobility systems concern taxi services and similar.

Based on land use (City Council of Dubrovnik, 2024) the private, semi-private, public, and semi-public spaces will be categorised. Private and semi-private spaces concern residential areas. Public spaces consider communal and recreational areas, beaches, green open areas, and forested areas. Semi-public spaces are comprised of hospitality, commercial, parking, protected areas, archaeological findings, governance, administrative, institutional, social, health, educational, cultural, religious, industrial, vocational, touristic, and recreational areas.

Social roles are by nature defined by the type of land use; however, it is nuanced by the temporal window in which the space is engaged in. The difference in temporal windows is best observed through the divisions of local- permanent and tourist-temporary, directly connected to behaviour and experience. A positive aspect of the permanent temporal window is the innate connection to the place and higher symbolism in everyday functions, e.g. protected area not just as a site of natural beauty but as a preferred place for recreation. This is displayed across private and public spaces through behaviour. A negative aspect is a rigidness in learned familiarity which makes some places specifically vulnerable to overtourism, e.g. residential areas where people are not used to interactions with tourists. This is mostly expressed in private areas and public areas of notable significance or specific character. A positive aspect of the temporary temporal window are brief cross-cultural interactions, e.g. young locals and tourists interacting in bars in the Old Town. The negative aspect comes from when the behaviour in this short period is guided by the tourist gaze and lack of emotional attachment or respect for place, e.g. tourists leaving rubbish on beaches frequented by locals. This aspect manifests itself across private and public spaces. All of these aspects are deeply connected to seasonality. This causes vicious cycle of pleasing global desires and negotiating the local identity.

Private spaces firstly concern the residential areas where locals habituate and usually circulate through pedestrian mobility systems. Mostly they are inhabited by locals, however they are scattered by tourists due to online renting platforms. The Croatian Ministry of Tourism and Sport conducts a process of classification of tourism facilities which allows for the regulation of the number of touristic accommodation facilities. This process ensures that this number is within the city's capacities and standards. However, this regulation has been disrupted by the rise of platforms like AirBnB, which allow locals to rent their homes without following this process (Wachsmuth, 2014; Quinn, 2007). This deeply disrupts the private and semi-private spaces. The biggest effects, outside of the Old Town, can be seen in the districts of Lapad, Gruž and Pile. Due to higher concentrations and spatial capacities these tensions are felt strongly within the historic core for the locals that live there. The number of locals living in the Old Town has drastically reduced (Croatian Bureau of Statistics, 2022) due to social issues with tourists, economic issues with, for example, regular food shop prices being higher inside the walls and the profitability of switching to a residence elsewhere and renting the spaces in the Old Town to tourists. By default, semi-private spaces accompany them, like shared entrances, stairwells, courtyards, communal outdoor spaces, and parking areas. Movement in these spaces is based in familiarity and tied to everyday routines of both locals and tourists. Issues arise when everyday practices are significantly culturally different or there is an obvious display of lack of respect. These come from both tourists and locals, as the issue of overtourism is not isolated just to tourist behaviour but to the local's open-mindedness too. Mostly these are able to coexist outside the Old Town since the higher number of locals displaying typical behaviour influences tourists to behave similarly. These issues are expressed through congestion and minimal deviant behaviour. However, this is compensated for in the Old Town.

Somehow, in the Old Town the historical layer overpowers the local habits and random radicalised tourist behaviour in local residential spaces is more likely to occur, such as tourists running naked on Stradun (Index.hr, 2016; DuList, 2025), the main street in the Old Town, which has not happened in other areas of the city. Some theories by locals suggest that they must have been inspired by similar scenes from the Game of Thrones TV show in which Dubrovnik acts as the capital of King's Landing (Tkalec et al., 2017). These excuses seem to be coping mechanisms for the realisation that touristification has turned the Old Town into a playground for strangers. Any disruptions in the everyday rhythms cause tensions between tourists and locals. With time, locals have become more lenient with the disruptions in the historic core, in a way sacrificing it for the sake of having more peace in other districts.

We can trace the paths and edges (Lynch, 1960) of private spaces in each district to further examine the differences in behaviour and mobility of private and semi-private spaces between locals and tourists.

Paths are channels of movement along which environmental elements are arranged. Edges are boundaries consisting of linear elements not considered or used as a path (Lynch, 1960). Within private and semi-private spaces paths are usually related to living spaces, corridors, or stairwells, with their edges marked by interior walls of the residential building. These are navigated on foot, making the interactions more intimate. These interactions manifest slightly differently in different districts.

Due to the mostly unified nature of residential spaces, the paths and edges will be observed in the following districts. Firstly, the low congestion district including Rijeka dubrovačka. Secondly, the moderate congestion district including Lapad and Gruž. Lastly, the high congestion district including Pile, Ploče and the Old Town.

Edges structure the paths through which we move. They determine the possibilities of our circulation. Within residential areas edges are primarily interior walls and thresholds that allow flows between private and semi-private spaces. The paths are corridors and stairwells conditioned by the edges. Intimate pedestrian mobility systems characterise the interactions.

In the low congestion area of Rijeka dubrovačka, the local paths are stable and repetitive. Circulation is tied to everyday routines; apartment-stairwell-entrance-

parking/street. These paths are short, legible, and mostly uninterrupted. The stairwell, for example, takes the function of a familiar vertical connector and the corridors become transitional extensions of private units. The edges are socially defined and reinforced. Apartment doors define the private boundaries, and semi-private spaces offer buffers with the public spaces. For locals, these edges are reinforced by familiarity rather than regulation because mostly residents know and recognise each other. Behaviour is characterised by quietness, order, and mutual respect. Mobility becomes slow, habitual, and expected. With tourist presence scattered throughout, any deviant behaviour is rare and absorbed by dominant everyday rhythms. Semi-private space's function remains an intermediary between community and intimacy.
In the moderate congestion area of Lapad and Gruž, the local paths are structurally similar but vary in intensity. Circulation through stairwells, corridors and entrances is shared by permanent residents and temporary visitors using short-term rentals. Disruptions in familiar rhythms are therefore more frequent. Consequently, edges become more controlled through signage reinforcing private and semi-private boundaries. Apartment doors remain strong private boundaries, however the semi-private spaces become contested. For example, the stairwell becomes a place of negotiation rather than automatic recognition. The behaviour is characterised by coexistence. The locals maintain everyday rhythms, while temporary visitors might not fully understand unwritten rules. The mobility systems become less repetitive due to unpredictable mobility set by temporary rhythms like late night tourist arrivals and irregular schedules set by the tourist gaze. Tensions appear subtly through noise and misuse of communal areas but are generally moderated by the significant presence of the local population.
In the high congestion district of Pile, Ploče and the Old Town local paths are interwoven in a dense urban fabric. The transition from semi-private to public is immediate with entrances opening directly into busy streets. Some exceptions are the areas of Pile-Kono and Zlatni potok, with stronger semi-private spaces due to lower pedestrian traffic. Paths are strict and constrained since the edges are comprised of buildings of historical significance. Mobility systems are irregular and unpredictable as well as the behaviour due to a high concentration of people. It shifts from being familiarity to anonymity based, less reliant on recognition. Edges are strongly reinforced through coded doors, surveillance cameras, and displayed rules. However, semi-private spaces are especially vulnerable to overtourism as they struggle to contain public activity driven spectacle from spilling into the private spaces. Their buffering capacity is extremely reduced, exacerbating tensions between locals and tourists.
Across the three districts the paths remain similar, but congestion intensity of mobility systems shapes the behaviour within them. Edges are characterised by routine, coexistence, anonymity, and spectacle revealing weaknesses where buffering capacity of semi-private spaces is reduced.
In public and semi-public areas, the tensions become much higher with less scripted modes of behaviour. In these areas local and tourist activity overlaps more intensely and their each respective image of the city becomes more contested.
The public spaces can be categorised in the following districts (Lynch, 1960): communal and recreational areas, beaches, green open areas, and forested areas. These are scattered across the city and characterised by squares, promenades, beaches, trails, shorelines, vegetation, and infrastructural thresholds. Anonymity dominates over familiarity in terms of behaviour. Overlaps in temporal windows vary Overlaps in temporal windows vary across Lapad, Gruž, Pile, Ploče, Old Town and Rijeka dubrovačka.
The communal and recreational district is structured around gathering spaces and organised sports grounds. Through open voids, paths radiate, loop, or cut axially while edges are comprised of building facades, retaining walls, seating, or vegetation. Pedestrian mobility systems dominate within the district while motorised and public transport dominates at the perimeter.
In the Old Town, paths are determined by the medieval grid. Stradun acts as a primary circulation zone. Parallel to Stradun are two secondary circulation zones- Prijeko and Od Puča. Perpendicularly, these are connected across the medieval grid with narrow streets, forming the paths of the Old Town public spaces. They are characterised by edges comprise of rigid stone facades and the city walls. Pedestrian mobility dominates, however in early morning hours supply and service vehicles are allowed in. seasonality characterises dominant behaviours of tourists and locals. During summer, the area is congested by clustering and tourism related spectacles, with locals engaging minimally, usually for leisure. During winter, the area is not continuously congested. Tourists are dispersed and their numbers are within city capacity. Locals reclaim the city, which is especially visible during the Dubrovnik Winter Festival.
Tourist zones containing accommodation, landmarks and attractions are primarily used by tourists for leisure and by locals for work and business, with occasional leisure used usually during off peak tourist season. During the tourist season, which lasts from April to October, even stretching through the whole year in the Old Town, locals avoid tourist hotspots, reclaiming areas like the Old Town during events like the Dubrovnik Winter Festival in December. During the summer, the avoidance of tourists creates parallel circulations within the same areas further solidifying respective images of the city.
In Pile, communal and recreational areas are mostly concentrated around the Old Town, with paths radially converging towards Brsalje. Edges are characterised by railings, building facades and retaining walls. Mobility systems are hybrid, with public transport and pedestrian mobility dominating. Motorised vehicles have restricted access to this area. In the summer, the area is congested with tourists and most locals avoid it. Locals are likely to use public transport in this area or drive through it, while tourists more often walk or take the bus. In the winter, locals may use this area for leisure activities however, it is not as popular as the area of the Old Town.
In Lapad, communal and recreational areas are concentrated around Uvala Lapad, Petka park and sports grounds in Gospino polje. Paths follow along promenades and trails. In Uvala Lapad edges are charcterised by hospitality establishments, hotel complexes, railings, and the shoreline. In Petka trails are determined by vegetative edges and in Gospino polje, a mixture of vegetative and façade edges characterises the paths. Mobility is primarily pedestrian, with some motorised traffic in the perimeter. Tourist activity increases during summer but remains scattered. Locals maintain use of these spaces in same capacity year round for either recreation or leisure. Sports and leisure areas are dominated by locals in terms of organised sport while tourist engage in them more casually, excluding visitors related to sports events.
In Gruž, most commercial and recreational areas are located around the port. The

paths are determined by port access and commercial establishments, making the edges infrastructural. Pedestrian mobility is expressed along the promenade and in recreational parks. However, primary mobility in the area is vehicular, due to ferry, cruise, and cargo functions. The flows in the area are affected by seasonality, congesting in surges, rather than constantly during tourist season, and dominated by locals in the winter for recreational and leisure purposes.
In Rijeka dubrovačka most commercial areas are located around busy roads making the paths characterised by architectural edges, with mobility hybrid however relying more on vehicular private and public transport. The paths of recreational areas are mostly located along the river and are characterised by natural edges such as the shore and vegetation. This area also has hybrid mobility systems, however here the pedestrian ones are more prevalent. These areas are connected to the rest of the city via public transport. Tourist activity in the area is low, so the local's behaviour dominates, based in everyday rhythms. Additionally, seasonality does not have much effect in this area.
The beach district comprises all local beaches as elongated and coastal, natural, or artificial land and accompanying maritime domain for the purposes of leisure and recreation. The Croatian law on maritime domain and seaports states that all beaches are public, allowing concessions (Republic of Croatia, 2023). However, beaches in concession are not allowed to restrict access, only provides services. Most concessioned beaches are related to hotels.
Paths run parallel between the sealine and the coastline with transversal path connecting it to access points. Pedestrian mobility dominates however, congestions in vehicular traffic occur at access points in the perimeter. Beaches some of the most seasonality affected districts due to their intrinsic connection between use and weather. In the summer they are congested with primary activities being sunbathing, swimming and watersports. In the winter they are sporadically reclaimed by the locals for leisure activities.
In the area within and surrounding the Old Town we can find the following beaches: Buža and Porporela inside the city walls, Šulić, Danče and Banje just outside the city walls, and Sveti Jakov I Ploče. These beaches are the most saturated with tourists due to their proximity with the historic core. Locals living in the area frequent these beaches, dominating on Danče and Porporela. Buža, Šulić and Sveti Jakov are frequented in a lesser capacity due to a high overlap with tourists. Banje beach is almost entirely avoided by locals as it is one of the most tourist infiltrated spaces, continuously reaching capacity limits during the day, but remaining active even during the night due to restaurants and bars on site. Although the range of activities is bound to the sea and behaviour is mostly associative to it, deviations in behaviour are most likely to happen here due to a high concentration of tourists and their desire to satisfy their personally curated tourist gazes.
Most of the other city beaches are located in Lapad. These include the following beaches, spreading along the coast from Kuneji to Solitudo: Bellevue, Palace, Vis 2, Titova vila, Splendid, Adriatik, Vis, Uvala Lapad, Stijene, Levanat, Elita, Neptun, President, Coral, Copacabana, Mandrač and a beach for dogs. These beaches are mostly quiet and within expected beach behaviour. This makes differences in local and tourist behaviour less prominent. The beaches with highest tourist overlap are located near hotels: Bellevue, Palace, Splendid, Vis, Uvala Lapad, Neptun, President, Coral and Copacabana. With the beaches in the Old Town locals expect congestion, however main tensions arise in Lapad beaches, not near hotels, where locals do not expect as much tourist activity. Beaches like Vis 2, Titova vila, Adriatik, Stijene, Levanat, Elita and Mandrač experience a rise in tension sporadically throughout the summer, making the spaces feel foreign and uncertain for locals who frequent them. These pressures are inevitable across all spaces due to the size of the city, and their mitigation depends on local's acceptance for how they will allow tourists to behave in certain places. Such acceptance should be based in governance behavioural policies and behavioural examples from locals.
In Rijeka dubrovačka you can take a dip at the source of the river Ombla, however this area is mostly frequented by locals due to very cold temperature of the river compared to the sea. In Gruž there are no beaches as most of the shoreline functions are related to the port.
The open green and forested district includes areas covered in vegetation devoid of built environment. Paths are characterised by trails with vegetative and topographic edges. Mobility is pedestrian and minimally motorised making the paths informal and explorative. Behaviour between tourists and locals is similar with intentions of recreation and observing natural views. These areas include Petka hill in Lapad, green areas in Babin kuk, areas of mount Srđ and forested areas in Rijeka dubrovačka.
The semi-public spaces can be categorised into formal and informal districts (Lynch, 1960). Informal districts are open to everyone during operating hours and require no prequalification to participate beyond social compliance, such as hospitality, cultural, recreational, touristic, commercial, and parking establishments. Rules are not institutionally rigid but socially enforced. Formal districts are open to everyone, but purpose driven with rules enforced by authority not social norms, such as governance, administrative, institutional, social, health, educational, industrial, vocational establishments, protected areas, archaeological findings, and religious establishments. These are scattered around the city and overlaps in temporal windows vary across Lapad, Gruž, Pile, Ploče, Old Town and Rijeka dubrovačka. Behaviour is dominated by anonymity but regulated by imposed access regulations.
Spaces operating under semi-public conditions further complicate circulation through rule and regulation based access. Social and public spaces such as ticketed events, museums and art galleries attract mostly tourists while economic spaces such as small businesses are frequented by locals and tourists, with intensity depending on the sector. Tourist complexes, like Rixos and Valamar, create hybrid circulation patters where locals penetrate tourist spaces by being allowed to partake in pool and spa facilities.
In informal semi-public districts paths are structured around consumption and leisure. Edges are architectural but psychologically permeable. Mobility systems are mostly pedestrian with vehicular use at perimeters.
In the Old Town informal semi-public spaces dominate the urban fabric concentrated in Prijeko and Stradun for hospitality establishments and cultural and commercial scattered around. Paths are short and directed by the medieval grid edges producing intense flows. Only pedestrian mobility is allowed so it is overwhelmed, as vehicular access terminates at Pile and Ploče gates. In hospitality interiors and cultural institutions tourist behaviour dominates seasonally. Consumption driven behaviour produces spectacle, clustering, and lingering. Local's behaviour is mostly tied to work or occasional leisure. Seasonality greatly influences these spaces, with most of them closed during winter months.

In entrepreneurial zones locals and tourist interact directly with the intensity varying by sector. The highest overlap is experienced in hospitality, trade, and communal services, making it the biggest driver of the city's circulation. In the historic core, the historical and modern urban design approach consisted of providing all necessary facilities within the medieval walls to support everyday life. However, today this system is overwhelmed by tourists producing circulations dominated by temporary rather than permanent rhythms.
In Pile the informal semi-public spaces cluster near Brsalje and along routes connecting to the Old Town. Paths are transitional comprising of small commercial and touristic establishments whose interior spaces characterise the edges. Mobility systems are hybrid with pedestrian and vehicular mobility intersect. Tourist arrivals intensify congestion during the summer, and locals use these spaces functionally rather than socially. In Ploče, paths are similar to Pile with highest tourist overlap around Banje and Sveti Jakov beach.
In Lapad, especially in Babin kuk and Uvala Lapad, hotel complexes and hospitality establishments generate somewhat autonomous interior circulation systems. Paths are characterised by resort corridors, pool decks, and restaurant terraces. Edges are determined through controlled entrances and hotel perimeters. Mobility systems are mostly pedestrian with vehicular access in the perimeter. Tourist overlap increases in the summer but remains spatially distributed across hotel complexes. Locals engage selectively as workers or visitors to specific establishments. Seasonality increases density but congestion is less felt than in the Old Town.
In Gruž, the informal semi-public district is concentrated around commercial establishments near the port and Downtown area. Paths are short and structured around shopping facilities and port related services. Edges are therefore mostly infrastructural. The mobility systems are hybrid with most pedestrian access conditioned by vehicular transport. Tourist behaviour is limited and mostly tied to port functions, fluctuating in surges rather than continuously. Seasonality manifests in temporal peaks rather than continuous saturation.
In Rijeka dubrovačka, the informal semi-public district dominates in local commercial establishments along busy roads. Paths are also short but functionally oriented, defined by architectural edges. Mobility is hybrid with vehicular transport dominating. Tourist presence in this area is minimal, and behaviour is structured by everyday rhythms.
In formal semi-public districts paths are structured around hierarchy and purpose. Edges are architectural but selectively permeable and enforced by authority. Mobility systems are hybrid and functional, mostly pedestrian with vehicular use at perimeters.
In the Old Town, the formal semi-public district is comprised of institutional, social, educational, religious, heritage and archaeological establishments. Paths are predetermined and conditioned, edges are based in architectural thresholds and access control. Institutional, social, and educational spaces are dominated by locals and by nature do not allow tourists within. Locals engage with them through routine or work. However, tourists dominate the religious, heritage and archaeological spaces driven by the tourist gaze, heavily affected by seasonality. Heritage and archaeological spaces are rarely visited by locals and are mostly limited to winter months. Religious sites are frequently visited by locals however they are bound in ritual, unlike tourists who are bound by the tourist gaze. In both behaviour is regulated by signage and staff implemented by the institution.

In Pile and Ploče, the formal semi-public district consists of governance, administrative, institutional, social, health, educational and religious establishments. Paths are hierarchical and access is controlled. Mobility systems are hybrid, with vehicular access lacking parking. Tourist overlap is controlled and occasional, making the behaviour dominated by local rhythms. Seasonality's effect is not so apparent.
In Lapad and Gruž, the formal semi-district includes governance, administrative, institutional, social, health, educational, vocational, and religious establishments. These spaces are deeply based in everyday rhythms with minimal tourist interaction. Paths in governance, administrative, institutional, health and educational spaces are hierarchical with access controlled edges. Behaviour is conditioned by rules set by the institution. Social, vocational, and religious paths are still hierarchical; however, the edges are softer with more approachable access. Mobility is hybrid with some areas experiencing vehicular congestion. Except in the port area, seasonality has little effect and local rhythms dominate.
Locals mostly use social and public spaces, but they get infiltrated by tourists depending on sector and seasonality. Hospitals and health facilities are, for example, mostly used by the locals but due to an increase in visitors during tourist season increases accidents causing the facilities to accommodate seasonal fluctuations. One way this has been managed is by installing Red Cross First Aid stations around the city, especially concentrated at the Old Town and city beaches to prevent unnecessary fluctuations to the hospital. These stations are usually worked by certified high school students creating summer jobs. Institutions like the police get overcrowded during the summer as well, due to tourists and seasonal workers, making it more difficult for locals to access the services. Economic services like banks are mainly used by locals but during tourist season get circulated by tourists.
In Rijeka dubrovačka, the formal semi-public district is sparse making the local rhythms dominant and limiting seasonality's effects. Mobility relies on public transport and private vehicles. The industrial establishment is only present in Rijeka dubrovačka, making it a suburban manufacturing area, dominated by local rhythms with short paths and rigid edges.
Protected areas are specific in their nature. Their paths present in loops and edges are vegetative and maritime. However, these areas are still access controlled and operate under specific rules making them different than open green and forested spaces. Lokrum is the clearest example of a formal semi- public protected area.
To access the island maritime vehicles must be used making the sea the first path and its calmness the edge. In the beginning the access is limited to the regulations of the nature reserve which provides ticketed access. At the island, the mobility is pedestrian and of exploratory nature. It is possible to explore the monastery and the nature, although most of the circulation is focused on the beaches at the perimeter of the island. Along the coast of the island there is many beaches, mostly dominated by tourists, however locals frequent them often as an escape from other less spacious beaches. As a part of nature reserve, behaviour is less likely to be deviant. However, tourist rhythms dominate and the area is highly influenced by seasonality.
Protected areas, such as Lokrum, display very clearly the compensatory mechanisms of the local government and businesses, present across all sectors, offering locals alternative treatment. Specifically, for Lokrum, locals are able to take out a relatively cheap yearly pass to access the protected area or access it for free by personal boat, while tourists have to pay a protected area access fee with public and charter access.

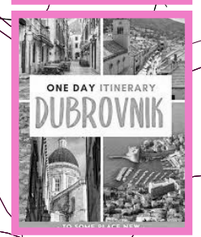
This can be seen across all sectors, mostly concentrated for hospitality facilities within the historic core, popularly called the local's discount.
Paths and edges demonstrate a legible way to track access, control and ownership translate into mobility systems, behaviour, and seasonality across private and public spaces. The circulation framework seems stable; however, pressure is not and it comes in surges, disrupting everyday rhythms.
Circulations between access, control and ownership are intrinsically tied to seasonality as a dominant spatiotemporal agent. Tourists use the city in almost the same ways and capacities as locals, but their engagement is shaped by short temporal windows, seasonal concentration, and lack of attachment to the urban fabric. It is almost like the city takes a break during winter to recover but this cycle encourages extremes which end up bending the urban fabric to its limits. This highlights that in order to have balanced spaces; you cannot make up for the exhaustion accumulated during tourist season in the summer and you cannot get rested enough in advance for the tourist season during the winter. This produces long-term infrastructural and emotional strain.
Seasonality is very clearly expressed in the mobility systems which connect private and public spaces, undergoing visible changes in capacities and use. During the summer, locals avoid private cars, relying on motorcycles or adjusting travel times to avoid congestions of commuting tourists. Avoiding tourist commutes from other districts to the Old Town becomes especially important in regard to public transport as it is severely overwhelmed during peak tourist commute times.
Parking, as a general issue of Dubrovnik evident in new planning policies for new build specifying allotted parking spaces, is exacerbated during summer with an influx of tourists with private vehicles and seasonal taxi drivers further congesting circulation, especially around the historic core. This forces further avoidance strategies by the locals, usually having them avoid commuting to other neighbourhoods and districts if not absolutely necessary.
The only mobility system which overall does not face severely disrupting congestion is the pedestrian circulation, reaching peak intensity only in the Old Town. In other parts of town pedestrian access is a way of circulation for both locals and tourists which causes the least tensions.
Intervention in circulation and mobility systems affected by seasonality is most likely to be conducted in public areas, which have become natural sites of negotiation due to high overlap of locals and tourists. Interventions in these spaces can be strengthened by collaboration with semi-public, private, and semi-private spaces ensuring balance.

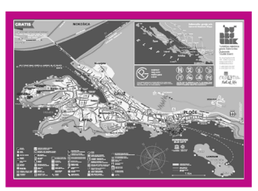
Drawing 6. Borovina, M. (2026) Tourist mapping.

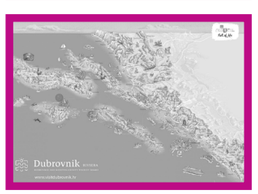
PLACES IN THE COUNTY PROMOTED
BY THE DUBROVNIK TOURIST BOARD

TOURIST MAPPING KEY:

- TOURIST ZONES (TALC)
- INTERNAL REGULATION
- INTERNAL MARKETING
- EXTERNAL REGULATION
- EXTERNAL MARKETING
- INTERNAL CONCEIVED IMAGE
- EXTERNAL CONCEIVED IMAGE







TOURIST MAPPING

Another driver of socio-spatial production is the conceived image, based in the representations of space in which there is a gap between the way a space is claimed to be and the way it is actually lived (Lefebvre, 1991). Representations are usually produced by governance bodies, architects and planners, scientists, and other forms of social engineers. They are expressed in maps and policies through codes, signs and designs that aim to define, order and control how a space should be used, actively or passively affecting the lived and perceived space.
Here we will look at them through the lens of tourism and its representational issues.
The conceived image of the city through the lens of tourism is created in two ways. Firstly, the local policies, governance and representation tactics shape how people 'are allowed' to act in a city. This affects the behaviour of all users, particularly the locals since following of these rules assures their long term stay. Secondly, representation tactics affect the creation of the image the city projects outward for consumption. These images are shared across social media and in turn, despite all efforts of the locals to maintain control, generate a new image of expectation driven by curated media consumption (Sheller and Urry, 2006). This, as well, affects all users of the city, but contrastingly, affects tourists more since they consume the media generated image before the lived environment.
The conceived image ends up being a web of representations understood from different perspectives. The tenacity of the concept of the city explains why images related to the tourist gaze remain strong while local images and lived experience fragment, supported by repeated representations which cover the fragmented reality (Wachsmuth, 2014).
To understand external and internal forces which drive the representation of the city, the manifestation of tourism will be explored through the evolution stages of Butler's (1980) Tourism Area Life Cycle (TALC). This will help us establish trajectories under which the external and internal conceived images are created.
Firstly, the tourist areas of Dubrovnik, which are organised around attractions and visitation, must be defined as they evolve differently than other parts of the city.
The tourist areas of Dubrovnik are the Old Town, with Pile and Ploče gateways and their surroundings. Additionally, outside the historic core, Port Gruž where the cruise terminal is, Uvala Lapad promenade and Babin kuk neighbourhood, where a large tourist accommodation belt is. Marginal to these areas are residential bubbles comprising the hinterlands, with rise of online rental platforms more often explored by tourists in search of authentic experience, diminishing the lived one (Quinn, 2007).
Secondly, a timeline of visitor numbers should be composed to identify evidence of visitor trends. Although Dubrovnik has a rich history of visitors, mostly there for trade and diplomatic reasons, it did not rely on tourism and visitor numbers were low. During the times of former Yugoslavia (1960s-1980s), tourism was seen as a great economic boost, so the sector was developing rapidly (Ban and Vrtiprah, 2003). Yugoslavia's neutral status among political powers allowed for touristic exploitation of the Western and Eastern bloc (Papadopoulos, 1986; Ban and Vrtiprah, 2003). After Tito's death, former Yugoslavia fell into a slow decline culminating in the Croatian War of Independence (1991-1995) war. Progress in the tourism sector was abruptly declined, resuming during post-war recovery efforts. Just as in Yugoslavian times, Croatia depended on the tourism sector as one of the main GDP contributors, allowing for independent post-war restructuring (Harris, 2003).
Because of this, Dubrovnik recovered quickly compared to other parts of Croatia, reaching rapid acceleration in visitor numbers by the 2010s. Since then, number of visitors has been high, reaching peak pressure. It experiences another abrupt stagnation in visitor numbers during the COVID-19 pandemic, consequently entering a recovery phase. With the return of pre-pandemic visitor numbers, pressure increases and full recovery is never obtained.
Next, Dubrovnik's position within Butler's (1980) stages will be examined.
It can be said that Dubrovnik was in the exploration stage for most of its history due to trade routes and diplomatic relationships. Since there was no tourist infrastructure, in the modern sense, at that time, no traces remain. Back then you were visiting the capital of the Republic of Dubrovnik, instead of the theme park of attractions that it is today. First transitions into the involvement stage were evident during Tito's Age in former Yugoslavia. Visitor numbers increased, and with it, tourism related infrastructure. This infrastructure is either created anew, like hotels, or is expressed in locals offering their spaces for tourist consumption. The Yugoslavian government created some of the first representations with the purpose of tourist consumption, like tourism posters inviting people to the area. However, in this stage locals still had a strong hold on control and tourism infrastructure was seen as a welcome addition, rather than an imposition. After the Croatian War of Independence and post-war reconstruction, during which it was marketed as the 'Pearl of the Adriatic', Dubrovnik experienced a rapid growth in visitor numbers and expansion of accommodation facilities, entering the development stage. Low cost airlines and cruise arrivals amplified the development of tourism, which started becoming evident in the urban fabric. The Old Town becomes the centre of the tourist gaze, reorganising flows established over centuries. Tourism takes control of the city from the locals (Harvey, 2001; Lefebvre, 1991).
Currently, Dubrovnik finds itself in the consolidation stage, with increase in visitor numbers slowing down but continuing at the rate of the development stage. Tourism is the dominant sector in Dubrovnik's economy. Visitor numbers are up to 27 higher than resident numbers (Holidu, 2023; Croatian Bureau of Statistics, 2025), and tensions over use of space grow. They are exacerbated with new facilities oriented towards tourists, with the needs of the locals forgotten. The city becomes a stage for performances of tourism (Sheller and Urry, 2006; Franklin, 2003). Marketing becomes an entity controlling the performance, unrelated to lived experience of the locals.
The subjugation to tourism leads to locals abandoning the Old Town for the sake of touristic consumption and economic profit over cultural preservation. With such pressure on the historic core, the Old Town enters the stagnation stage as its capacity limits are exceeded in multiple dimensions. Social, environmental, and economic problems arise culminating in the diagnosis of overtourism disturbing the experience of the city for both locals and tourists.
Following this, two trajectories are possible; decline and rejuvenation. Decline implies complete dilapidation of the tourist city; however, consistent visitor numbers do not indicate that Dubrovnik is in decline. Some attempts at rejuvenation have been made since the pandemic but it has not fully occurred. This is due to the inefficiently implemented strategies which consider only parts of the problem. A good starting point for transitioning from the consolidation/ stagnation stage into the rejuvenation stage is TCC and RPI, an empirical base for future exploration of possible new

strategies. Consequently, rejuvenation strategies will require a novel approach which are not solely based in tourism related profits. The consolidation stage deeply shapes the internal and external conceived images.
Based on the TALC analysis tourist districts can be determined. These are: Old Town and its surrounding environment in Pile and Ploče, port in Gruž, Uvala Lapad promenade, Babin kuk tourist accommodation belt and local beaches. Within these districts internal and external conceived image will be explored. By highlighting nodes and landmarks (Lynch, 1960) within districts focus of the image is uncovered.
The districts are based in TALC analysis' tourist areas and divided into Old Town, Pile and Ploče; port Gruž; Babin kuk and Uvala Lapad; local beaches. Nodes are strategic junctions which you can enter, where paths converge and use condenses. Landmarks are unique or memorable prominent point of reference which cannot be entered (Lynch, 1960).
The internal conceived images are characterised by policies envisioned for indefinite growth of the tourism industry, which are not sustainable long-term. They are evident in urban planning, governance, policies, and representation/ marketing.
As previously discussed, the land use policies affect distributions of private and public space in turn shaping local and tourist images of the city influenced by their movements.
The internal conceived image can therefore be divided into two categories based on the source for the conceived image: internal regulation and internal marketing. Regulation considers the policies implemented by local governments which dictate use. Marketing considers images and touristic rules of the city produced and distributed by the Dubrovnik Tourism Board. Within tourist areas these manifest differently.
Regulation, as a tool of the internal conceived image, operates through urban planning and heritage protection frameworks, mobility restrictions and policies which dictate access, control and tolerated behaviour. Through this tool, governance creates spatial priorities which intensify and reinforce nodes and landmarks. Regulation reorganises circulation, ruffling the flows between private and public spaces. Its influence is unevenly distributed across districts and affected by seasonality.
Due to strict heritage protection policies, pedestrianisation of the historic core and vehicular termination at the gates, Pile and Ploče become regulatory nodes. The gates are not natural gathering points, but more transient nodes intensified by tourism, mobility restrictions, and access control. By moving the vehicular transport to the perimeter, circulation is compressed. Within the walls, under UNESCO protection there is few opportunities to change or adapt the urban fabric, making Stradun into a regulatory pedestrian node. At Pile and Ploče gates the city walls act as a landmark, for tourists signifying spectacle and for locals creating a point of negotiation and avoidance. At Stradun, the landmark is present in its continuous façade and monumental axiality. In these nodes tourist behaviour is legible and repetitive encouraging clustering and lingering. Local circulation uses avoidance in the summer and reclaims function as an everyday promenade during winter. Regulation drives nodes and stabilises landmarks while transforming its lived experience. For example, for locals the City Walls represent an infrastructural boundary but for the tourists it represents spectacle. This fluctuates with seasonality, nodes congesting and relaxing.

Port authority, schedules and coordination generate the cruise terminal as a regulatory node. They are essential in synchronising mass arrivals. Therefore, the port infrastructure and docked boats function as landmarks. Compared to the Old Town these landmarks are functional rather than symbolic. Tourist circulation happens in surges determined by port schedules and is transient. Locals circulate through commercial and port areas driven by everyday rhythms. For tourists, the port functions as a node and landmark of gateways and thresholds, while for locals it is infrastructural. Seasonality does not produce continuous saturation.
Urban planning policies (City Council of Dubrovnik, 2024) generate an accommodation node in Babin kuk. In Uvala Lapad, the promenade is turned into a leisure node by coastal management and concession policies. In Babin kuk hotel complexes act as landmarks structuring circulation systems. In Uvala Lapad, Petka hill and sea vistas act as natural landmarks by which to orientate oneself. Tourist circulation radiates from hotel complexes towards beaches and the Old Town. Locals use Uvala frequently and consistently and tourist circulation comes in seasonal surges. Behaviour overlaps but does not cause spectacle like in the Old Town. In Babin kuk, the hotels offer tourists areas of residence and comfort, but for locals, sites of work. Vistas in Uvala Lapad for locals present a familiar scene but for locals it presents as an exploratory achievement. Regulation in these areas is characterised by segregation rather than compression, with seasonality increasing density but not fundamentally altering circulation hierarchies.
Considering local maritime domain laws and concession systems, beaches become a node themselves. The intensity of the node is characterised by circulation. Beaches like Banje and Buža are high intensity nodes, compared to Stijene and Elita due to differences in local-tourist circulations. Intensity is also affected by each beach's landmarks. While they all share the landmarks of sea, shore and sun, the vistas they offer are directly connected to intensity. For example, Banje beach offers the most symbol filled vista from its location compared to the other beaches, making it the most congested one. Based on intensity and symbolisms they produce, each beach represents different atmospheres for locals and tourists. For example, Banje beach is beloved by tourists for its vistas but avoided by locals for its crowds. Stijene in Lapad are mostly unknown to the tourist gaze so tourists consider it an authentic find while locals see it as a part of their everyday rhythms. Therefore, landmarks within same areas carry different symbolisms. Beaches are incredibly susceptible to seasonality, oscillating from overcapacity to emptiness, revealing limits in polices balancing seasonal pressure.
Across districts, regulation creates nodes through restriction, concentration, or zoning. Meaning differs between locals and tourists, with seasonality amplifying intensity in surges, revealing weak buffer zones.
Marketing, as a tool of the internal conceived image, is curated by representations produced by the Dubrovnik Tourist Board and is reinforced by local businesses. On their webpages they offer images, videos, and stories of Dubrovnik with behavioural instructions and suggestions on what to do. Their scope is mostly limited to the historic centre with a few locations in the county highlighted, like the Elafiti islands, Slano, Trsteno, Ombla, Orsula park and Cavtat, aiming to encourage tourists to visit them so all tourist traffic is not concentrated in the Old Town. While intentions are good, this kind of advertisement rarely encourages tourists to deviate from the beaten paths set by the tourist gaze. Local businesses, mostly located around the

historic core, reinforce the representations from the Tourist Board with their offer. Through this tool, representation generates symbolic priorities and hotspots which identify and reinforce certain nodes and landmarks. Marketing organises expectations and compresses circulation through desire (Franklin, 2003). Its influence is scattered across districts and intensified by seasonality.
Marketing amplifies specific beaches through symbolic imagery. An example is found in Banje beach, heavily relying on perpetual flows through marketing the vistas and their hospitality offer. The image of the sea with the Old Town in the background generates the beach as a node of representation, intensified by global circulation. The image itself becomes a landmark fulfilling expectations. In marketing, other beaches appear more commonly represented producing moderate intensity relying on the sun, sea, and sand factors. Discovering undermarketed beaches may feel authentic for tourists, but for locals it disrupts their everyday spaces. Seasonality ahs the strongest effect here. Beach nodes are amplified by summer aligned promotional imagery while in the winter it is reduced to brief local rhythms. Marketing fluctuates symbolic value seasonally, intensifying tensions during peak surges.
Across districts, marketing creates nodes through symbolic concentration. Landmarks become stabilised repeated images shaping tourist expectation before even arriving. For locals, these landmarks contain layered symbolisms facing external pressure. Seasonality amplifies nodes in the summer, aligning marketing intensity with physical presence and offering time and space for unwinding in the winter.
Together, regulations and projected representations form the internal conceived image of the city- what the city envisioned for itself through planners and designers. This affects locals' perception mostly as these projections are based more or less in the local identity and drive operations of local businesses. For tourists they lay out a set of behavioural instructions and formal expectations based on 'promises' by the Tourist Board and local businesses.
The external conceived images are generated through online reviews, viral trends, and marketing strategies of non-local actors and governments. Apps, from TikTok to Tripadvisor, shape opinions and expectations which are very loosely grounded in reality and rely on subjective perceptions. The external image clashes with the internal as it is affected by opinions formed before experiencing the place. This most actively influences tourists setting their expectations that need to be fulfilled rather than just exploring the place.
The external conceived image can therefore be divided into two categories based on the source for the conceived image: external regulation and external marketing. Regulation considers the policies implemented by national governments which dictate global geopolitics. Marketing considers images and touristic rules of the city produced and distributed by social media. Within tourist areas these manifest differently. This most actively influences tourists setting their expectations that need to be fulfilled rather than just exploring the place.
Regulation, as a tool of the external conceived image, is expressed through national and global geopolitical frameworks structuring global mobility. Visa regimes, Schengen zoning, cruise geopolitics, and low-cost airline networks do not actively affect Dubrovnik but passively condition who, from where and in what quantity arrives. In dynamics with internal regulation which organises access within the city, external regulation determines access to the city itself. Geopolitical decisions generate arrival patterns that intensify nodes and landmarks.

Low-cost airlines and EU mobility frameworks make Dubrovnik accessible from major European and global cities. Consequently, the Old Town becomes an arrival node because global mobility enables frequent and short visits. Landmarks like the city walls, Stradun and panoramic vistas, are reinforced by global accessibility and their congestion intensified by accessible travel. Tourist circulation and behaviour become expectation driven, and their temporal window is bound to flight and cruise schedules, amplifying the focus on fulfilling their expectations. For locals, this manifests as congestion, displacement, and avoidance. Openness turns into saturation which turns into regret, amplifying tensions. In winter, reduced external connections soften the node. This aligns Dubrovnik with European mobility networks aligned with holiday calendars.
Gruž emerges as a node of arrival due to national and international maritime and cruise industry agreements. Cruise routes determined beyond the city determine flows into it. The cruise ship itself becomes a landmark, for tourists a source of excitement and for locals a source of disruption. External regulation generates the scale of arrivals, unlike internal which organises port logistics. Tourist circulation follows cruise itineraries creating surges and supporting transitional behaviour. Locals' rhythms are affected by these surges, amplified by seasonality.
Tourist package offers represent the accommodation belt in Babin kuk as a node of seasonal residence. Tourism agencies determine occupancy rates. Hotel complexes become landmarks through international branding and advertising. For tourists, the symbolic value lies in reliability and comfort. Circulation radiates in direction of the Old Town and beaches, based in short-term exploration. For locals, Lapad exhibits continuous year round rhythms compared to the Old Town, but labour patterns are shaped by seasonality aligned with school holidays and international travel peaks. Beach congestion is directly connected to global mobility as the primary consumable product of the travel itself, along with the heritage. Main landmark stabilising these nodes is the Mediterranean summer. Tourist circulation is concentrated in beaches around the Old Town like Banje and mayor hotel complexes like President. Behaviour is influenced by maximisation of leisure. For locals, beaches are contested territory in the summer and an extension of public space in winter. Seasonality is very visible through low-cost airlines and charter packages which synchronise congestions with climactic capacities, producing cyclical strain on the coastline.
Across districts, external regulation does not directly affect the city's paths and edges, however it amplifies spatial congestions and temporal compressions. It makes Dubrovnik a node in global mobility systems and networks, determining intensity before visitors even engage with the city. External regulation shapes circulation through accessibility. Seasonality concerns climactic capacities and geopolitical rhythms embedded in global mobility systems.
Marketing, as a tool of the external conceived image, operates through online reviews, viral trends, and marketing strategies of non-local actors. Most representation is communicated through social media which shapes opinions and expectations which are very loosely grounded in reality and rely on subjective perceptions. Internal marketing is based in curation of a controlled image while external marketing is accelerated and decentralised. Desire inspired by the tourist gaze creates hotspots reinforced through repetition. Through it, social media intensifies symbolic value of certain locations making them into congested nodes. Symbolic value shapes tourist's expectations before even experiencing the city. It

often clashes with local representations and everyday rhythms.
Online, circulating panoramic drone videos, Game of Thrones guided tours and souvenirs, sunset and heritage shots transform the Old Town into an amplified node of visual indulgence. External marketing isolates micro-locations within the historic core, such as narrow streets, specific staircases or squares transforming them into trend driven landmarks. These become mandatory tourist checkpoints rather than just historical features. Their symbolic value is based in recognisability and communicability. Locals consider these landmarks layered with historical and functional meaning, yet the quality of the experience shifts with seasonality, diminishing as the city becomes a stage for external consumption (Sheller and Urry, 2006). Tourist circulation revolves around landmark hunting, driven by viral trends with behaviour based in performance and competition. Consequently, local circulation adapts and behaviour becomes avoidant. Congestions are deeply connected to seasonality, disrupting everyday rhythms.
External marketing rarely represents Gruž as an aspirational area, consequently it does not develop as a node of visual indulgence. Instead, it functions as a transit node. Landmarks are most often associated with cruise ships and ferries as the harbour infrastructure itself lacks spectacle opportunities for landmark status. Tourist behaviour remains transient, minimising clustering and lingering except during peak congestion times as per port schedules. Absence of external marketing in the area preserves everyday rhythms.
Babin kuk and Uvala Lapad are represented as alternative leisure scenes. Social media frequently represents coral and Copacabana beaches as 'hidden gems' further exacerbating touristic demand and creating leisure nodes. In a similar way, the promenade in Uvala Lapad becomes a leisure node. Landmarks in both constitutes an array of vistas and intriguing paths. This makes the character of the landmark atmospheric rather than monumental. For locals, they are everyday leisure and recreational areas grounded in repetition. For tourists, these landmarks represent curated exclusivity and tranquillity. Behaviour shifts to spectacle production as external marketing alters circulation subtly but consistently. Tourist circulation increases as they infiltrate beyond viral locations, increasing density in previously moderate zones. These cycles are bound to seasonality.
Beaches, as easily commodified legible imagery is strongly affected by external marketing. Beaches such as Banje, Buža, Dančе, Bellevue, Copacabana and Coral widely circulate online. Through repetition they become coastal nodes due to viral trend representations. The vistas comprise the landmarks, making them consumable products for tourists. For locals, the same beaches reflect symbolic everyday continuity. External marketing transforms lesser-known spots into 'hidden gems', making them some of the most commercialised places in the city. circulation towards these nodes is intensified, overwhelming capacities. Behaviour is characterised by commercialisation and performance. Seasonality intensifies congestion during summer and during winter dispersed local use reclaims the nodes.
Across districts, external marketing creates nodes not through planning but through algorithmic concentrations. Landmarks become stabilised by repetitive reproducibility. Meaning is divided between external expectations and everyday routines. Spatial experience is shaped by seasonality aligning digital representations with physical presence, generating surges amplified by desire, calling for constant renegotiation of local identity.

The extents of the internal and external conceived images shift over time with social media trends and needs of the local population, however due to lack of communication between the sources for each, a dissonance between them is inevitable. This dissonance is spatially legible in Dubrovnik, with nodes and landmarks repeatedly intensified for different reasons with different meanings.
The internal conceived image compresses flows through controlled thresholds and curated promises. The external conceived image intensifies arrival capacities through geopolitical accessibility and accelerates desires driven by the tourist gaze through algorithmic repetition. Consequently, the movement in the city is influenced by expectation rather than exploration, reinforced by symbolic values stabilised through repetition while everyday rhythms fragment.
Through Butler's (1980) TALC analysis the conceived image is typical for a city in consolidation and partial stagnation phases. Nodes are not just congested places but spatial tools through which power, profit and perception organise the urban fabric (Harvey, 2001; Lefebvre, 1991). Landmarks operate as shared reference points however with differently driven symbolic values. Behaviour is characterised by tourist clustering and local avoidance, weakening private-public buffering capacities. Seasonality amplifies representational sources into cyclical disruptions (Butler, 1980; Lefebvre, 2004). In summer, congestion and spectacle are dominant, while in winter relaxation and reclamation of space become possible for a short period of time. However, not long enough to ensure true balance. The conceived image functions as a spatiotemporal mechanism that reinforces hotspots through repetition, calling for a constant renegotiation between local identity and global desires.

DWELLING MAPPING KEY:

- NODES (TALC)
- TOURIST ROUTINE- 4 DAYS
- LOCAL ROUTINE- 1 WEEK
- TOURIST LANDMARKS
- LOCAL LANDMARKS
- TOURIST PERCEIVED IMAGE
- LOCAL PERCEIVED IMAGE
- TOURIST LIVED IMAGE
- LOCAL LIVED IMAGE

Drawing 7. Borovina, M. (2026) Dwelling mapping.

DWELLING MAPPING

To borrow a term from Heidegger, dwelling considers all human acts of inhabiting, which transcend the notion of dwelling as just the physical construction, and create a sense of place, where a house becomes a home. While the conceived image shows how representations and regulations influence and organise the city from above, the perceived and lived image shift the focus within. Previously, users were defined based on performing social roles. Therefore, this mapping will explore how the continuous performance of social roles and routines leaves an imprint on the urban fabric (Franklin, 2003). Main focus will be on documenting how permanent and temporary actors perform social roles within the temporal window in which they engage with the city. This uncovers how their routines, habits, practices, and interactions shape the city. This temporal lens allows us to look at performance of social roles in terms of local and tourist actors. The difference in the engagement with the city fabric produces different perceived and lived (Lefebvre, 1991) images of the city. While the conceived image is based in expectation and access, the perceived and lived images reveal how they are enacted, reinterpreted, and renegotiated within everyday rhythms. Nodes and landmarks (Lynch, 1960) are reinforced through repetition along previously mapped paths and edges.

The perceived image is based in the spatial practice; daily routines, habits, practices, and interactions which are directly lived before they are conceptualised (Lefebvre, 1991). The lived image is based in the representational spaces which are ‘directly lived through its associated images and symbols’ (Lefebvre, 1991). These images are constantly interchange and generate socio-spatial production.

The perceived image is not imposed but enacted along circulation paths condensing into nodes where congestion intensifies. For an individual, it stabilises landmarks through repetition rather than externally imposed symbolic value, leaving spatio-temporal traces. The perceived image is organised by practice rather than regulation and marketing. It is expressed in footsteps, pauses, shortcuts, greetings, waiting and seasonality.

While the conceived image directs flows through regulation and marketing, the perceived image comprises all actions that happen along the way, not under the influence of the conceived image. It consists of daily micro-decisions driven by instinct and engagement with the city, making it experiential rather than representational, revealing how one actually inhabits the city.

The tourist perceived image, while highly directed by the conceived image through social media, suggesting tourists where to go and what to do, still is dominated by the tourist’s everyday rhythms in their home country. A short temporal window further exacerbates the dissonance in everyday rhythms and their drivers. The average tourist stay in Dubrovnik is about 4 days and in this time, tourists are likely to hit most of the hotspots defined by the conceived image (Croatian Bureau of Statistics, 2025). A typical commute within those four days circulates between nodes and landmarks of the conceived image but is overlaid with micro-decisions forming new nodes and landmarks constituting the perceived image.

Within the Old Town the tourist perceived image condenses rapidly, usually due to short-term stays. Over an average four day stay circulation concentrates along defined and legible paths corresponding to expectations set in the conceived image. Tourist circulation in the Old Town may initially be highly anticipated, yet it forms through embodied actions, such as searching for shade or touching the

stone's texture. This becomes a process of slowing down to absorb a specific place and adjusting your pace or direction depending on density. Where expectation and actions overlap, nodes are created, not because of congestion but experience condensed with repetition. Landmarks become stabilised through short-term familiarity with actions such as returning to the same bar on a second evening, recognising paths to accommodation, or anticipating sunsets. The symbolic value of the landmark shifts from being an object of spectacle to a short-term anchor of orientation and memory. For example, the front façade of the Cathedral becomes 'the place we turned yesterday' or a café becomes someone's 'morning spot'. The node becomes deeply experiential, formed through repetition, rather than symbolic. Summer's heat amplifies sensory awareness and therefore the intensity of the experiential node, making seasonality a key actor.

In Lapad, tourist circulation unfolds at a slower pace. Uvala Lapad becomes a node through repeated leisure actions, like an evening walk or a morning swim. The node is stabilised by bodily comfort more than fulfilment of expectations. Landmarks are atmospheric like tree rows near hotel complexes or café signs popping up along the promenade. Short-term repetition gives them stability like watching the sunset from the same spot. With focus shifted from evaluation to instinct, actions revolve around maximising relaxation within the temporal window. Seasonality is not as intense as within the historic core, but it heightens circulation patterns.

In Gruž, the perceived image is primarily transitional with nodes forming around disembarkation, bus boarding and waiting. The cruise ship or ferry may temporarily be considered a landmark of orientation and excitement, yet the harbour infrastructure, except the newly renovated seaside promenade, is rarely stabilised into an experiential landmark. Actions are shaped by movement and function rather than lingering and exploring. This node is affected by seasonal surges, congesting in the summer, however it remains a transitional node rather than a memorable one.

The perceived image of beaches is based in intense bodily engagement. Actions, such as placing towels, catching glimpses of shade, and entering the sea stabilise the beach into an experiential node. Landmarks are based in rock formations, cliff jump locations and sun position, as well as vistas. These are used for orientation and experiential confirmation. In beaches like Banje, the overlap of sun, sea and vista with bodily engagement deeply intensifies the node. The perceived image intertwines with sensations such as the sun's warmth or the sea's sounds. Seasonality intensifies density and experience in the summer, dissolving it in winter as most amplifiers of sensations are tied to the weather.

The local perceived image is influenced by the conceived image and experiences pressure from it; however, the conceived image does not drive locals in the same way it does tourists. The conceived image is more of a suggestion than a demand. It is based in local habits, customs, traditions, and practices creating a perceived image based in the local identity. A reasonable temporal window of examination is a week. The local perceived image unfolds through repetitive routines over long periods of time, unlike the tourist which is compressed into days. Circulation is directed toward sustaining everyday rhythms instead of fulfilling expectations. The perceived image of locals therefore stabilises through familiarity rather than anticipation.

In the Old Town, the local perceived image condenses through necessity and rhythm. Everyday rhythms involve commuting, attending church, stopping at a bakery, or meeting for coffee at Stradun. Paths transform from highlights to connective tissue supporting everyday rhythms. Micro-decisions further deepen the perceived image. A local might pick an alternative way or time to commute or pause in a specific place for shade through adjusted and stabilised micro-decision patterns, adjusting the node experientially. For example, the clock tower at Stradun street becomes 'where you meet before going out', not because of its architectural value but accumulated experience. Landmarks become stabilised through this accumulated experience rather than visual perception. In the conceived image, the landmark appears as a recognisable symbol but in the perceived image their function becomes based in short-term orientation. For example, the Jesuit staircase is not referred to as the symbolic landmark but as the 'stairs below the high school'. Repetition anchors unexpected micro-landmarks such as specific doorways where one waited, ice cream shops where one has been eating ice cream since childhood or a stretch of the path that gets extra slippery when it rains. Seasonality amplifies this process by intensifying sensory awareness, making the landmarks saturated visually and experientially, evoking fulfilment or fatigue. The same landmarks expand in the winter with reduced congestion and locals' reclamation of space. For example, the Jesuit stairs transform from a passage to the high school to a place where you sit down to enjoy the sun.

In Uvala Lapad, the local perceived image is formed through cyclical leisure and extending domestic activities. This includes actions such as children playing, jogging around open green areas, or sitting on a specific bench talking to a friend. The node is created by an overlap of routines. The promenade stabilises itself as a node as it is capable of absorbing repetition like taking the same route for an evening walk or visiting the same café daily. Landmarks become intimate and relational, such as a rock formation associated with childhood or a frequently occupied café table. These landmarks are not evaluated but instinctively inhabited gaining stability through duration rather than intensity. Seasonality does not fundamentally redefine perception as locals temporally adapt, maintaining attachment through flexibility rather than abandonment.

In Gruž, the local perceived image is structured around work, infrastructure, and commerce. Typical actions include shopping, commuting or work/ port related activities. Nodes are stabilised through rhythms at intersections of routines, like in the market, at bus stops and specific store fronts. Landmarks become relational and infrastructural such as a favourite vendor's stall or the bench where you sit when waiting for the bus. Seasonality surges alter intensity but not the identity, with congestion seen as more of an interruption than attraction, stabilising the node functionally and cyclically.

The local perceived image of beaches is tied to embodied memory, including after work swims or weekend gathering spots. Actions such as entering the sea in a specific place or placing your towel in zones with the longest sun hours are informed by accumulated knowledge. Nodes form around micro-territories like specific rock formations or café terraces. They are very stable as their use is repetitive across seasons and years. Landmarks become experiential rather than scenic, stabilising identity rather than expectation like the position of the sun at particular hours or jumping from a cliff popular for generations. Seasonal density compresses the perceived space in the summer, prompting tactics of avoidance. In winter, the spaces are partially reclaimed by locals through recreational and leisure activities.

Seasonality, therefore, modifies sensory intensity without redefining belonging.
The perceived image presents identical spatial frameworks generating different experiences depending on temporal engagement. Tourist, operating in a short temporal window, stabilise nodes and landmarks through linear repetition, overlapping anticipation and embodied engagement. Meaning is compressed and shaped by evaluation, fulfilment, and sensory experience, particularly in the summer. Contrastingly, locals, operating in a longer temporal window, stabilise nodes and landmarks through cyclical repetition of accumulated routines. Nodes emerge from intersection of everyday rhythms and landmarks are enforced through memory rather than spectacle. Seasonality alters intensity for both. Locals typically adjust without redefining belonging, while tourists experience fulfilment of expectation or fatigue. The dissonance is expressed not through spatial but through temporal form revealing tensions through lived rhythms rather than regulation.
While the conceived image structures space with regulation and marketing, and the perceived image unfolds through embodied engagement, the lived image is based in intuition and interpretation. It is directly lived through its associated perceived and conceived images, synthesising their influences into internal meaning. It comprises of thoughts and emotions not prescribed by regulation, marketing, routines, or habit. It aims to uncover how space becomes internalised through memory, identity, fulfilment, alienation and belonging.
In the Old Town, the tourist lived image is highly concentrated. This district often becomes the primary symbolic core of the entire visit. Nodes form where emotion condenses. Stradun often becomes a central node, internalised as the 'heart of Dubrovnik', despite spatial function. The lived node is remembered as vibrant, overwhelming, cinematic, or surreal, with its meaning depending on the alignment between expectation and embodied sensation. Landmarks shift from orientation actors to symbolic condensations. For example, the Cathedral transforms from a point of reference to a sacral symbol, evoking religion related emotions, and thoughts. The Jesuit staircase could also transform from a point of reference to a memorable symbol, evoking nostalgic emotions which frame the memory. In this way, landmarks become narrative devices that the tourist uses to recall the city, becoming a simple way to share the experience. It should be stressed that the lived image may possibly diverge from the conceived one, as the interpretation of overcrowding, for example, might be described as energy boosting tool or the loss of authenticity. Or heat may be described as charming or exhausting. Therefore, the lived image of the Old Town is volatile and sensitive to seasonality, becoming either magical or disappointing depending on how the experience was internalised.
In Uvala Lapad, the tourist lived image shifts from immersion into culture and heritage to sensory interpretation, making it a node based in relaxation rather than exploration. While a walk around the Old Town might feel accelerated and avoidant, the walk along the promenade in Uvala Lapad becomes internalised as a 'place where we can slow down'. The balance between spectacle and calm is symbolised as an emotionally stabilising relief from congestion. Landmarks become atmospheric and sensory based, like the rhythms of the cafes spilling onto the promenade, curved shoreline opening to the horizon or the silhouette of Petka hill forming an imposing backdrop. The sea also becomes a landmark, intertwining itself into sensory experiences through sounds of waves and reflections of the sun, starting to embody emotional connections. While the landmarks in the Old Town are narratively dense,

Uvala Lapad's landmarks are soft and ephemeral. They associate with relaxation and comfort rather than spectacle and performance. The node is conditioned by atmospheric accumulation. Additionally, it is highly affected by seasonality. In summer warmth and density amplify the sensory experiences, while in the winter the promenade may be interpreted as contemplative and intimate. Landmarks are based in felt conditions like sounds, reflections, breeze, which solidify the place into a node of respite within the broader intensity of Dubrovnik.
In Gruž, the tourist lived image is transitional and less dense in emotional and sensory experiences. Nodes form in moments of arrival and departure, basing it in the ephemerality of thresholds. While in Uvala Lapad where meaning is based in atmospheric accumulation, in Gruž meaning condenses around movement. The harbour becomes a point of orientation, creating a node of passage rather than presence. Infrastructural landmarks like cruise ships, ferry ramps, construction cranes, and port café function as intuitive anchors embodying motion and transition. The newly renovated seaside promenade (Grad Dubrovnik, 2024) may register as a brief landmark of pause within the flows; however, it does not overpower the emotions of arrival and departure. Arrival and departure are aligned with emotions of anticipation and closure. The heightened awareness of time through port schedules reinforces Gruž's logistical and temporal symbolisms. Seasonality intensifies the ephemerality of thresholds with congestion translating into excitement or overwhelm during the summer. In the winter, as density decreases, Gruž's identity as a functional gateway rather than a destination is reinforced. Gruž's lived image is constructed through movement and temporality symbolising transition, anticipation, and closure, stabilising it as a gateway node rather than an experiential one.
The lived image of beaches is intensely affected by sensory and emotional experiences. They are internalised through elemental immersion. Nodes form where sensory experiences connected to heat, salt and wind converge with visually intense elements producing strong emotional responses. Visually intense elements are composed in layers, in foreground the bodies on stone or sand, sea as the middle ground and the skyline or open horizon as the background. Through this layered composition, different beaches generate distinct nodes and landmarks for tourists.
In beaches like Banje and Buža in the Old Town area nodes form where elemental immersion aligns with heritage. The Old Town skyline acts as a monumental landmark, infusing the act of swimming or sunbathing with emotions of nostalgia and hedonism. Clusters created driven by these emotions reinforce the symbolic charge of the vista, internalising the beaches as the 'iconic Dubrovnik experience'. The memory of the landmark is structured through recognisability and cinematic effect. While in the summer the combination of heat, sound and crowd intensifies emotion, in the winter it may be perceived as poetic, shifting from spectacle to contemplation.
In Uvala Lapad, Coral, Copacabana and Mandrač, the lived image shifts from monumental alignment to atmospheric continuity. Horizon dominates rather than the fortified skyline. The open sea and horizon replace architectural density, creating a node grounded in atmospheric expansiveness rather than historical layering. Landmarks are formed through elemental thresholds, such as jetties protruding into the water, diving cliffs and shaded café terraces overlooking the bay. Landmarks stabilise in sensory experience driven emotions like the feel of warm concrete under foot, reflections of a colourful sunset or the rhythm of the waves hitting the shore,

internalising it as a node of freedom and leisure. The node forms in places where relaxation condenses, associating the lived image with bodily ease rather than visual iconography. In Lapad, increased seasonal density does not radically alter symbolic values as it does in the Old Town. In less frequented beaches, the lived image is internalised through intimacy and perceived discovery. Nodes form around micro-territories with subtle landmarks. For example, a secluded cove as a node, with an echo of waves against a hidden inlet as a landmark. For tourists these symbolise exclusivity or authenticity evoking ego charged emotions driven by personal narrative. However, due to seasonal increases in density and social media exposure, they might transform into contested zones, altering their interpretation.
Across districts, the tourist lived image reveals that Dubrovnik is not memorised as one coherent entity but a constellation of emotionally charged nodes, internalised differently in each district. Landmarks shift from points of orientation to accumulations of meaning, stabilised through personal narrative over collective representation. Seasonality acts as a mediator, amplifying and softening emotional intensity, therefore transforming interpretation without altering physical form.
The tourist lived image is deeply subjective and volatile, at times aligning with the conceived image, and at times diverging from it entirely. Within this interpretation fulfilment, disappointment, attachment, and alienation are produced, revealing how the city is reconstructed through memory. Through globalised networks, these memories can influence conceived images.
While the tourist lived image is compressed into short temporal windows and is structured through anticipation and fulfilment, the local lived image unfolds over long temporal windows and stabilises through accumulated memory. The conceived image proposes how the city should function, the perceived depicts how it is used but the local image reveals how they are internalised through identity, attachment, and continuity. It is based in long term experience rather than short-term expectations. Thoughts and emotions are oriented toward belonging, pride, comfort, fatigue, and frustration. It uncovers how Dubrovnik transforms from a destination into a home.
In the Old Town, the local lived image is layered and conflicting. It is internalised as a dense memory field rather than a symbolic core. Nodes form where personal narrative accumulates. Stradun simultaneously functions as a workplace corridor, childhood promenade, and stage for curated spectacle. Its lived symbolic value is manifold. Landmarks shift from monumental heritage to stabilisers of everyday rhythms. The Cathedral transforms from a site of aesthetic admiration to a site of religious ritual tied to family rhythms. The Jesuit staircase transforms from a site of cinematic nostalgia to a site of memories from adolescence and gatherings, evoking sentimental emotions. The tourist lived image condenses emotion into heightened temporal windows, while the local lived image disperses symbolic value across time. Seasonality intensifies this conflict, with summer congestions forcing alienation and withdrawal bringing feelings of fatigue and frustration, while in winter reduced density allows reclamation and reattachment, evoking feelings of belonging, pride, and comfort. Same landmarks oscillate between pride and exhaustion dependant on experiential alignments.
In Uvala Lapad, the local lived image is based in continuity over relief. Tourist's slowing down is the local's extension of domestic space. the promenade transforms into a node of everyday life rather than escape. Landmarks become relational, such as cafes tied to friendships or benches referred to as 'our spot'. Petka hill and the horizon shift from interpretations of freedom to familiarity. The sea is internalised as a rhythm rather than a spectacle. Intensified summer density can produce irritation and adaptation, but it does not diminish attachment. Seasonality fluctuates comfort levels but rarely destabilises belonging.
In Gruž, the local lived image is based in labour and function. Tourists internalise it as a threshold but locals as a routine infrastructure. Nodes form around the Market, bus stops, work, and everyday errands. Landmarks become relational and embedded in repetition like the relationship with a vendor at the market, a trodden patch of grass used as a shortcut or commercial signage that marks orientation. Cruise ships symbolise economic necessity and seasonal strain, unlike the excitement felt in the tourist lived image. The harbour transforms into a simultaneous symbol of livelihood and interruption. Identity is situated in function, intensified by seasonal work rhythms and congestion, rather than transition. The lived image of Gruž is stabilised as a productive node with functional landmarks, not enticing spectacle.
The local lived image of beaches is profoundly different to the tourist one. While tourists internalise beaches through iconic alignments and sensory input, locals internalise them through continuous embodied engagement. Nodes form around micro-territories, such as a childhood play spot, specific sea entry point or a café associated with friend or family. Long-term repetition stabilises landmarks over dramatic expression. The familiarity of the Old Town skyline makes it fade into the background, loosing its cinematic nostalgia. The horizon acts as a seasonal indicator rather than a frame. In summer, density compresses space and prompts avoidance, while winter emptiness restores intimacy. Beaches become nodes of layered memory through continuous use, producing attachment resistant to seasonal fluctuations.
Across districts, the local lived image uncovers Dubrovnik as a layered memory field of accumulated meanings. Landmarks are stabilised by long cyclical temporal windows. Seasonality alters interpretations, emotions and sensory input but rarely redefines belonging. Instead, it uncovers tensions between pressure and continuity. The local lived image reconstructs the city through identity, persistence, adaptation, and inhabitation.
The dissonance between tourist and local experience across conceived, perceived and lived images becomes primarily temporal rather than spatial. The conceived image overarchingly organises expectation, structuring nodes and landmarks through regulation and marketing. The perceived image acts through embodied engagement, with tourist routines compressed in short repetitive linear rhythms, while local routines operate in long repetitive cyclical rhythms. The lived image internalises these processes, modifying shared spatiotemporal forms into radically different clusters of meaning. For tourists, Dubrovnik become a narrative of emotionally charged nodes evaluated in a short temporal window and for locals becomes a memory field of accumulated meanings. Seasonality mediates between the three images, amplifying intensity for tourists while assessing limits of locals' endurance. This reveals that tensions emerge from collisions of temporal windows through which the city is inhabited and their layered meanings.

EFFICIENCY MAPPING KEY:

- OLD TOWN, PILE, PLOČE NODE
- GRUŽ NODE
- LAPAD NODE
- REGULATORY STRATEGIES
- SMART CITY STRATEGIES
- DISPERSAL STRATEGIES
- HERITAGE STRATEGIES
- SOCIAL AND REPRESENTATIONAL STRATEGIES
- ENVIRONMENTAL STRATEGIES

Drawing 8. Borovina, M. (2026) Efficiency mapping.

EFFICIENCY MAPPING

Current overtourism strategies are focused more on short term crisis management rather than long term adaptive urban visions (Hospers, 2019). Strategies are conducted as to not question Dubrovnik's dependence on tourism but manage and mitigate most visible problems ensuring continued economic flow (Veríssimo et al., 2020). During the strategy making process, decisions are often made by administrative and municipal authorities, as well as tourism boards based on measurable indicators such as visitor numbers, temporal peaks, congestion levels, and physical capacity, often relying on monitoring, zoning, and regulatory systems. Strategies based solely on quantifiable elements seem efficient when we measure and compare data but in reality, are often disconnected from social, cultural, and spatial dynamics of the urban fabric (Buitrago and Yñiguez, 2021).
The pandemic amplified governance and institutional weaknesses, as well as socio-spatial inequalities within urban tourism systems (CROSTO, 2021; City Council of Dubrovnik, 2024). Overarchingly, these strategies are influenced by economic and reputational interests. This makes the wellbeing of locals less important in the strategy, outweighed by stability of the tourism industry and economic gain.
Another fault in the current strategies is that it is mostly focused on the Old Town and its surroundings, reinforcing the existing symbolic and economic centralities without addressing the wider urban fabric. This, consequently, reinforces congestion and activity in the Old Town and leaves the wider urban fabric as a seldom-visited backstage.
Finally, the most overlooked weakness of current strategies is that they work in isolation from each other and from the people they affect (Bisht, 2025). To ensure a collective urban response, strategies should reinforce each other and communicate across scales, disciplines, stakeholders, and infrastructure (Jamieson and Jamieson, 2020). The city tends to cycle through different categories of interventions which fail to address structural constraints, undermining long-term effectiveness (Capocchi, et al., 2019). As long as the city of Dubrovnik stays within the bounds of its already established image, without allowing itself to negotiate its identity, spatial practices and social relationships, the trajectory of current strategies will never be experientially, only statistically efficient.
Within this mapping, efficiency is understood as the degree to which a strategy aligns circulation systems with conceived intentions, at the same time reinforcing perceived practices and supports lived meanings (Lefebvre, 1991). An efficient strategy operates across all four dimensions; circulation, conceived, perceived, and lived images, without generating displacement, alienation, or congestion elsewhere within the urban fabric. At circulation level, strategies are evaluated in regard to how they organise paths, nodes, and thresholds, merely shifting congestion or truly stabilising flows across the city. Increasing pedestrian mobility while reducing vehicular traffic or diverting tourist flows elsewhere without adapting infrastructure and social capacity there, cannot be considered efficient, as efficiency depends on balance. Within the conceived image, efficiency relies on communication between regulation, marketing, governance, and technology. Strategic consistency is undermined by contradictions between restrictive policies and representations based in the tourist gaze. At the level of the perceived image, rather than remaining gestures, strategies must translate into flowing everyday rhythms. This means that

monitoring and awareness campaigns are only efficient if they alter embodied behaviours. Finally, the lived image presents a final obstacle, determining efficiency through the ability to preserve local identity and belonging, while at the same time allowing tourism infiltration without experiential erosion. A SWOT analysis will be applied to these dimensions, exploring the interaction between spatial organisation and seasonal rhythms. This defines efficiency as the capacity to mediate between tourist-related compressions and local-related cycles, rather than the ability to manage visitor numbers.

The Old Town and surrounding Pile and Ploče area is the district with the highest governance intensity, including the densest overlap between locals and tourists. This is the site where tourism is most visible and regulated and at the same time acting as the core of Dubrovnik's conceived images. Regulatory, mobility, heritage and smart city strategies can be found in this area. However, the number of strategies does not mean multidimensional efficiency. The alignment with circulation, conceived, perceived, and lived images determines efficiency.

Regulatory and mobility strategies are most visible in the urban fabric and concentrated in the Old Town area. Mobility strategies reinforce this through strategies such as limited permit only access for vehicles from Pile to Ploče area around the Old Town, significantly reducing traffic. Here, the regulatory strategies are observed through Respect the City (City Council of Dubrovnik, 2018) initiative and UNESCO related carrying capacity assessments. Carrying capacity thresholds are operationalised through visitor caps inside UNESCO protected areas, scheduling agreements with cruise disembarkations and caps on cruise tour numbers (City Council of Dubrovnik, 2024.; Ministry of Culture and Media of the Republic of Croatia, 2021). While the cruise caps spatially originate in Gruž port, they spill over into the Old Town as the measures were put in due to congestion there and not in Gruž. These agreements limit number of docked ships and stagger arrivals preventing pedestrian surges within the historic core (City Council of Dubrovnik, 2024; Camatti et al., 2020). In the Old Town, these strategies manifest through regulation and monitoring at gates and ticketed entry points. A recent, but seemingly effective, strategy is the traffic restriction between Pile and Ploče around the Old Town in the period between 1st March and 30th November. The access is reserved for authorised users and vehicles with regulated status which is obtainable only to residents (City Council of Dubrovnik 2024). Interventions like these reshape circulation hierarchies, filtering vehicular flow at the perimeter. While pedestrian mobility dominates internal paths. To assess the efficiency of regulatory and mobility strategies, it will be aligned with circulation, conceived, perceived, and lived images.

With vehicular congestion decreased along the Pile-Ploče corridor, pedestrian mobility and infrastructural conflict is reduced. However, improved vehicular mobility in the perimeter does not causally correlate to alleviating congestion within walls of the Old Town. Consequently, regulation does not eliminate movement but reorganises how it occurs. It is reallocated from cars to pedestrians, from simultaneous to scheduled arrivals and from uncontrolled thresholds to monitored entry points. In regard to the conceived image, regulatory coherence is strong. Municipal mobility regulations, UNESCO monitoring and carrying capacity studies conceptually align with heritage preservation and congestion mitigation objectives (Ministry of Culture and Media of the Republic of Croatia, 2021; City Council of Dubrovnik, 2024). They weaken, however, when representational strategies intensify symbolic concentrations. Reduced traffic improves walkability and legibility of paths and nodes for tourist. For locals, reduced vehicle traffic reduces congestion and improves environmental comfort, but tourist saturation in summer reinforces strategies of spatial and temporal avoidance. Unfortunately, experiential volatility induced by seasonality is not eliminated even though it mitigates infrastructural friction. Seasonality produces fatigue and alienation (Lefebvre, 2004) among locals even if visitor capacities are respected, making the lived experience oscillate between improved pedestrian quality and intense density.

In regard to efficiency, regulatory and mobility tools show statistical strength and spatial visibility. However, its weak point is in behavioural translation, moderating volume while not moderating the symbolisms of the historic core. Consequently, a structurally controlled but experientially compressed circulation field is produced. Smart city strategies, while useful as an additional tool to other strategies, alone only produces statistics (Buitrago and Yñiguez, 2021; Capocchi et al., 2019). In Dubrovnik it is used within the city walls to monitor pedestrian traffic and congestion. Initiatives such as the Dubrovnik Eye, which allows locals to report municipal issues extend the reach of smart city technologies to help the locals rather than being solely focused on tourists (Council of Dubrovnik, 2018; GSTC, 2023). When smart tools are used beyond statistics, we can see policy actions which translate into actual benefits for the local community. An example of this is seen in Gruž where monitoring cruise arrivals resulted in policies mitigating mass tourism issues produced by surges of cruise tour groups within the city walls (Camatti et al., 2020).

Within the Old Town area, smart-city infrastructure is primarily comprised of live monitoring systems, strategically placed at the gates. Municipal authorities track congestion through cameras and sensors, allowing them to remain within UNESCO recommendations (City Council of Dubrovnik, 2024; Ministry of Culture and Media of the Republic of Croatia, 2021). Smart strategies reinforce regulatory and mobility tools by generating data to support spatial and temporal redistribution including threshold control.

Regarding circulation, smart city tools function at a level of observation rather than actual transformation, mapping paths, edges, and nodes in real time to identify clustering and congestion. However, unless paired with adaptive and behavioural dimensions, they remain statistical. Efficiency is conditioned by translation of data into action rather than just documentation. Concerning the conceived image, smart tools improve the representation of the city as a controlled, responsive, and technologically advanced place. Tools like live counters project an image of rational and informed governance. However, if marketing continues to intensify symbolic value, while monitoring only tracks congestion, the system becomes contradictory from within, at the same time performatively measuring numbers and promoting excess. Regarding the perceived image, tourists unaware of monitoring infrastructures rarely change their behaviour and embodied routines. Improved responsiveness may be felt through platforms such as Dubrovnik Eye, but behaviour remains unchanged unless monitoring data is transformed into tangible spatial change. Concerning the lived image, smart tool strategies have little impact as they do not alter emotional and sensory interpretation unless it manifests as reduced density and improved everyday functionality. With smart tools like cruise monitoring locals may regain a sense of control and restored rhythms. When the monitoring

remains statistical it reinforces the governance systems as observers rather than actors. Generally, smart tools cannot be considered a solution on their own but when paired with other strategies they can be very beneficial. They are precise and responsive but rely on translation into governance, remaining mostly instruments of measure rather than actors of experiential change.

Dispersal strategies are mainly focused with distributing visitors outside the Old Town, with more concern with reductions in numbers than unpredictable behaviour patterns that could emerge from tourists moving to other areas. In the Old Town dispersal is conceived both spatially and temporally, manifesting through promotional campaigns encouraging visits to Lapad and Elafiti islands (Dubrovnik Tourist Board 2026). The Dubrovnik Pass incentive also supports dispersal by grouping attractions and incentivising alternative flows. However, dispersal remains one sided, focused on relieving the historic core without strengthening and stabilising receiving districts.

At the level of circulation, dispersal aims to decompress nodes like Stradun and Pile gate by redirecting flows outward. Theoretically, this redistributes pedestrian circulation and intensifies nodes in Lapad, for example. In practice, circulation often remains radial, with tourists still passing through the Old Town before exploring other districts, reinforcing its centrality rather than installing balance. Regarding the conceived image, dispersal strategies expend the image of Dubrovnik from the Old Town to other districts. By framing other districts as secondary options rather than independent destinations, they paradoxically strengthen the dominance of the Old Town. Concerning the perceived image, dispersal produces mixed results. While shifting tourists toward Lapad or islands, new leisure nodes are formed, however if they are not supported by infrastructure and social measures, new congestion zones may emerge. For locals, dispersal can introduce pressure to previously stable neighbourhoods, altering rhythms and intensifying tensions. Within the lived image, dispersal is efficient only if experiential volatility in the Old Town is reduced and receiving districts are strengthened. When it only transfers density, new zones of alienation are introduced. Transformation of domestic leisure space into tourist territory can destabilise attachment for locals. For tourists, lack of narrative coherence in receiving areas can produce a fragmented experience lacking symbolic anchors. Generally, dispersal strategies reveal structural tensions. Their strengths lie in acknowledgement of spatial imbalance and attempt at redistribution. However, their weakness is found in insufficient integration with mobility, representations, and infrastructural reinforcement. In order to have efficient dispersal strategies they should balance experience across districts rather than just shift flows.

Environmental strategies in the Old Town focus on the protection of the coastal belt surrounding it, especially the buffer zone adjacent to the city walls. In recent years, the City of Dubrovnik has introduced restrictions on anchoring private boats near the historic core as well as increased regulation on maritime traffic in the area between Banje beach and Lokrum (City Council of Dubrovnik, 2024). These measures are introduced to reduce visual pollution, marine degradation and to improve safety caused by uncontrolled anchoring and maritime traffic. Restrictions in this area caused water sport activities to be diminished, affecting some local businesses. However, the safety and environmental protection was deemed more important than economic profit.

Heritage strategies are mostly focused on the Old Town and are monitored by UNESCO. The backbone of heritage governance is formed by conservation guidelines, infrastructure restrictions, and UNESCO monitoring (City Council of Dubrovnik 2024). Due to tight relationships between heritage and tourism, early integration of heritage strategies into tourism frameworks is needed, allowing them to become operative rather than symbolic. unfortunately, while preservation policies are embedded with regulatory language, their integration often remains reactive rather than structurally embedded.

From a circulation perspective, environmental restrictions redefine thresholds along coastal edges and reduce marine congestion around the city walls. However, they do not significantly alter pedestrian flows within the historic core. Pressures in circulation remain concentrated at Pile and along Stradun, revealing that environmental protection does not automatically decongest nodes. Heritage strategies similarly stabilise the built form but do not redistribute flows, preserving the stage but not reorganising movement. Regarding the conceived image, environmental and heritage strategies reinforce the symbolic values of Dubrovnik as a monumental historic entity. Maritime traffic restrictions reestablish the visual integrity of the skyline, consolidating the city's global image. However, this also reinforces Dubrovnik as the symbolic core. Intense focus on heritage protection in the area perpetuates hierarchical distinctions of the Old Town as the front stage, and all the other districts as the backstage. In regard to the perceived image, embodied experience is subtly altered. Reduction of marine noise and visual impositions may stabilise sensory interpretations for locals and tourists but within pedestrian mobilities, the experience of congestion remains unaltered. Heritage strategies ensure architectural continuity but do not directly influence micro-decisions that shape experiential density.

Concerning the lived image, environmental strategies can strengthen emotional attachment by protecting vistas. For locals, limited maritime traffic can be two-fold depending on their economic involvement in maritime services, either making them have a sense of control with decrease in congestion or feeling betrayed by policies not considering their livelihoods. For tourists, a decluttered skyline fulfils expectations. Heritage strategies, on the other hand, risk inefficiency if they only focus on protecting form over inhabitation. The risk of protecting stone over belonging showcases the fault of heritage strategies. Overall, environmental and heritage strategies demonstrate clarity but limited cross-integration. Their main purpose of safeguarding the nature and architecture is fulfilled but by not addressing circulation intensity and experiential interpretations they fall short. These should be incorporated in wider strategy frameworks as supporting strategies rather than independent overtourism solutions. Preserving the image of the city should not be worth destabilising its lived continuity.

Social strategies include tangible interventions like noise measuring devices and intangible interventions like awareness campaigns. For example, Respect the City initiative operates through behavioural messaging. Spatially, this initiative is manifested in highly congested zones in forms of posters and flyers. While they raise awareness, they are unable to enact it. Representational strategies are mostly handled by the Dubrovnik Tourist Board. They shape the city through promotional marketing and narrative branding. The symbolic appeal of the marketing and branding campaigns often override existing regulations and other strategies as representational power continues to concentrate tourist desire around iconic sites.

Social and representational strategies, when evaluated together, read as the

behavioural dimension rather than just physical infrastructure. While representational strategies shape expectation upon arrival, the social strategies aim to regulate behaviour once inside the historic core. Together they produce and moderate intensity. Efficiency can, therefore, be understood as the quality of their interaction. On a circulation level, social strategies do not redistribute the flows along the paths, edges, thresholds or reorganise node concentration, but they attempt to soften the behaviour along them through tools like noise-monitoring devices, bathing suit regulations and signage suggesting behaviour. However, due to the saturation of pedestrian corridors they lose effectiveness in the masses when framed as a polite suggestion. Contrastingly, representational strategies predetermine circulation through consumption of symbolic value. Promotional imagery perpetually reinforces Stradun, the city walls and sunset vistas as primary landmarks, generating anticipated trajectories. Circulation is consequently shaped by the gravity of symbolic value rather than spatial opportunities. This means that while social strategies react to congestion, representational strategies structurally enable it. Efficiency on this level is limited unless moderation of behaviour can counteract concentrations of symbolic value. Concerning the conceived image, a conceptual contradiction is revealed. While marketing strategies depict Dubrovnik as an iconic and monumental destination, behavioural campaigns request dressing modestly within the historic core and mindfulness around noise. This way the city imagines itself as both a spectacle for global desires and a disciplined heritage environment. With a misalignment of these messages, the conceived image becomes fragmented, undermining efficiency. In regard to the perceived image, the embodied engagement is not very affected by social and representational strategies. Tourists, operating within routines set by the conceived images, are rarely affected by awareness signage unless some kind of enforcement accompanies them. For locals, this signage might signal a form of recognition of the arising tensions, however, when the congestion is high, the relief is minimal as intensity of representations continue to override any attempts at behavioural moderation. Within the lived image, the impact of social and representational strategies becomes more pronounced. Tensions are most vulnerable when concentration of the symbolic value persists despite behavioural regulations, sustaining experiential volatility. Tourists might internalise it as vibrancy or disappointment depending on expectation, while for locals signage alone does not reduce fatigue and frustration because deeper issues of commodification of identity and seasonal alienation are not addressed. The reinforcement of the Old Town as the focus of representations jeopardises transforming local belonging into a performance. Therefore, efficiency depends on redistribution of symbolic value as well as behavioural compliance. Overall, social media and representation strategies reveal conceptual contradictions between images projected before and after tourist arrival, amplifying tensions for locals. The city promotes an emotionally charged destination while attempting to regulate behaviour once expectations spatially manifest. This misalignment depicts a vicious cycle of social strategies attempting to mitigate the pressures the representational strategies produce. Consequently, behavioural strategies try to alter desires in motion rather than restructuring it at its source, making efficiency limited.

Limitations in the efficiency of these strategies emerge from the conditions under which they are governed.

Governance strategies tend to operate through EU funded initiatives, City Strategic Plans, and cross-sectoral frameworks. However, the fragmentations in governance, evident in competing institutional priorities and overlapping jurisdiction reluctant to communication emerge as greatest barriers to effective overtourism governance (Capocchi et al., 2019; Jamieson and Jamieson, 2020). In the Old Town, the governance intensity is highest compared to other districts, with structural misalignment causing most issues.

Most current strategies prioritise growth and tourist satisfaction reinforcing unsustainable trajectories with degrowth strategies largely absent. Satisfaction metrics could be used to prioritise local wellbeing (Pavlić et al., 2011), however it requires ideological change.

Following the COVID-19 pandemic, resilience, preparedness, and adaptability became part of discussion about overtourism strategies (Armondi et al., 2022). The pandemic allowed for imagining reduced dependency on high visitor numbers while highlighting an approach with caution as to not restore pre-pandemic patterns (Katurić et al., 2021). However, in practice, recovery strategies reinstated pre-pandemic trajectories with governance dependence on tourism revenue.

The spatialisation of overtourism governance in Dubrovnik reveals that strategies are unevenly distributed across the urban fabric. They are concentrated in symbolic and economically productive areas. On top of that they operate in isolation, selectively controlling movement, access and representation consequently producing spatial hierarchies characterised by varied governance intensity.

Governance failures seem to be where many strategies collapse, characterised by fragmented authorities, underfunded institutions, and conflicts between different stakeholder interests. Even the strongest strategies do not prevail with weak governance efforts. Trajectories of strategies should match the spatial and social conditions. Regulatory strategies are confronted by market logics and political resistance; mobility and dispersal strategies are overridden by representational forces anchored in tourist desires; ecological strategies are undermined by economic dependency on tourism and technological solutions struggle to enact behavioural strategies beyond raising awareness. Consequently, in the Old Town efficiency is not limited by lack of policy but a misalignment of implementations.

Measures like visitor number caps in Old Town and cruise limits in port Gruž show that regulations linked to carrying capacities are spatially fixed and visibly enforced (City Council of Dubrovnik, 2024). However, as previously discussed, these strategies are not envisioned to stabilise Gruž itself but to mitigate congestion surges in the Old Town. While cruise caps, staggered disembarkation coordination, berth limitations, monitoring of arrivals and coordination agreements with Cruise Lines International Association (CLIA) are implemented in Gruž they spatially manifest at Stradun and Pile gate. Gruž operates, therefore, as a logistical filter rather than a district with independent strategies.

In regard to circulation, arrival surges characterise Gruž. Visitor flows are directed towards the Old Town, reinforcing linear circulation. Within the conceived image, Gruž is rarely framed as a destination of experience, more imagined as infrastructure reinforcing its peripheral status despite a central role in logistics. Concerning the perceived image, tourists experience Gruž as a transitional threshold lacking symbolic value and rarely included in tourist itineraries, as the primary bodily engagement is based in queues, embarkation zones, or traffic corridors. For locals, bodily engagement is based in negotiating vehicular traffic and congestion as well

as altered pedestrian rhythms during congestion surges. Regarding the lived image, Gruž reveals tensions between functionality and belonging, for tourists representing a necessary but miniscule threshold, but for locals internalised as a place of employment or connections beyond the city. the experience of Gruž is shaped by its function than by any autonomous identity. Consequently, its efficiency is measured externally through reduced pressure elsewhere rather than stabilisation of its everyday rhythms.

Lapad is perceived as a secondary node compared to the Old Town, lacking multidimensional governance. Here, mostly dispersal strategies originating in the Old Town can be observed here. As with Gruž, strategies are conceived to primarily relieve the area of the Old Town, making it a place of relief from Old Town congestion rather than an autonomous entity.

From the perspective of circulation, while dispersal strategies aim to redirect pedestrian and leisure flows towards Lapad's promenades and beaches, movement often remains radial originating in the Old Town. Regarding the conceived image, Lapad is framed as a complementary extension to the Old Town. This positions it as a dumping ground for overflow rather than a legitimate urban alternative. Concerning the perceived image, bodily engagement in Lapad is characterised by slow walking, dispersed flows, and beach activity. Tourist's trajectories are driven by leisure, making local bodily engagements only subtly altered during peak congestion times. Within the lived image, Lapad is interpreted as negotiating between local residential and tourist accommodation rhythms. Partial integration into strategies makes efficiency dependant on relational dimensions.

In Rijeka dubrovačka, absence of strategy is the main strategy. The district is not heavily targeted by overtourism policies. It is primarily governed through urban planning and infrastructural development. The identity of the district is based in the absence of tourists, except the possible occasional rental accommodation. Efficiency manifests through limited integration into tourism narratives.

Environmental strategies are primarily focused on cultivated and uncultivated green and blue areas, including also coastal, forested, and protected areas. While policy frequently acknowledges ecological thresholds, they rarely take action due to economic dependence on tourism (CROSTO, 2019; GSTC, 2023). However, most frameworks governing them are rooted in Croatian environmental and maritime laws rather than being part of overtourism strategies. Additionally, these areas function as backdrop for the conceived images of Dubrovnik, yet economic dependence on tourism reveals tensions between economic profits and environmental protection. Since these landscapes serve as a backdrop to Dubrovnik's symbolic appeals, they require deeper integration into overtourism frameworks.

A reading across the districts of Dubrovnik shows that there is not a lack of tools, but a lack of alignment across circulation, conceived, perceived, and lived dimensions producing overarchingly inefficient results. A SWOT analysis of the reading should expose where strategies reinforce and contradict each other along with any structural gaps.

Strengths of Dubrovnik's current overtourism strategies are presented in operational coherence between regulatory, mobility, heritage and monitoring tools which stabilise thresholds and reduce infrastructural friction. Regarding circulation, tools like scheduling arrangements with cruise lines and congestion tracking and monitoring reinforce one another, producing statistical documentation regarding spatial and temporal flows. Concerning the conceived image, regulatory discipline and heritage management align to depict Dubrovnik as a well governed, compliant cultural hub, demonstrating strong administrative capacity and ability to transform data into spatial control. At the level of the perceived image, current strategies manage bodily engagement in peak congested areas yet rarely alter embodied tourist trajectories or everyday micro-rhythms beyond them. Within the lived image, coherence between regulatory and heritage strategies can reinforce emotional interpretations of order, protection, and institutional competence, but it does not truly address seasonal fatigue and frustrations experienced by locals within the historic core. Institutional competence and technical precision form a solid foundation for expanding the scope of regulation, extending capacities beyond threshold management towards redistribution of symbolic value, integration across districts and alignment with lived experience.

Weaknesses of Dubrovnik's current overtourism strategies is evident in spatial concentration and imbalance of the symbolic values, making the control strongest in the historic core and fragmenting it elsewhere. Regarding circulation, flows and congestion are rarely truly redistributed and transformed, solidifying the Old Town as a symbolic core. Concerning the conceived image, promotional marketing and restrictive governance contradict each other, reinforcing the symbolic values that regulatory tools attempt to mitigate. At the level of the perceived image, bodily engagement of tourists remains largely expectation driven, not significantly reshaped by behavioural campaigns. Within the lived image, it is revealed that statistical efficiency does not equate to experiential balance, furthering seasonal alienation and avoidance, commodification of everyday rhythms and inequalities across districts. To become adaptive tools of urban transformation, strategies must engage in structural cross-integration of districts and reconciliation of regulation and representation.

Opportunities emerge from tensions between demonstrated regulatory competence and imbalance of symbolic values. By using the city's existing institutional capacity, monitoring infrastructure and governance density, strategies can be coordinated across sectors, redirecting capacities beyond threshold control towards a multidisciplinary rebalancing of the entire urban fabric. Regarding circulation, smart tools could actively participate in shaping alternative trajectories, transforming the city into a polycentric network of varied stabilised nodes across districts. Concerning the conceived image, misalignments between regulation and marketing offer an opportunity to reimagine Dubrovnik's representation, redistributing symbolic value across the urban fabric. At the level of the perceived image, awareness campaigns could evolve into spatial interventions that guide bodily engagement and diversify routines. Within the lived image, opportunities exist in reframing efficiency to include local wellbeing, embedding metrics of fulfilment and satisfaction as well as cyclical rhythms into governance frameworks over prioritising management of statistical data. By reconciling these dimensions Dubrovnik can shift from reactive congestion mitigation to proactive renegotiation of identity leading to an adaptive urban strategy sensitive to everyday rhythms.

Threats to Dubrovnik's overtourism strategies comes from the dependence on tourism revenue and the volatility of global mobility systems, exceeding local governance. Regarding circulation, sudden increases in cruise capacities or airline expansions can quickly overwhelm threshold based regulation, exposing fragilities in the monopolistic nature of the Old Town which risks infrastructural saturation

and deterioration of heritage and public space. Concerning the conceived image, regulatory tools cannot keep up with algorithmic amplification of iconic landmarks through social media, deepening contradictions between promotion and protection (Franklin, 2003 ; Sheller and Urry, 2006). If representation and regulation do not coordinate, the pressures they aim to mitigate will systemically reproduce. At the level of the perceived image, behavioural campaigns may be ineffective, reinforcing spatial hierarchies through clustering produced by tourists' expectation driven routines. Within the lived image, seasonal compressions threaten social cohesion and resident retention within the historic core. Local attachment could be diminished by alienation (Lefebvre, 1991), identity commodification, and inequality across districts, transforming the city into a stage. If strategies continue to be statistically but not experientially efficient, Dubrovnik risks undermining the authenticity in which global desires are based.

The mapping exposed overtourism as a systemic condition organised around global desires, where operational control coexists with concentrations of symbolic value and experiential imbalances. The compactness and symbolic nature of the historic core and seasonality amplify overtourism flows, and the mapping aimed to capture lived capacities, not only static forms, or statistical indicators. What emerged is a lack of alignment across circulation, conceived, perceived, and lived dimensions.

The tourist gaze is part of the representational economy of the postmodern world, existing through symbols and spectacle rather than lived experience (Baudrillard, 1994). Rhythmanalysis is therefore crucial to understanding where symbolisms diminish everyday meaning (Lefebvre, 2004; Smithson, 1966; 1967). Mapping, as a matter of justice, analyses conflicts and comforts rather than just statistics, preventing solutions like dispersal to areas which do not infrastructurally and behaviourally support it (Lambert and Allen, 2017; Whyte, 1980).

Mapping helps recentre local experiences with the same rigour as tourism demands (Krygier and Wood, 2018). The SWOT analysis shows that current strategies are strongest in threshold management but weakest in redistribution of symbolic value and integration across districts. Consequently, limits are revealed in isolated interventions urging future strategies to operate across mobility, representation, and governance.

Therefore, the mappings become a connector between universal and site-specific drivers. From the mappings emerges a strategy which evaluates its effects on conceived, perceived, lived and rhythm-related dimensions, allowing for everyday life to remain possible alongside tourism.

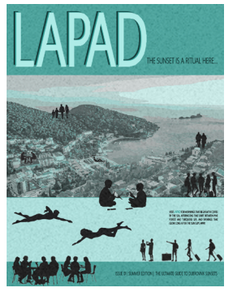
CHAPTER 4- Adaptive Rhythmic Polycentric Rebalancing

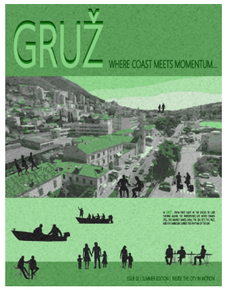
Following the mapping, an attempt at an alternative strategy can be made. The mapping demonstrates that the phenomenon of overtourism in Dubrovnik emerges where spatial hierarchy, temporal concentration and experiential dissonance converge (Lefebvre, 1991; Mihalic, 2020). In the Old Town, Pile and Ploče gates, movement is compressed into a limited set of nodes and paths by symbolic density and access constraints, amplifying clustering driven by spectacle and weakening the buffers between private and social spaces. In Lapad, tourism pressure is more dispersed, however it is structurally shaped by leisure corridors, hotel contained circuits and coastal attractions. If symbolic agency remains secondary, this reveals a risk of commodification of everyday rhythms. In Gruž, overtourism is legible through surges in port rhythms, with arrivals concentrating flows and accelerating transfer toward the historic core, reinforcing its role as a funnel rather than an autonomous destination. Beaches operate as sub-nodes driven by seasonality with strong hierarchies based in vistas, producing oscillations between congestion and emptiness that intensify social fatigue and infrastructural strain (Mihalic, 2020; Plan Bleu, 2022).

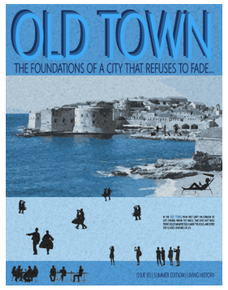
When read together, these mappings generate three core requirements that any alternative strategy must satisfy. Spatially, Dubrovnik must be shifted from a monocentric choreography of movement and meaning towards a polycentric system which distributes symbolic value and agency across districts while strengthening linear connections through which everyday rhythms are navigated (Harvey, 2001; Massey, 1991; Wachsmuth, 2014). Temporally, the strategy must embed seasonal modulation as an operational principle in order to reduce summer surges without creating emptiness in winter, aligning cyclical local and linear tourist rhythms (Lefebvre, 2004). Experientially, it must protect everyday inhabitation by reinforcing public-private thresholds and preventing the spillover of spectacle into residential life. Additionally, it must enable tourists to encounter the city through sequential immersion over spectacle driven clustering (Baudrillard, 1994; Lynch, 1960). The strategy that emerges is based in an adaptive rebalancing framework; reconstructing nodes in relation to one another, realigning representation with everyday rhythms and lived capacity and using behavioural corridors as the primary mechanism through which redistribution becomes practicable.

STRATEGY KEY:

- NODES
- REIMAGINED PROMO- LAPAD
- REIMAGINED PROMO- GRUŽ
- REIMAGINED PROMO- OLD TOWN
- EXISTING PEDESTRIAN ZONES/ PROMENADES
- PUBLIC-PRIVATE BUFFERS
- POLYCENTRIC SHIFT
- REIMAGINED ATMOSPHERE







Drawing 9. Borovina, M. (2026) Strategy.

THE STRATEGY

This strategy is envisioned not as a fixed set of interventions but as an adaptive response to spatial and experiential conditions. The mapping has revealed the issue of overtourism is concentrated in areas with high symbolic values and seasonality impact. The strategy has to respond to the different layers of urban fabric produced by various users in different temporal windows.
Through the mapping it was revealed that the tourist image is both visual and infrastructural consisting of repeated actions and behaviours (Baudrillard, 1994; Lefebvre, 1991). The conceived image produced high pressure and congestion in the historic core making it ultimately the point of study for all overtourism strategies. Meanwhile, areas like Lapad and Gruž, with less symbolic value but still explored by tourists operate as backdrops, excluded from touristic strategies and planning in the same strategic intensity as the Old Town.
In order to restore balance, the concentrations of symbolic value and seasonal intensity must be addressed. Circulation paths radiate towards the Old Town, driven by conceived representations, producing spectacle induced clustering and straining lived interpretations (Lefebvre, 1991; Lynch, 1960). Therefore, the strategy should operate as an adaptive urban rebalancing framework. The tourist zones identified by the TALC analysis determine operational fields to be considered for systemic recalibration (Butler, 1980). This recalibration aims to restore balance between cyclical local and linear tourist rhythms across spatial, temporal, and experiential dimensions. This would include redistributing symbolic value through a polycentric system, strengthening buffers between public and private spaces and a thorough realignment of governance, representation and lived interpretations. Coexistence becomes the main principle, structurally embedded within the urban fabric, rather than seasonally negotiated. Consequently, the dominance of the symbolic value of the historic core should be challenged by reinforcing alternative nodes of meaning. This would acknowledge paths, edges, nodes, and landmarks as building blocks of the overall image of the city (Lynch, 1960). Along them, seasonality is introduced as a tool to reinforce local cyclical rhythms ensuring that intensifications do not produce irreversible strain on the urban fabric and local population. The realignment of circulation, conceived representations, perceived engagements and lived interpretations across districts prevents the strategies from undermining each other (Sheller and Urry, 2006). The adaptability and flexibility across these intertwined systems in terms of spatial, temporal, and experiential dimensions will determine Dubrovnik's resilience. This approach can be understood as adaptive rhythmic polycentric rebalancing, where nodes are continuously recalibrated in relation to each other and the systems adjust through distributed symbolic governance and cyclical reinforcement.
To avoid hierarchical imposition across the city fabric, this strategy will tackle the districts as autonomous parts of the city, however, their autonomy will depend on working as a synergised node within the wider urban fabric. The strategic requirements will be discussed across districts through the circulation, conceived, perceived, and lived dimensions.
Essentially, the mapping shows that locals and tourist both use the city in similar capacity although through different spatial logics influenced by varied temporal windows. For locals, the Old Town represents a performative node: workplace or

special event occasions. Contrastingly, for them Lapad is an everyday node more in tune with everyday rhythms than the Old Town. For tourists, the Old Town presents an immersive node, with symbolic density and concentration of most 'must-visit' spectacles, while Lapad becomes an exploratory node, a place where you can expand your search for authenticity. Gruž presents a productive and transitional node for both.
The aim of the strategy is to reconstruct these nodes without displacing activity, connecting them through behavioural corridors that allow perpetual movement by both locals and tourists. The strategy focuses on pedestrian mobility as it has the least issues with congestion. The nodes would be reconstructed in terms of conceived, perceived and lived images allowing the current activities to be reimagined through new nodal connections. This would allow the new corridors connecting the nodes to provide facilities which satisfy both the local and tourist images. Encouragement for movement would allow locals and tourists to be able to interact with more layers of the urban fabric creating a more positive experience for both.
Within this strategy, dispersal is not considered as a redistribution of visitors but as a qualitative reconfiguration of experience. The end goal does not include pushing people away from the Old Town but simply giving them alternatives which would make them not linger in the Old Town as much, allowing the locals to reclaim some parts of the urban fabric. This strategy does not aim to disperse tourism geographically but to redistribute symbolic authority across the urban fabric. Along new nodal connections, tourists could satisfy their desire for authenticity, while not overwhelming local spaces to a noticeable extent.
Within conceived images, the Old Town is most dominant, creating dissonance with representation regarding other parts of town. Perceived images follow it, interweaving daily practices and tourist gaze. The lived images face pressures from global flows and seasonality. The relationship between these images, in the context of tourism, is circular but also hierarchical, with conceived images shaping practices, which in turn shape our interpretations. The change of narrative is therefore essential, followed by changes in expectations and behaviour.
Stakeholder coordination becomes crucial for the success of the strategy. Governance failure as one of the main issues in overtourism strategies highlights the importance of coordination between governance authorities, tourism boards, local communities, local businesses, and landscape management institutions (Milano, Novelli and Cheer, 2021; Peeters et al., 2018).
The strategy encourages visitors to blend in, allowing them to experience the authenticity of a place better while allowing locals more agency (Richards, 2022; McClinchey, 2023). This will be highly influenced by everyday rhythms and temporal windows. The strategy is focused on careful dispersal while at the same time connecting the nodes through conceived, perceived and lived dimensions. It does not aim to make Dubrovnik legible in all layers for everyone, but to reorganise the coexistence of multiple images.
The main objectives of the strategy are: reducing symbolic dependency on the Old Town, reimagine and strengthen Gruž and Lapad as autonomous experiential nodes, distribute circulation through pedestrian corridors, reduce vehicular congestion without eliminating accessibility, embed seasonal modulation within spatial interventions, reinforce public-private buffers, and integrate monitoring systems to inform adaptive recalibration.
The strategy operates across three interconnected nodes:

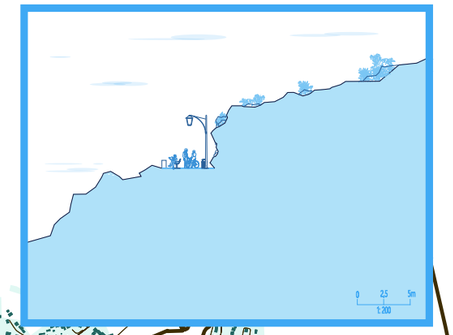
- Performative-Immersive node- Old Town and surrounding Pile and Ploče area
- Everyday-Exploratory node- Uvala Lapad promenade and Babin kuk accommodation belt
- Productive-Transitional node- Gruž port and market area

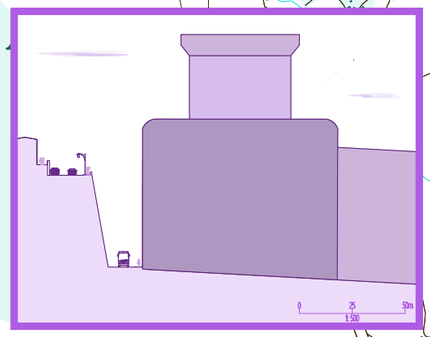
Beaches are considered a part of the network as seasonally activated sub-nodes, as due to weather conditions it is not possible to envision them as year round hubs for urban dwelling, so they function as seasonal relief spaces. The network of nodes and sub-nodes is connected with pedestrian corridors.
In the Performative-Immersive node, the aim is to reduce pressure without compromising heritage integrity or sustainability. Strengthening outbound pedestrian corridors, shifting Pile and Ploče to more than just transitional spaces, redistributing dwelling toward other nodes, managing public to private spillover should be prioritised within the strategy. Reinforced pedestrian corridors should be synchronised with public transport to reduce the need for private vehicles.
The symbolic value of the historic core should be complementary to the symbolic values of other nodes not hierarchically imposed. For tourists, it should remain an immersive node, however not the exclusive one. For locals, it can be reinforced as a performative everyday node but devoid of avoidance tactics and frustrations.
In the Everyday-Exploratory node, current symbolic values translate into an everyday node for locals and an exploratory node for tourists. The aim is to reinforce the everyday dimension making that the centre of exploration for tourists, preserving experiential autonomy. Strategies in this zone should strengthen and amplify visual and narrative symbols of district identity, reinforce public spaces beyond cafes, introduce small scale spatial reinforcements that support inhabitation and cohabitation, while avoiding commodification of everyday rhythms. The symbolic value of this zone must contain enough clarity to organically absorb experiential pressures.
For locals and tourists, the Productive-Transitional node is interpreted as a point of passage rather than destination. Functionally the transitional character can be preserved but its legibility and memorability must be enhanced. Upon arrival, Gruž should read as an autonomous part of the urban fabric rather than just a funnel to the Old Town. To achieve legibility and memorability, the public space including the waterfront and the market should be strengthened, pedestrian connections to Lapad and Pile should be enhanced, vehicular congestion within busy corridors should be reduced and carriers of symbolic value should be established without spectacle while amplifying existing visual and narrative symbols of district identity.
The biggest issue in current circulation flows is disproportionate convergence to the historic core and surge pressures in other districts. In regard to vehicular traffic, non-local private vehicles should be discouraged, supported by an extensive pedestrian network. Since the polycentric network depends on corridor strength, pedestrian corridors must become primary rather than secondary connectors. They should provide continuous shade and rest areas, align with public transport services, support development of local businesses and communicate polycentricity through embedded micro-nodes along corridor sequences. The aim is to shift bodily engagement of

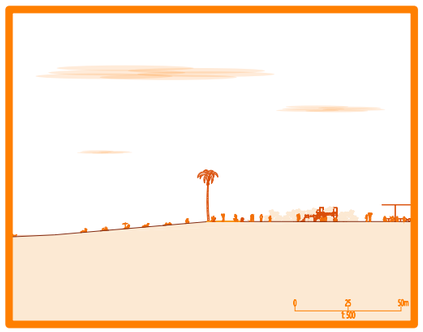
tourists from clustering spectacle consumption to sequential urban immersion.
Unlike nodal centres concentrated with symbolic value, corridors operate linearly without a central point. Their spatial identity is established through encouraging movement. Along corridors micro-nodes emerge without forming hierarchical orders. Therefore, they support coexistence while maintaining flows. This way, polycentricity is reinforced by embedding moments of engagement across the network.
These spatial strategies can only be efficient if representation is aligned with them. This requires recalibration of the conceived image of Dubrovnik from a monocentric spectacle to polycentric exploration (Wachsmuth, 2014; Robinson, 2016). Marketing strategies should elevate Lapad and Gruž within the urban narrative framing Dubrovnik as a network of layered districts and promote pedestrian over vehicular mobility. Representational strategies play a key role in the redistribution of symbolic value so they should be thorough and intentional to avoid commodification of everyday rhythms. Digital platforms should also be included in representation policies (Bourliataux-Lajoinie, Dosquet and del Olmo Arriaga, 2019; Camatti et al., 2020).
Seasonal modulation introduces spatial adjustments across seasonal intensities. To avoid surges of congestion in the summer, flows across coastal and district mobility systems should be distributed. During shoulder seasons, sub-nodes like beaches, and micro-nodes like small local businesses, should be consolidated through cultural programming. In the winter, local continuity and infrastructural maintenance should be prioritised. For seasonal modulation to be effective, it must be structurally embedded into spatial planning to avoid reaction based mitigation.
To ensure cross-district coordination, the strategy requires integration with governance. Monitoring cannot happen on just a statistical level regarding visitor numbers (Camatti et al., 2020; UNWTO, 2018). It should include local satisfaction indicators, public space usability, load distribution across corridors and seasonal metrics. Adaptive recalibration is based in collaboration between municipal authorities, tourism boards, local businesses, and community representatives, supporting anticipatory governance (McGuirk, 2020; Pechlaner, Innerhofer and Philipp, 2024).
Symbolic redistribution is inseparable from the strategy's economic dimension. Therefore, the strategy implies economic stabilisation through spatial redistribution. To reduce economic dependence on the historic core, Lapad and Gruž should enable a distribution of economic activity related to micro-nodes along corridors and reimagined identity in the centre of the node. Economic resilience is supported by seasonal modulation, enabling more predictable revenue cycles across districts. Symbolic recalibration becomes an instrument of economic resilience by shaping flows across the urban fabric.
A great concern of dispersal strategies is production of displacement, housing pressure, and gentrification (Cocola-Gant and Pardo, 2017; Bobić and Akhavan, 2022; Celata and Romano, 2022). The strategy should therefore integrate social equity as stabilising and efficiency principle, ensuring no commodification of everyday life occurs. Governance should prioritise housing stability and local access to public space, while reinforcing public-private buffers. Congestion surges are reduced by seasonal modulation, managing social fatigue. They are managed by local satisfaction indicators within monitoring systems, making local experience as important as visitor numbers. This way, social protection is embedded within the network ensuring urban vibrancy.
Systemic recalibration is sensitive and carries potential risks. Redistribution of symbolic value may generate new congestion if governance and representation misalign. Reinforced districts are in danger of rapid commercialisation, while corridors may transform into commodified rather than transitional zones. If seasonal modulation is inadequately aligned with governance and infrastructure new burdens can be generated instead of relief. In case that polycentric networks become representational rather than operational, embodied behaviours do not alter. Adaptive resilience is based in acknowledging these vulnerabilities (Cheung and Li, 2019; Lambert and Allen, 2016). The strategy depends on iterative evaluation and continuous feedback loops across spatial, temporal, and experiential dimensions. This polycentric system remains flexible by anticipatory governance, capable of recalibration without reinstating the very hierarchies it seeks to transform.

DESIGN SOLUTION KEY:

- COASTAL CORRIDOR
- HARBOUR CORRIDOR
- RESIDENTIAL CORRIDOR
- HERITAGE CORRIDOR
- NATURE CORRIDOR
- QUIET CORRIDOR
- NATURAL ENVIRONMENT
- BUILT ENVIRONMENT







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Drawing 10. Borovina, M. (2026) Design solution.

DESIGN SOLUTION

The approach of adaptive rhythmic polycentric rebalancing translates into a design solution through a continuous civic loop (promenade) across the city. It stretches from the Pile gate in the Old Town, through Boninovo turning into Gorica Sv. Vlaha, crossing Medarevo through to Petka, descending to Uvala Lapad, then along the seaside to Babin kuk and Solitudo. From there, it connects to Obala and Batala, opening up to Gruž. Meandering around Gruž, it passes through Kono residential area, circling back to the Old Town from Buža gate. From there, an additional branch forms through Ploče to Orsula park. Looking at the city from above, the civic loop is expressed as a continuous line inscribed along the coastline, hills and through the city, acting as a unifying entity that clarifies the existing urban fabric.
The civic loop is imagined as the architectural translation of strategic requirements established in the mapping; spatial redistribution of symbolic value and agency, temporal modulation of seasonal intensity and experiential protection of everyday rhythms through reinforced threshold and legible movement. In this sense, it operationalises identity-led recalibration by protecting everyday rhythms while reconfiguring how tourism is spatially and temporally expressed across the city. The promenade is not introduced as a typological preference, but rather as a spatial necessity emerging from the mapped convergence of circulation, symbolic hierarchies, and seasonal arrhythmia across the Old Town, Lapad, Gruž and coastal sub-nodes. It shifts pressure by converting the city's dominant tourist logic into sequential urban immersion. The loop dissolves the logic that currently concentrates at singular pressure points by restructuring arrival as progression rather than destination. Wayfinding , continuity cues, and loop legibility operate as representational tools in spaces, translating polycentricity into an alternative mental map that counters current monocentricity (Lynch, 1960). This way, movement extends beyond Old Town, repositions Lapad's leisure corridors within a wider urban narrative, reframes Gruž as a memorable landscape with dwellable public space and integrates beaches as seasonal sub-nodes within the promenade so coastal pressure becomes gradient. By transforming beaches from a set of terminal destinations into a connected sequence, the loop reduces single-point saturation and distributes coastal activity spatially and temporally. This way, the promenade operationalises polycentricity through a recalibration of intensity distribution, reorganisation of dwelling spaces and management of seasonal expansions and contractions.
This intervention inscribes itself into the existing urban fabric and mobility without greatly invading on current systems. It spatially aligns itself with existing strategies, providing a framework within which systems can operate without contradicting each other. The civic loop manifests as a promenade, establishing a recognisable path that adapts to the context materially while maintaining a unified profile through lighting, street furniture, and wayfinding signage. The wayfinding elements do not instruct destination but reveal relations between nodes, encouraging exploration over directing consumption. The promenade's profile remains constant while the path material shifts underfoot conforming to the corridor or node typologies. The corridors operate as calibrated connectors regulating movement between nodes as spatial intensifications within the loop. The base width of the promenade profile equates to space necessary for two-way uninterrupted pedestrian flow. The base

width operates as a governance by design tool, preserving continuity in intense segments, while careful widenings localise dwelling only where the buffering capacity and everyday rhythms can absorb it without producing new congestion, directly responding to mapped patterns of clustering, local avoidance, and threshold stress. Widenings in the corridors occur where dwelling is encouraged but never at the expense of local everyday rhythms. The promenade is narrowing in residential segments to perpetuate movement and protect local rhythms. The profile is reinforced by a family of urban furniture designed to communicate the identity of Dubrovnik as a whole rather than some of its parts. Transitions in materiality correspond to typology such as limestone integration within the historic core, permeable compacted gravel within the natural corridor, stone and concrete slabs along the coastal corridors turning more robust within the Gruž area. In nodal centres, paving patterns shift from linear to cyclical patterns indicating spatial intensification. Softer materials slow the pace down within nature corridors while harder ones increase flows.

The urban furniture draws inspiration from the wider narrative of Dubrovnik through stone and timber materiality and symbolically reinforced details like Dubrovnik's orange roof tiles. Lighting exhibits rhythms aligned with the nodes and corridors through condensing and scattering; dense rhythms of the nodes spacing out in the corridors with the most careful intensity within the forested areas to minimise ecological disturbance. For canopy systems, trees are preferred but in areas where shading is needed and trees are not applicable, sustainable canopy interventions following the urban furniture aesthetic will be implemented but it has to avoid materials that quickly overheat and reduce usability of the promenade.

While the promenade does not radically alter the existing urban fabric, it will alter the city's spatial, temporal, and experiential dimensions, transforming Dubrovnik into a resilient urban network. Movement generates narrative, distributing symbolic value across the city. embodied and interpreted rhythms become operative design tools, intensifying nodes through surface articulation and programme, while corridors elongate the experiences through material continuity and calibrated atmospheres (Lefebvre, 2004).

Seasonal modulation spatialises through calibrated shifts in intensity based on the needs of each segment. Lighting systems adapt across seasons supporting the local and tourist programming. Seasonal demand dictates expansion of the activity in nodal centres through temporary seating, cultural installations, or tactical urbanism interventions. Necessary shading systems operate differently in summer and winter. From transitional drivers in the summer, corridors turn to slower experiential routes when congestion is reduced. Temporal rhythms are embedded in physical form through use intensity changes. Expansions and contractions of nodal intensity across the loop reinforce seasonal modulation. In summer, node centres absorb dwelling while corridors disperse movement to avoid clustering. In shoulder seasons, wandering through the promenade becomes the primary experience encouraging accumulation of narrative through movement over clustering. In winter months, nodal activity spatially contracts but remains integrated through urban furniture and local programming, ensuring sustainability of everyday rhythms when congestion declines. By ensuring this cyclical spatial adjustment, oscillations between congestion and emptiness no longer exist, but flows rhythmically throughout the year.

The intervention focuses on minimising construction and maximising recalibration. Construction is mainly focused on the recalibration of surface materiality, selective re-pavement, and insertion of modular urban elements. The intervention does not require any road reconfiguration, demolition, or significant alteration of the hierarchies within vehicular traffic. Therefore, the promenade operates within existing pedestrian corridors while at the same time reclaiming underused edges and fine tuning discontinuities with minimal restructuring which ensures continuity. The promenade follows the natural topography avoiding level differentiation between material transitions and remaining flush between them.

Maintenance and management of promenade infrastructure will remain a municipal responsibility to ensure consistency and collaboration. Seasonal programming within the network is curated by cultural institutions and local platforms, while monitoring systems evaluate flows and local satisfaction. Governance operates through a coordinated network of various stakeholders across districts.

The walk begins at Pile gate in the Old Town node, where the 'obligatory' sightseeing ends. The promenade subtly shifts flows outside of the historic core. Around the historic core the path integrates with the existing stone tiling, avoiding visual competition while at the same time clarifying continuity. The rhythm of the promenade is consistent with the historic paving expressing continuity through alignment.

Transitions between old and new thresholds are deliberate yet consistent indicating the existing rich urban layering. These thresholds become sequences of ephemeral moments in passage rather than points of clustering. This way the Old Town keeps its embedded heritage symbolisms but transforms from a monocentric spectacle to a story within the wider narrative of the city. From above, the historic core appears as one node within a larger network, and from the embodied perspective, exiting the Old Town is no longer the end but the beginning of the story.

Current local avoidance patterns are mitigated by continuous lighting, materiality coherence, and social programming. Areas which used to be perceived as disconnected become part of a multidimensional pedestrian network embedded into existing routes. The promenade reinforces local infrastructure without introducing spectacle, allowing undisturbed everyday rhythms. For tourists, it shifts the experience from destination hunting into an exploratory journey.

Walking up through Boninovo, the seaside promenade takes you uphill to the small open green area of Čingrija park. The heritage corridor starts to shift slightly, most evident in the path materiality. From there it turns onto one of the city's arterial roads Vojnović. A short distance uphill along the bustling road it turns left into Gorica Sv. Vlaha. In the vicinity are beach Bellevue and adjacent hospitality clusters. Passing them, it turns into the quieter residential area foreshadowing the contrast of this area to the Old Town. The promenade initiates negotiation between infrastructure and landscape, establishing a clear pedestrian corridor buffered from vehicular traffic through design tools such as lighting, materiality, and greenery. Passing the residential buildings, the promenade turns into a hilly green area. It meanders through the forested environment on natural paths, connecting through Medarevo to Petka. With transition into the natural corridor, the intervention softens through compacted gravel, tree canopies, and topography levelling, allowing the landscape to dominate, while preserving continuity of the promenade. This natural corridor slows down the movement without spectacle, reducing commercial intensity, continuing until Palace area. Here, the promenade integrates with Uvala Lapad extending the

existing promenade there.
From Palace hotel complex to Sunset beach, the corridor recalibrates from slow rhythms and environmental immersion to a slightly more accelerated but leisurely atmosphere. This atmosphere is reinforced by the centre of the Lapad node, covering the area from Pošta Lapad to Sunset beach. Widening and opening in this part of the promenade facilitate pauses without congestion. Here, the base width of the promenade protrudes outward into controlled extensions creating pockets of dwelling without interrupting continuity. Paving and lighting reinforce the perception of the centre, separating node and corridor without spectacle.
Local entrepreneurial establishments drive rhythms allowing tourists to integrate with the local rhythms without clustering.
This nodal part of the promenade allows a synergy of everyday rhythms making the node function as social hub. Its effects spill over onto beaches in the vicinity like Adriatik, Vis, Splendid and Titova vila. Small scale urban interventions within reimagined land use policies allow consolidation of Lapad's identity without imposing monumentality. Seasonal modulation is achieved through calibration of year-round activities.
Extending from the node centre the promenade reaches the Babin kuk accommodation belt. This coastal corridor reflects some of the central symbolisms of Lapad's identity through alignment with the seaside atmosphere. However, it slows down the energy, encouraging lingering along the path without creating clusters.
Passing the Valamar hotel complex, the promenade continues along through Coral, Copacabana, and Mandrač beaches, keeping the path materiality of the Uvala stretch. However, the coastal atmosphere gets denser as the green buffers thicken coastal setbacks are able to absorb seasonal flows without spatial compression. Observing the interplay between greenery and the coast, the promenade retains a consistent profile with linear paving sustaining continuity and distributing activity along it.
Emerging from the forested coastal area, through the quiet residential area of Solitudo as a buffer, is the Obala promenade along the marina. The path materiality shifts slightly but retains a similar character to the Uvala promenade, continuing the coastal corridor. Lighting and urban furniture are placed to complement the path through various forms and placements; however, their rhythm and aesthetic remain consistent, reinforcing a continuous urban narrative.
This part of the coastal corridor becomes more urban as it shifts along roads. The seaside and vegetational buffers with the road allow for coastal continuity through Batala into Gruž. Aerially, this segment reads as a threshold between the coast and harbour, while embodied perspective is interpreted as gradual urban intensification.
The harbour promenade in Gruž stretches from the market to the port, meandering between commercial and hospitality establishments. Here, the third node is encountered. The promenade clarifies the connection between productive infrastructure and public/semi-public spaces. It aligns paving, canopy, and urban furniture to frame Gruž as a memorable destination rather than just a functional necessity. Small scale urban interventions within reimagined land use policies reshape Gruž from a transitional space into a memorable node without monumentality.
From there, the promenade turns into a longer residential corridor of Kono. This corridor goes along a busy road connecting Gruž to Pile and separates the residential area with an energetic stretch of everyday activities. Here, the profile narrows and the tourist programming is reduced. In this segment, no widenings are introduced so the promenade maintains minimum passage width, perpetuating movement. The path surface integrates subtle mosaic elements embedded into the paving to serve as a narrative driver while preserving local expressions.
The expression of the promenade is evident in the surface and material continuities, reinforcing continuous movement.
The facilities cater primarily to the locals so tourist lingering will not be encouraged, however the reimagined facilities along the road may invite some to mingle. This corridor encourages movement and respect to protect local rhythms and to shift focus toward the Old Town node. The materiality of the path embeds itself into the residential fabric, expressing itself as connective tissue rather than a destination.
At the city's busiest intersection at Ilijina glavica, the promenade reconnects with the aesthetic of the historic core. It wraps around the city walls connecting to Buža and Ploče gates. The language of the promenade intensifies again through realignment of materiality with the historic core. At this point, the loop is completed. As a final cathartic branched segment of the vibrant civic loop, a stretch inducing slower movement and reconnection with nature toward the Orsula park allowing broad vistas of the Old Town and beyond. The branch concludes not with spectacle but an open horizon reinforcing the spatial infrastructure and experiential narrative of the civic loop.
The civic loop manifests as the first spatial inscription of the adaptive rhythmic polycentric rebalancing approach, yet its implementation alone does not guarantee urban resilience. The promenade intervention described establishes structural continuity and redistribution of symbolic value. Through temporal calibration redistribution of symbolic value, ownership and economic trajectories unfold gradually. Therefore, the urban polycentric network evolves through phased modulation, with spatial alignment preceding symbolic intensifications and driven by institutional reform. Each phase improves the network's ability to recalibrate itself. Firstly, it aligns mobility, representation, and infrastructure. Then, it redistributes symbolic and economic agency, and finally it incorporates adaptive and anticipatory governance as a permanent condition. The promenade therefore presents only the beginning of a systemic transformation.
Phase 1 operationalises the civic loop as an urban framework, stabilising spatial inscription into institutional and representational alignment. The promenade generates a continuous pedestrian spine that clarifies circulation without restructuring vehicular mobility, reinforcing cross-integration of districts while preserving the existing urban fabric. Redistribution in this phase remains infrastructural; softening of thresholds and highlighting alternative nodes through accessibility. Calibrated widenings along the promenade regulate dwelling and flow by testing redistribution tactics without imposing abrupt change. While circulation no longer focuses on converging toward the historic core, no district is prematurely intensified.
At the same time, Phase 1 consolidates stakeholder coordination between municipal authorities, tourism actors, cultural institutions, local businesses, and neighbourhood representatives. They form an integrated and collaborative platform which operates alongside the infrastructure of the civic loop. Monitoring systems are implemented to track load distribution along corridors, dwelling intensity of the nodes, seasonal fluctuations, and the satisfaction of the local population. This marks a shift from

reactive toward anticipatory management. Representation management, as the underlying supporting system, shifts to align tourism campaigns and digital interfaces with the physical intervention to reinforce the polycentric network. In this phase, meaning remains institutionally conditioned but local engagement becomes structurally embedded, establishing grounds for negotiation.
Regulation strategies are directional in this phase. They include strengthening pedestrian mobility along the loop, recalibration of land use to encourage year-round activity across district nodes beyond the historic core and embedding of environmental safeguards within the natural corridors to prevent over-programming. Due to strengthened legibility and continuity, various market actors test diverse investment patterns beyond the historic core, spatially enabling economic redistribution. Local avoidance patterns are reduced by aesthetic and infrastructural coherence, restoring confidence in mobility across districts and perpetuating everyday rhythms. Experientially, the city reads as unified and continuous rather than fragmented. The Old Town no longer signifies departure from symbolic value but an immersion into the broader urban narrative. Therefore, Phase 1 prepares the city systems for a deeper transformation through coherence without hierarchy and redistribution without coercion.
Phase 2 consolidates the spatial frameworks established by Phase 1 by allowing intensification of nodes through negotiation of identity, programmatic reinforcement and altered economic trajectories. Nodes begin to gain autonomy through strengthened local anchoring with stabilised circulation and embedded polycentric legibility. The civic loop in this phase functions as a distributor of symbolic value and agency. Progressively, meaning decentralises as local communities, businesses and cultural institutions assert themselves over programming, commercial trendsetting, and the level of intensification within their districts. Consequently, representation also shifts; tourism campaigns initiate narration of distinct district identities, strengthened by local platforms and integration into everyday rhythms. Social media engagement begins to reflect this transformation through polycentric imagery.
Economic redistribution becomes structural with nodes differentiating their consumer orientation, while at the same time reinforcing local economies and enabling local-tourist interaction. Based on nodal activity and monitoring systems, corridors retain calibrated movement biases to prevent congestion in physical and experiential sense. Local rhythms and economies are supported by embedded micro-nodes through local enterprises along the corridors and nodes, situating place-specific economic ecosystems. Alongside, regulatory frameworks adapt to support polycentricity, enabling entrepreneurial intensification while protecting calm residential atmospheres. Ownership shifts to social negotiation; locals influencing activity capacities, seasonal programming, and degrees commercial expansion through institutionalised participatory networks within the municipal governance.
Within the experiential dimension, nodes gain density without spectacle. Nodal presence is reinforced by surface expression, urban furniture, cultural events, and tactical spatial interventions, while remaining adaptable to ever-changing social and seasonal flows. Distribution of symbolic value is managed by corridors regulating flow. Summer intensifies nodal activity while corridors divert pressures perpetuating mobility. During shoulder seasons, exploration is encouraged across districts rather than one destination. The winter period downsizes intensity but sustains local rhythms through programming and infrastructural stability, ensuring continuity.

As emotional interpretations diversify across the polycentric network; through heritage immersion within the historic core, exploration of everyday local rhythms in Lapad and productive local rhythms in Gruž, the city becomes a balanced field of varied intensities.
Governance transforms into a consolidated coordination network evolving toward district level supervision within the unified municipal network. Monitoring systems track, document and inform adjustments in programming, thresholds, and infrastructure. Cultural institutions align nodal programming with district identity, meanwhile monitored by municipal authority to ensure coordination and maintain systemic coherence. While polycentric flows stabilise across districts, economic benefits distribute more evenly. Spatial alignment transforms into symbolic autonomy. Nodes shift from peripheral satellites to the Old Town into self-sustaining centres within the polycentric urban network. As hierarchies soften and agency is redistributed, the polycentric network prepares for institutional permanence.
Phase 3 consolidates the polycentric network by embedding anticipatory governance and adaptive recalibration as a permanent urban condition. Structured through continuous feedback loops, nodal autonomy is stabilised and the economic redistribution is stabilised through varied nodal economies aligned with local rhythms. Monitoring systems are stabilised as the backbone of the spatial, regulatory, and representational recalibration. Resident satisfaction indicators, corridor load patterns, and economic distribution metrics inform seasonal programming, commercial capacity, and thresholds of intensification. However, adaptive recalibration is politically negotiated rather than technocratically automated. In this phase, infrastructural responsibility remains with the municipal authorities yet, district-level actors are integrated into programming, identity articulation, and degrees of commercial activation within the urban network. Polycentricity becomes institutional logic.
In this phase, the polycentric narrative is stabilised within representation. Tourism campaigns, digital platforms, and cultural institutions within the polycentric network prevent symbolic re-concentration in the historic core. District identities are reinforced by everyday rhythms; therefore, they mature organically rather than through imposed branding. As nodal expressions align with diversified investment patterns, economic redistribution becomes self-sustaining. The Old Town retains symbolic density but no longer monopolises symbolic value or urban attention, reducing vulnerability to economic shocks and seasonal volatility.
Adaptive capacity becomes formalised within regulatory systems. Based on feedback from monitoring systems, zoning, licencing, pedestrian priority policies, and environmental safeguards are periodically recalibrated. Spatial management protocols become embedded with seasonal modulation, expanding and contracting nodal activity footprints according to demand, while corridors adjust experiential trajectories, strategically deploying temporary installations to maintain balance. As temporality becomes spatially legible through programmed flexibility and calibrated regulation, the city no longer oscillates between congestion and emptiness but functions through rhythmic calibration.
Local influence over thresholds of commercialisation and spatial activation consolidates through sustained participation structures. Locals shape the district's future rather than negotiating coexistence. Experientially, coherence is achieved without hierarchical impositions, keeping emotional interpretations varied yet

relational, while movement across districts sustains the continuity of the urban narrative.
In Phase 3, resilience is institutionalised. Adaptive rhythmic polycentric rebalancing becomes a foundational governance principle, ensuring that redistribution of symbolic value, economic trajectories and experiential intensity remains iterative and adaptive. The city not only manages tourism but shapes its trajectory.
Once institutionalised, the polycentric civic loop ceases to function as connecting infrastructure, transforming into a strategic urban framework for large-scale transformation. With circulation stabilised, governance and representation recalibrated and symbolic value redistributed, the city gains capacity for integrating broader strategic projects without reproducing symbolic centralisations. Waterfront expansions in Gruž (Dubrovački Dnevnik, 2020), coastal promenade reinforcements in Lapad (ProtoArch, 2022) and other long-term urban visions can come to life in alignment with the promenade's relational logic, reinforcing nodal autonomy. Infrastructural investments, EU-funded developments, and landscape interventions become structurally embedded through the civic loop within the polycentric network, deepening existing nodal identities and extending calibrated intensity across districts. Within this consolidated network, the promenade becomes spatial armature, reconciling Dubrovnik's heritage, economic resilience, and contemporary urban ambitions. Transformation emerges through coherent expansion of a network capable of recalibration. The city evolves by situating the historic core within a mature network of autonomous nodes, ensuring equitable distribution of growth, representation, and ownership.

Figure 18. new vision of Gruž waterfront by the Dubrovnik City Council

Figure 19. new vision of the Uvala Lapad promenade by ProtoArch

Figure 20. new vision of a park area in Brsalje by the Dubrovnik City Council

CONCLUSION

The following segment will bring this thesis to an end by summarising the key research aims and objectives and the research question and highlight their values and contribution. It will also evaluate the limitations of the study and suggest opportunities for future research.

The aim of the study was to investigate overtourism in Mediterranean urban landscapes, specifically heritage cities, not just as a question of excessive visitor numbers, but as a structural socio-spatial and temporal imbalance within the urban fabric. Through the case study of Dubrovnik, this thesis sought to answer the research question:

'How can the focus on local identity in urban design solutions, policies and systems recalibrate the socio-spatial and temporal imbalances generated by overtourism into a more adaptable and resilient urban landscape?'

The argument was structured progressively across four chapters. Chapter 1 positioned Mediterranean urbanism within global urban theory, depicting tourism as a phenomenological manifestation of competing rhythms, representations, and capital flows. Chapter 2 shifted from theoretical context to a spatial and systemic analysis of Dubrovnik's urban fabric and its connections to tourism. It argues that overtourism should be understood as a multidimensional condition embedded within governance, representation, and production of urban space, not as a sectoral issue of excessive numbers. Chapter 3 developed a layered mapping methodology, examining site, evolution, environmental and urban dimensions to understand how historical continuity, climactic conditions, governance structures, and concentrations of symbolic value intersect within Dubrovnik's urban fabric. Mapping demonstrates how pressures accumulate where spatial, temporal, representational and experiential hierarchies converge. Chapter 4 translated these readings into a strategic and design framework. It proposes adaptive rhythmic polycentric rebalancing as a method of redistributing symbolic value and recalibration of spatial, temporal, and experiential dimensions, strengthening the urban fabric.

These outcomes directly help answer the research question by demonstrating that identity, when understood as an evolving constellation of habits, practices, relationships and perceptions, functions as a mechanism of resilience rather than rigidity. Identity does not aim to immobilise the city in nostalgia, instead it enables recalibration on local terms. The urban fabric can negotiate global tourism pressures without fragmenting its structural coherence when design and governance processes embed social, spatial, temporal, and experiential logics into decision-making. Overtourism, therefore, is not resolved through quantitative limitation alone but through recalibrating the relationship between representation, economy and lived rhythms. In this sense, the proposed civic loop promenade is a spatial instrument through which the mapped spatial, temporal, and experiential imbalances are recalibrated. By restructuring movement, representation, and seasonal intensity into a polycentric sequence, it demonstrates how identity-led design can materially transform the production of urban fabric.

This research uncovers a fragment of how Mediterranean urban landscapes negotiate globalisation through tourism. These findings can aid in the design and governance of heritage cities by shifting focus from visitor management to spatial production.

The contribution of this thesis lies in reframing overtourism as an imbalance embedded within the production of urban space. It is considered alternative because it shifts the focus from superficial control and visitor number regulation toward structural recalibration of spatial, temporal, and experiential systems through cross-disciplinary coordination. In doing so, it strengthens the argument that alternative strategies must engage with the spatial, temporal, and experiential dimensions of the urban fabric as fundamental structuring forces.

At the global scale, this research suggests that strategies in cities embedded within planetary urbanisation must recognise their relational position within broader global circuits of capital, labour, and representation to address tourism pressures. At a national scale, governance frameworks can integrate identity-led spatial recalibration into strategies, ensuring that economic development does not override local urban rhythms. At the local scale, municipalities can deploy mapping methodologies that foreground lived experience, seasonal flows, and socio-spatial hierarchies to inform adaptive design and anticipatory governance interventions. Dubrovnik, due to its scale and overtourism intensity, provides a precise case study for this exploration, however the logic is applicable to other liminal heritage contexts.

Additionally, it is worth noting that the focus on Dubrovnik and Mediterranean heritage cities limits the scope of applicability in its current form. The mapping methodology, while holistic is bound to interpreting data. For a truly holistic approach, the mapping must operate across spatial, social, environmental, economic, temporal, experiential and governance dimensions, and these layers must be merged into a comprehensive reading rather than treated as parallel analyses. Such integration further strengthens the long-term viability of the proposed promenade framework. Moreover, this thesis does not test the long-term implementation and implications of the proposed framework. Further research could expand this framework across case studies beyond the Mediterranean, testing identity-led recalibration within different contexts.

Ultimately, this thesis argues that overtourism is symptomatic of deeper imbalances in how urban space is produced, represented, and consumed. This thesis proposes an alternative trajectory by centring identity as an adaptive and resilient driver within spatial, temporal, and experiential strategies. Within this trajectory, Mediterranean cities, and heritage cities globally, can shift from reactive regulation and instead actively structure their development trajectories through identity-led calibration embedded with the urban fabric.

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