

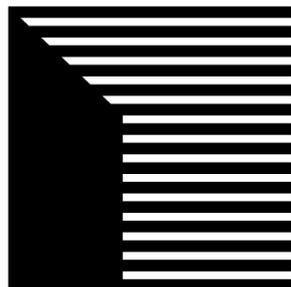


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CURBATHERI

**Curating sustainable urban transformations
through heritage –
A theoretical framework**

**WP1, DELIVERABLE 1.1.
A working paper**



DEEP CITIES

Curating sustainable urban transformations
through heritage



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Content

1. Introduction.....	4
2. Defining ‘historical urban transformation’ as heritage for social values through the historiographical lens of urban planning.....	6
First half of 20 th century	6
Second half 20 th century.....	7
Towards the 21 st century.....	8
Conclusion	11
3. A review of urban heritage-led regeneration approaches.....	13
Cultural Significance and Change Management: a values-based management	13
Approaches to heritage-led regeneration and sustainable development	17
Conclusion	25
4. A systems dynamic theoretical framework.....	27
Systems dynamic epistemologies and heritage systems	27
Critical theory and critical urban theory	31
Assemblage urbanism	33
Constructivist grounded theory	37
Participatory System Dynamics.....	38
Conclusion	41
5. References.....	43



1. Introduction

This working paper intends to give a brief theoretical background with the instruction of core concepts that would be helpful in the progression of the CURBATHERI research project (CURBATHERI, see <https://curbatheri.niku.no/>). The theoretical core concepts proposed in the working paper will be revised and refined during an online workshop among the project participants held March 11, 2021 (CURBATHERI Milestones 5). Partners in charge of writing this theoretical framework (deliverable 1.1.) is PI1 (Lead, NIKU) with compliments from the other PIs (PI2-PI5).

The working paper will provide a critical outlook to the work in progress in the project by giving a theoretical reflection on heritage values in processes of urban transformation which would be applicable to urban planning based on a selected review of research literature. The working paper intends to examine epistemological concerns (with theoretical paradigms, models, and concepts) related to the **systems dynamic (SD)** tool/methods which comprise a fundamental chosen approach in the research project combined with **digital and participatory methodologies**. A challenge in the project would be to find a theoretical framework for a joint methodological approach that includes **a digital- and participatory-based SD approach** in designing a management toolbox for evaluating how heritage can be used in sustainable urban development.

Our intention is that the working paper will produce ‘food for thoughts’, a theoretical reflexive background for critical reflection and discussion to be further developed and applied in the other workpackages during the CURBATHERI project. In this sense we hope the working paper will be a dynamic ‘living’ document which would be discussed, evaluated, and challenged during the project. The intention with a theory-based working paper have not been to offer new answers to established (a priori) problems, rather to articulate problems of main interest in the CURBATHERI project by emphasizing the theoretical pegs or concept-tools that help us to grapple with specifically situated problems in the research project. Our intention is to refer to reference projects and theoretical literature that can open for further exploration for the participants in the project, depending on the issues that are worked on during the project period.

Theory in this sense is understood as abstract thinking and a methodological lens – a mode to think through metaphors, concepts, and models – for defining the outlook of the project, thereby the structuring conditions for the chosen methods in doing the research. This also means that it is no clear division between theoretical and methodological approaches. For instance, discourse analysis is mixed theory and methodology, producing a variation of methods. In similar terms, although ‘systems theory’ and ‘complexity theory’ has been the resource for systems dynamics (SD) methods we would say that we are facing a fusion of theoretical and methodological considerations when discussing the uses of SD, for instance based on where you as researcher or investigator stand epistemologically and reflexively acknowledge the ‘situated knowledges’¹ when using the method.

The working paper will first, in chapter 2, give a historical literature review of how ‘historical urban transformation’ as heritage for social values appear in urban planning history (chapter 1). Thereafter, chapter 3 gives a review of heritage-led regeneration approaches, thereby setting the basis for an epistemological framework for understanding the interrelationship of concepts such as ‘urban transformation’, ‘heritage values’, ‘sustainability’, and ‘Change Management’. This leads to a review of and discussion about theories and

¹ For the concept ‘situated knowledges’, see the reception literature derived from Haraway 1988.



methodological considerations for using system dynamics tools in chapter 4, followed by a conclusion in chapter 5.

From the proposal

SQ7: How does historical transformation challenge inherent assumptions of heritage values and contribute to community building, social cohesion, transferrable skills, wellbeing and education? (answered by WP1)

Key concepts

- Planning Sustainable transformations
- Heritage management and conservation within the planning practice
- Social dimension
- Heritage dynamics in urban contexts
- Historic layering of values and meanings: Relationship of material and social values of heritage
- Understanding of change/transformation in urban heritage
- Integration of social values in heritage practices
- Participative approaches and co-production in heritage research
- The role of digital tools

Scales of [urban] practices

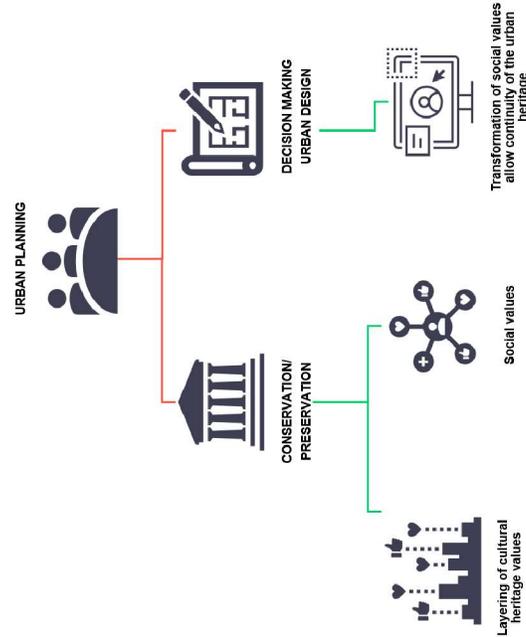


Figure 1: The illustration is showing key concepts in the CURBATHERI project that is examined in this working paper. Illustration: Paloma Guzman.



2. Defining ‘historical urban transformation’ as heritage for social values through the historiographical lens of urban planning

Urban history highlights cities’ capacities to change and adapt under new ideologies and visions while adopting new technologies. In modern western cities, transformation of the built environment is conceived through urban planning and design, motivated by utopian visions for solving societal challenges and materialize through technological advances. Such transformations have been analysed through retrospective approaches discussing dichotomies or dualistic questions such as stability and instability; inclusion and exclusion; privileged and disadvantaged, past and future. Urban heritage conservation and transformation are also among the polarizing debates resulting from the need of physical changes aiming for cities development.

In Europe, the historic built environment is generally conserved and managed by systems of urban planning, which align to different governance regimes. Governance systems vary as well as the development models these follow. Together these will influence local planning mechanism, the attention these give to urban heritage, and guide the tools employed in conservation. Previous research projects have evidenced the determining effect of governances (forms and qualities) in the conservation of the built environment and the tangible and intangible cultural heritage that it embodies (PICH Project 2016). The rapid urban growth taking place during the 20th century has shaped the urban character of the 21st century, where planning mechanisms embedding heritage conservation has become a widespread practice that keeps evolving whilst the understanding of the city dynamics increase in complexity.

First half of 20th century

During the first half of the century, “there was some theory in planning but no theory of planning”, that is to say, planning was based on “an intuitive and speculative understanding of the relationships between socio-economic forces and the physical environment” [...] (Hall 2002). By looking at cities as closed spatial systems, the exercise of planning also became a process of producing spaces with control and monitoring. Different ‘system approaches’ resulted in a diversity of models which tended to solve urban problems by optimizing methods (for a retrospective, see Freestone 2015). In theory, the planning system was regarded as an active force on the city system, seen as a purely passive problem (Harris in Hall 2002). The concept of a city as a passive element was aligned with a discourse in which urban planning was “an unambiguously beneficent activity of government: comprehensive, technocratic, scientific, and socially progressive” (Freestone 2015). In a utopic way, early 20th century urban planning draw on the idea of reducing the problems of overcrowding that old cities presented in the aftermath of the Second World War. It is widely recognized that some planners took this as an opportunity for a cleansing progress or the expansion of the cities into newer and more desirable environments (Hamer in Freestone 2000). Such planning approaches tended to separate history from present, a vision that persisted until these days and that has largely contributed to the view of heritage conservation as an opposing force to progress and development (Jokilehto 2007; Orbaşlı 2017).



Earliest considerations of heritage in urban planning referred to historic meanings and values associated to the remembrance of the past as source of identity and pride, often in the building of contemporary national states. Historic, aesthetics and identity values were first identified at the object scale or monumental structures and evolved towards ensemble of buildings and later expanded to entire historic districts (Bandarin and van Oers 2012). Veldpaus et al. (2013) explain the evolution of earliest acknowledgments and integration of heritage conservation in European planning practices that consequently underpinned heritage as an urban sector requiring tailored management. The identification, valuation and protection of cultural heritage was then undertaken by heritage professionals and planners which fostered an institutionalized understanding of heritage based on valued and significance (Avrami et al. 2000). In contrast to earliest understanding of heritage that understood value as inherent to a particular built structure or place, **heritage significance** is the summation of values attributed to any place by different groups (Pendlebury et al. 2009; Smith 2006). Such constructivist approach allowed cultural heritage to be expanded in its definitions and typologies (Smith 2006; Veldpaus and Pereira Roders 2017), and thus, taking a more pluralistic trajectory towards the second half of the 20th century.

Second half 20th century

Since the second half of the century, heritage research has become an established scientific field with interdisciplinary approaches. This has been influenced by the integration of social sciences in the study of cities because as part of the countermovement to modernist approaches. For instance, in this countermovement, the conception of urban planning was broadened to territorial development and historic continuum which included deeper considerations to a broad range of economic, social, and environmental values (Bandarin and van Oers 2012:15). Value sets have been a key issue on heritage management and theory (Jokilehto 2006). Values are often defined as a set of characteristics seen in individual assets and the (built and natural) environment that are perceived as significant to individuals or social groups (Avrami et al. 2000). Yet, the recognition and appreciation of heritage values requires an expert's guidance, so these are hierarchically prioritized in strategic action.

The end of the century witnessed a growth of international heritage policies and conservation charters as well as national planning laws that contributed to the safeguarding of cultural heritage values as a normative element in urban planning, but also to be seen as a global concern (Bandarin and van Oers 2012; Jokilehto 2007). Simultaneously, the practice of urban planning witnessed a crisis when the (close) systemic approaches failed to identify the power structure and political reality in cities. Planning practices received great criticism for imposing regulatory constraints based on biased development perspectives (Hall 2002: Chapter 11). The predominance of neo-liberal governance systems led the prioritization of values that support (and are reinforced by) norms, rules, incentives, seen as structural systems that aggravate some social actors whilst aiming to benefit others (Thompson in Freestone 2000; O'Brien 2018).

In the case of cultural heritage management values leading to economic growth are often prioritized in city planning. Concrete actions such as revitalization, renewal and recovery of historic urban areas have shown limited appreciation for the social differences and dynamics in cities, nor included community's values and meanings (Thompson in Freestone



2000; Chitty 2017). Additionally, actions under globalization processes have led to unsustainable patterns of resource consumption, including heritage (Bandarin and van Oers 2014; Evans 2002; Pendlebury et al. 2009; The Getty Conservation Institute 2009). For instance, excessive tourism, speculation, changes in land use, gentrification, and the tendency to prioritize the material characteristics of heritage to which predominant values are associated are among the most discussed detrimental impacts to the social fabric (Jones 2017; Swensen 2012). Until today, attitudes towards heritage in urban planning portrays a dialectical role. Heritage conservation can be positioned as a counterbalance to development, and therefore, seen as liability, but it can also be seen as the management of resourceful urban areas to be aligned with local and regional urban development objectives (Bandarin and van Oers 2012; Guzmán et al. 2017; Janssen et al. 2017). In any case, urban heritage is embedded in a “cycle that can be both virtuous and vicious but will always entail the creation or reuse of urban resources while others disappear or are destroyed” (Veldpaus and Pereira Roders 2017). The questioning of predominant development frameworks supported by neoliberal policies also influenced the way the heritage values-based management has been framed in research. Academics started to take a closer look into the ways in which heritage management in cities tended to partial visions of cultural heritage by prioritizing certain values whilst disregarding others. McClelland et al. (2013) suggests that within the processes of conservation and destruction planners and decision makers can potentially play a mediating role in “revealing, acknowledging and articulating” a fuller interpretation of values that includes their “positive-negative” polarities. Orbasli (2017:163) states that “the complex nature of meanings or values and the network of overlapping interests that they are linked to provide the basis for negotiation”. However, the limited spaces for mediation and contestation of values driving development and planning processes, and those of local communities has led academics to question “the institutionalized formats in which societal interests-and the common good- are represented” (Hajer 2003).

Towards the 21st century

Alberti et al. (2018) explains that whilst “earlier theories of cities proved useful for describing a variety of urban phenomena, these were not able provide a general explanation of how cities emerge, persist, or collapse” resulting of their social interactions. Urban planning in the 21st century recognizes the “dysfunctional nexus between nature and society” in which current environmental and climate crisis found their causes. Urban transformations are thus driven by two predominant discursive shifts. The first is driven by the concept of **Anthropocene** and **sustainability** as a transformative process aims to revert “converging and persistent global crises and problems, such as climate change, resource depletion and widening social inequality” (Alberti et al. 2018; Elmqvist et al. 2019; Hölscher et al. 2018). A second discourse is the so-called **smart urbanism** driven by the development of information and communication technologies (ICT). ICT is used to “‘sense’ behaviour via ‘big data’ and use this feedback to manage cities as ‘living labs’ and experiment with urban dynamics, new products and services” (Caragliu et al. 2011; Gupta et al. 2015). Political scientist and regional planner Maarten Hajer (2015) explain how these two discourses are increasingly shaping “political ideologies, new technological innovations and choices of organizational form” in the planning and design of cities.



Sustainability and smart cities discourses are not exempt of criticism. Concerns have been raised regarding the dominance of technocratic approaches risking perpetuating the lack of consideration of **the social dimension** (Grenni et al. 2020; Hajer 2015; O'Brien 2018; O'Brien et al. 2009). Moreover, a growing mismatch between theory and practice in urban planning is evidencing “the inherent tension between the self-organization properties of complex socio-ecological systems and the idea of planning towards a desirable societal goal” (Alberti et al. 2018). As such, urban practices in this new century, including the management of cultural heritage, are expected to better address the negotiation of complex ambivalences; urban mixing, active resistance and the exploration of alternative and more democratic ways of transforming urban and network spaces” (Graham 2002).

Under the sustainability umbrella, answers to anthropogenic changes are increasingly discussed as requiring fundamental shifts in human and environmental interactions and feedbacks. Urban transformations are increasingly being conceptualized beyond mere physical changes, to include deeper understandings of human interactions with the environment (built and natural) inherently rooted in societal and cultural systems (Adger et al. 2013). This integrative approach considers an “inner dimension” to sustainability which is renewing research interests in “people’s ideas and feelings about their place (**sense of place**), the meanings, and values they attach to a place” (Hölscher et al. 2018; Horlings 2016; O'Brien 2018). Horlings (2015a) highlights that meanings and values are key elements in determining people’s willingness to embrace change based in experiences in place and desires for a future. Such ideas are transforming the traditional ways of community participation in democratic societies. Increasing advocacy is now given to direct democratic processes, in which citizens are seen as “owners” of government and thus, should be involved in the decisions of the state (Callahan 2007).

Under **participative planning process**, urban transformation is also conceptualized as place- shaping with the purpose to build people’s capacity to reflect on and (re)negotiate the conditions of their engagement in places (Horlings and Roep 2015). Place-shaping is considered as a potentially transformative act which involves the inner dimension of transformation, in the sense that every modification of a physical space not only affects the material landscape, but also its related socio- cultural associations (Jones and Evans 2012). Such associations include the cultural heritage values and how their importance given by society change. Moreover, the influence of this trend in cultural heritage management is also associated with the legitimatization of the management approaches. In this regard, heritage management, largely operationalized within urban planning and design theories, has been characterized as a goal-oriented practice which tends to disarticulate people from their social contexts (Alverti and Kalliopi 2020; Waterton and Watson 2013). The neglect of local communities, as understood as the main custodians of heritage values and attributes is discussed as having negative impacts on the sustainability of heritage. Particularly in regard to the continuity of the heritage’s original function; the purpose for which heritage was originally intended; the continuity of community’s connection with heritage among others (Poulios 2014: 21).

To respond in a sustainable way to the accumulating development process and need for transformation that cities require, “a conservation-driven approaches must be imbued by participatory planning and environmental concerns related to sustainable living of



communities” (Fouseki and Nicolau 2018). The academic discussion within heritage has broaden the attributable values to heritage from an expert-based focus on scientific and aesthetic values, towards the inclusion of “non-expert perceptions of heritage and the communal values” associated with heritage physical attributes (Jones 2017). During first decade of the new century, the study of societies’ values and meanings within heritage theories and practice, have also shifted from the identification and acknowledgement of the plurality of voices towards wider consideration of the processes of constructing social meanings and significance. For instance, Jones (2017) proposes to regard social values as “the ways in which a historic environment provides a basis for identity, distinctiveness, belonging and social interaction [...] and accommodates forms of memory, oral history, symbolism and cultural practices associated with its context”. According to Jones (2017) “encompassing the significance of the historic environment to contemporary communities, social values are fluid, culturally specific forms of value embedded in experience and practice”.

Fouseki et al. (2020), suggest that heritage conservation methodologies used for describing, interpreting, and valuing urban heritage defined by historical transformations have seldom and systematically explored in urban planning. Although in theory planning and urban studies are encompassing more interdisciplinary methodological approaches, challenges remain related to differences on epistemological assumptions on values in place-based research from environmental and cultural fields, and or from social science and humanities perspectives. However, theories in strategic planning are opening ways for a more transformative and integrative public sector by in which development visions and justification for coherent actions, are underpinned in co-production processes. In such process, urban spaces frame and reframe what a place is and what it might become (Albrechts 2013). Such **constructivist approach in planning** aimed at confronting complex dynamic realities challenges current methods used in all areas of urban planning characterised for linear, static top-down approaches. Hence the need for ways of thinking and for tools, concepts and instruments that help governments, citizens and planners to cope better with challenges in an unequal, dynamic and complex environment (Winch 1998).

Co-production contrasts the traditional approach to knowledge creation, which is developed by researchers and then transferred to decision-makers (Polk 2015). Co-production of knowledge is defined as an iterative and transdisciplinary process of bringing multiple actor’s knowledge and expertise together to address a decision problem and build an integrated understanding of that problem (Armitage et al. 2011). In this sense, co-production can better highlight knowledge differences and similarities, embrace a diversity of knowledge cultures, and allow for an expanded understanding of the problem or issue, which a single context might not produce (Simon et al. 2018). (extract from Fatorić and Seekamp 2019)

In the era of ICT, the Internet of Things (IoT), many types of big data, and ubiquitous technology at our fingertips, urban geolocated data from social media promises to expand our understanding not only of where people are and what they do, but also what they value (Ilieva and McPhearson 2018). Social Media Data is becoming increasingly integrated in human life and urban governance. Recent literature reviews acknowledge their promise and limitations for sustainability research over the next decade and the implementation and monitoring of



sustainable agendas. Using digital tools to engage the local community in protecting and promoting the values of cultural heritage is gaining more and more attention (Jones et al. 2018; Kalay et al. 2007). Liang et al. (2021) report that research on heritage and media tools are an increasing trend in the European context, generally applied to museums instead of urban heritage buildings (monuments), and landscapes. Among identified research focus, heritage interpretation is predominant, followed by enhancing communication, collective memory, equity of the discourse, and maintaining community archives. However, the application of social media tools is acknowledged for showing a greater impact on people-centered approaches and cultural expression. Additionally, the recognition of people-centered approaches based on the equity of discourses have only been globally and institutionally recognized by UNESCO. However, Liang studies showed that the global application of social media tends to broadcast the heritage value instead of strengthening the collaboration among stakeholders.

Conclusion

This section has displayed a retrospective overview on the evolutionary concepts shaping interdependences between urban planning and heritage conservation highlighting how urban theory and practice is yet to achieve urban equality (Hall 2002). The discussion framed how current ideas of urban transformation are tending to understand physical change as an active construction of new practices and new meanings (Asara et al. 2015). Changes in the urban fabric are expected to be the result of more including and participative process. Whilst academic approaches are exploring new interdisciplinary and transdisciplinary approaches, the challenge of how this knowledge could be extracted and applied in real time persist in practice. To help the implementation of more complex urban heritage knowledge, practitioners and policymakers are challenged to go beyond the instrumental approaches to social values expressed by contemporary communities. Moreover, heritage management research on social values can provide new analytical lenses and outlets to the broader field of urban, democracy and policy fields. By exploring current scientific shift towards constructivist and integrative methodologies, heritage studies can connect the processes of meanings and significance of a place through the emotional, experiential, and sensorial attributes with the physical states of the environment, both natural and built. New digital technologies and social media represent a valuable tool to explore the impacts and effects of urbanization processes.

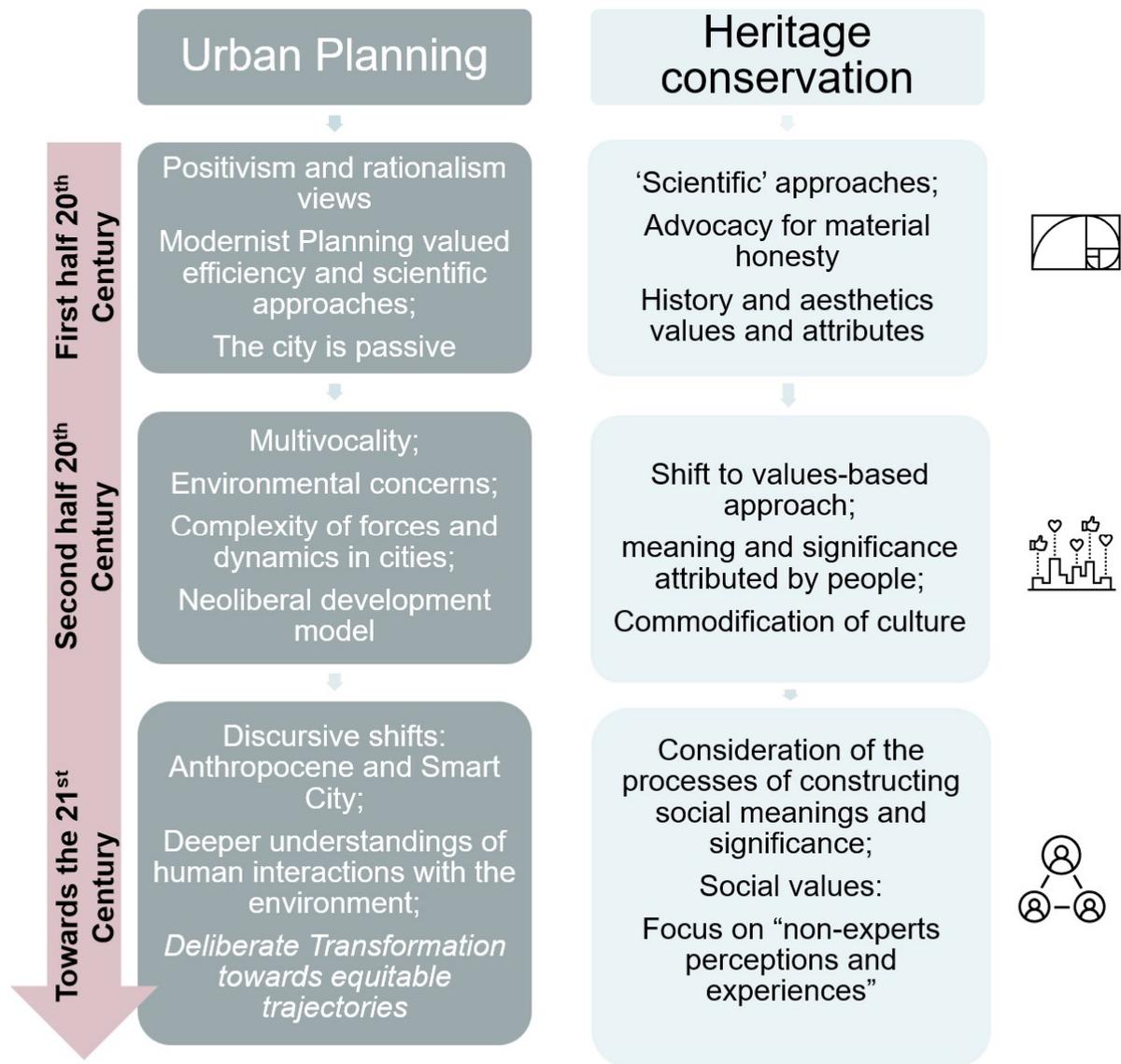


Figure 2: The illustration is showing key topics linking chapter 2 and chapter 3 in this working paper. Illustration: Paloma Guzman.



3. A review of urban heritage-led regeneration approaches

In this chapter 3 we will go through some of the key topics and projects on urban heritage-led regeneration as a background for more in-depth theoretical reflections in chapter 4. The chapter uncovers the interrelationships between concepts on urban heritage-led regeneration such as ‘**urban transformation**’, ‘**heritage values**’, ‘**change management**’, and ‘**sustainability**’, which includes a review of central policy documents and research projects on urban heritage-led regeneration.

Cultural Significance and Change Management: a values-based management

Relying on the **Burra charter** (ICOMOS Australia 2013 [revision 1979, 1999]) as *a canon* in the literature of cultural heritage policies, a theoretical shift is reflected with the introduction of viewing heritage as (environmental) assets, as public goods, and as cultural values – all coming together with the concept “**cultural significance**” defined “not only as the physical fabric of a building or a site but also to its setting, the way it was used, its contents and the knowledge that pertained to it” (Pereira Roders and Hudson 2012:178, 181). Accordingly, “cultural significance is embodied in the place itself, its fabric, setting, use, associations, meanings, records, related places and related objects” (ICOMOS Australia 2013 [revision 1979, 1999]). The **cultural values** could be social, economic, political, historic, aesthetical, scientific, age, and ecological values when arguing the significance of cultural heritage assets (Pereira Roders and Hudson 2012:179). The attributes are identified by means of *content analysis*: a systematic, replicable technique for compressing many words of text into fewer content categories based on explicit rules of coding (Pereira Roders and van Oers 2013:92). Based on this, a typology of values was proposed to complement with the pillars of sustainable development (e.g., ecological, social, and economic values). Cultural heritage is thus representing **values for society** which goes beyond itself as material and immaterial traces from the past. Furthermore, the Burra charter recognized that different (conflicting) groups and individuals would value the same cultural heritage asset in different ways and that cultural values would change over time. This rather contingent view of cultural values was in contrast to more traditional approaches that regarded cultural values as fixed and inherent in the assets themselves rather than constructed by those who used or contemplated them (ibid.:178). This introduced a **people-centred** approach as essential for defining cultural (heritage) values.

The *Burra charter*, the 2002 *Budapest Declaration* and the 2005 *Vienna memorandum* opened for a values-based management to be included in **Change Management** (Pereira Roders and Hudson 2012; Pereira Roders and van Oers 2013; for overview, see Landorf 2019). Change Management are often used as a broad concept in impact studies but can also include studies of systemic organizational ideological principles in preservation management (see Guttormsen 2020; Guttormsen and Skrede in press for the use of system theory for understanding preservation ideology in heritage change management). A primary goal in Change Management is to facilitate change through stages of planning mechanisms: a. identification of resources to be protected; b. develop policies to systematize heritage protection; c. to define management and monitoring practices) and do evaluations by the use of *impact methodologies* such as environmental impact assessment (EIA), social impact assessment (SIA), cultural heritage impact assessment (CHIA), and SUIT-methods (Sustainable development of urban historical areas through an active integration within towns, see Dupagne et.al 2004).



The Burra Charter Process

Steps in planning for and managing a place of cultural significance

The Burra Charter should be read as a whole.

Key articles relevant to each step are shown in the boxes. Article 6 summarises the Burra Charter Process.



Figure 3: The Burra Charter Process (from (ICOMOS Australia, 2013: 10 [revision 1979, 1999]).

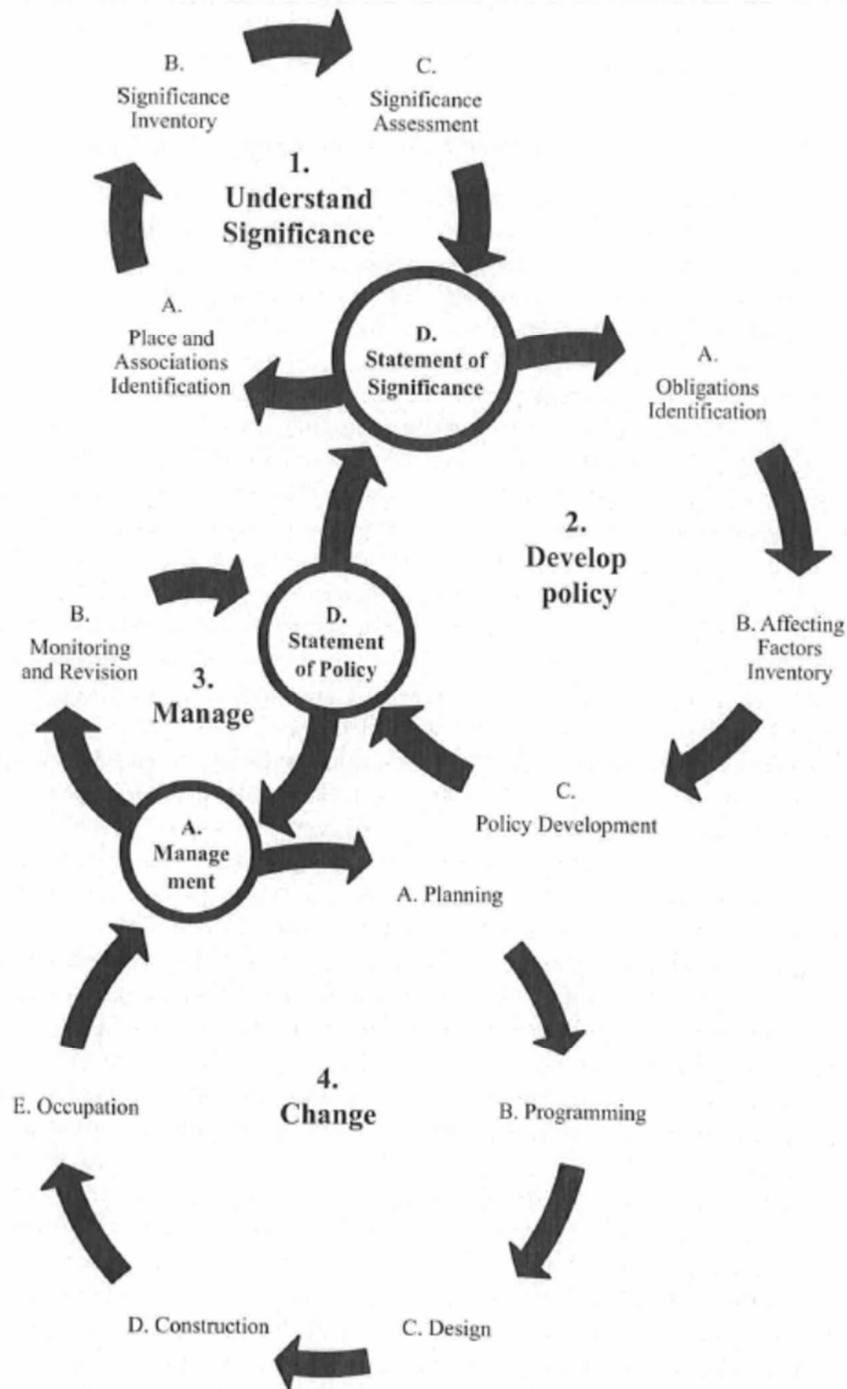


Figure 4: From Pereira Roders and Hudson 2012:183. "The values-based management process, evolving from the Australia ICOMOS's Burra Charter. Cultural heritage assessments involve both the description of assets and an evaluation of their cultural significance in terms of values. Once the asset has been adequately described and recorded, the assessment enters the process of evaluation. This involves making judgements about the cultural significance of the asset against criteria developed from an appropriate set of cultural values, typically social, economic, political, historical, aesthetic, scientific, age and ecological values. Community participation is an important part of the cultural heritage assessment process. Stakeholders in the asset have a legitimate right to involvement and this can take a variety of forms such as workshops, focus groups and surveys. Where individuals or groups are found to hold conflicting values over an asset a resolution process may have to be brought into play". An example of methodologies developed based on these principles is the DIVE method developed by the Norwegian Directorate of Cultural Heritage (see Guttormsen and Taylor 2019).



Values-based management has theoretical and methodological implications. From a social-constructivist position, and opposed to an essentialist (positivistic) position, cultural heritage values are produced by society based on ideology, politics, cultural and social factors etc., and therefore always redesigned and deliberately ‘purified’ based on the selected choices made by management and planning practices (cf. Guttormsen and Fageraas 2011). When arguing that cultural heritage is created in the present and constructed as part of (historical) **processes of heritagization**, then *heritage values* and *heritage as added cultural values* becomes two sides of the same coin. This epistemological position will be of analytical importance to clarify in the stages of **Change Management** and its methodologies. For instance, “Central to the Burra Charter is the principle that when dealing with cultural heritage assets it is necessary to understand its cultural significance before undertaking any development project. The purpose is not to prevent change in the built environment but rather to ensure that any development project, either targeting the asset or its surroundings, is carried out in full knowledge of the impact it would have on the cultural heritage assets.” (Pereira Roders and Hudson 2012:181-182, my underscore). From a social-constructionist point of view, an analytical approach is needed for studying how “**cultural significance**” have been created as the result of processes of heritagization, that means how heritage are created as part of social processes, (management) ideology, and power mechanisms. Values-based management is therefore not a one-way or straight forward process of a dichotomy between ‘before’ as heritage values in a protected container and ‘after’ as heritage under threats from development projects. Heritage as (added) values needs to be considered as a dynamic complexity on how heritage is both constructed and (re)used or enabled and compiles interrelated dynamic parts of long-term past-future connections in urban development.

Epistemologically, a heritage-based regeneration approach can be defined as:

- a) a values-based change management applying historical urban transformation as urban development processes that is responding to **the needs for urban change** and new cultural imprints with its deep historic continuity and associated unfolding relations of material heritage, memory, identity, and place.
- b) a values-based change management applying the temporal and transformative character of cities as **heritage values** which are (re-)evaluated and enabled (assessed, negotiated, and integrated) into urban planning processes for achieving sustainable long-term goals.

When going from (re-)evaluate to enable, “**urban transformation**” could as a definition be reconsidered as a. heritage conservation, b. urban regeneration, or c. redevelopment/renewal through the ages (Zeren Gülersoy and Gürlür 2011:11), where heritage is valued in the scale of being the primary driver for change to being one of many drivers for change. The term ‘**heritage-led regeneration**’ connotes initiatives where the driver for the social, economic, and cultural revival of a declined urban or rural area is the heritage that makes a **local place** distinct (Fouseki and Nicolau 2018:230; Fouseki et al. 2020:3).



- **Heritage conservation-based Urban Transformation:** Urban areas which have a historical and cultural significance in the city are generally engaged in heritage conservation-based urban transformation in which the protection of heritage is a fundamental concern. Consequently, it focuses on historic preservation and urban conservation as well as urban restoration, restitution, renovation and reuse as methods in the process. It develops plans, programs and policy-based frameworks by public and institutional leadership models for producing international systems in planning theory.
- **Regeneration-based Urban Transformation:** Existing urban areas having economic and functional potential, derelict industrial areas and docklands are examined according to regeneration-based urban transformation which endorses hedonic restructuring as a hallmark. Consequently, it focuses on urban regeneration as well as reconstruction, redevelopment, restructuring and land-use change as methods in the process. It develops policy and strategy-based frameworks by agent-based entrepreneurial models for producing a multi-paradigmatic agenda in planning theory.
- **(Re)Development-based Urban Transformation:** Squatter/gece-kondu areas, devastated and/or deteriorated urban spaces in the city require redevelopment-based urban transformation that focuses on urban upgrading and socio-economic restructuring. Consequently, it focuses on an urban renaissance as well as renewal, revitalization, rehabilitation and adaptive reuse as methods of its process. It develops plans, programs and policy-based frameworks by public and private partnership models for producing global strategies in planning theory.

(Zeren Gülersoy and Gürlü 2011:11)

Approaches to heritage-led regeneration and sustainable development

The CURBATHERI project builds on previous initiatives on heritage-led regeneration for sustainable development at the intersection of research and policies where the cultural heritage is a premise for the sustainable development in cities. In 1997, the project “*Urban design guidelines for historic cities*” was initiated by World Bank and UNESCO. The Nordic Heritage Office (NWHO) was invited and initiated a focus on the management of historic cities from a Baltic-Nordic perspective (Zancheti 1999). The project introduced a methodology used in four urban case studies in the Baltic-Nordic region that was based on the *Indicators of Sustainable Development (ISD)* launched by the UN *Commission on Sustainable Development (CSD)* in 1995. The method is organized into a general conceptual framework for indicators on sustainability based on *Pressure, State and Response (PSR)* values (Roald 2000:6) and analyzed at a national, regional, and local level. An indicator is in this context defined as: “A parameter, or a value derived from parameters, which points to/provides information about/describes the state of a phenomenon/environment/area with a significance extending beyond that directly associated with a parameter value” (ibid.:23).

The method used was expert-driven and functioned as a *tool for guidance* through recommendations for the heritage management, city planners and authorities to define urban governance strategies for the sustainable development of historic cities. The project defined social, economic, institutional, ecological, and visual experiential aspects significant to urban design guidelines for sustainable development of historic cities (ibid.:146-147). The project also addressed the lack of methodologies that includes cultural sustainability (image and symbols creation, creativity and innovation etc.). On the other hand, social sustainability is in the project associated with environmental awareness, multicultural and common citizen values promoting tolerance, self-respect and pride, place identity and education based on historical knowledge and aesthetic qualities of historic cities.



- Development trends = Pressure
- Values and Norms = State
- Management/Recommendation = Response

Development:	What are the basic tendencies of development, or lack of development, influencing the city fabric?
Values:	What values are regarded as essential within a given urban setting?
Management:	How are the cities actually governed? What are the rights and responsibilities of the main partners involved?
Comments:	How are the cities governed, taking into consideration the correlation, or lack of correlation, between the recognised city values and ongoing economic development?
Recommendations:	Proposals for concrete improvements referring to the public sector, seen both from a general and place-specific point of view.

Figure 5: The conceptual framework for indicators on sustainability adapted within the NWHO project, using the following terms as an approach to urban sustainability.

URBAN DESIGN GUIDELINES FOR HISTORIC CITIES IN A SUSTAINABLE PERSPECTIVE

<p>SOCIAL ASPECTS</p> <ul style="list-style-type: none"> • Fair access to the city's basic environmental resources should be promoted. • The environmental values reflected in the townscape should be regarded as common, multicultural values. • In order to promote tolerance, self-respect and pride in place, the manifold information and cognisance available in the visual experiences provided by the historic core should be studied, interpreted, and made accessible. • Awareness of historic values should be regarded as a contribution to a broader strategy on environmental awareness in general and to sustainable development in particular. 	<ul style="list-style-type: none"> • The local level of governance should represent the largest unit capable of addressing the main urban challenges and the smallest scale at which these challenges can be resolved in an integrated, holistic and sustainable fashion.
<p>ECONOMY</p> <ul style="list-style-type: none"> • As part of a liveable society, the city should promote a sound economy and innovation by offering a broad spectrum of public and private, commercial and cultural activities, reflecting regional skills and creativity. • The city should respond to regional and local supplies and demands, in order to maintain its central position as a beneficial structure and to encourage regional economic development. • Areas for long-term investments and novel activities – as well as areas for protection – should be identified and integrated in the legal framework, in order to assist predictability and a balance between development and protection. • Within the territories of heritage protection, maintenance is preferable to restoration and should be encouraged, and restoration preferable to renewal. 	<p>ECOLOGY</p> <ul style="list-style-type: none"> • The regional level of governance should manage its critical and general environmental capacity, along with its natural and cultural vulnerability. • Uncontrolled urban sprawl should not be allowed. A balanced interaction between the urban and rural areas, limiting the exploitation of non-renewable resources, should be encouraged. • A healthy city, with a balanced waste production, should be promoted. • The areas of heritage protection should be regarded as clusters of non-renewable structures.
<p>INSTITUTIONAL</p> <ul style="list-style-type: none"> • As far as possible, there should be a correspondence between the area representing the actual ongoing economic development, and the area of environmental governance. • Fully integrated, authorised and cross-sectorial bodies of environmental governance should be established at regional and local levels, as a precondition for promoting a sustainable development. • Cultural values and the field of heritage protection should be integrated, authorised and respected, as essential issues in all levels of environmental governance. 	<p>VISUAL EXPERIENCE</p> <ul style="list-style-type: none"> • The significance of the townscape, with its interaction with the natural landscape, its spiritual and symbolic aspects, its built environment as layers of historic documents, in sum its genius loci, should be studied. In addition, as far as possible, critical elements should be identified and integrated within the city's legal framework, in order to sustain the city's significance by its integrity as townscape and cultivated landscape. • The value of historic structures, clusters of properties and outstanding monuments should be protected as properties of high quality, in the full richness of their authenticity, and provided with individual monitoring programmes. • New urban design should be exceptional and reflect the standards of its time. It should establish a dialogue with the surrounding environment, enriching the townscape. • The environment should be recognised and respected as bearer of measurable and non-measurable values, and beauty as a non-conceptual quality.

Figure 6: From Roald 2000: 146-147.



Between 2000 and 2015 several heritage-led regeneration research projects was initiated, and the focus was mainly on tools for guidance and recommendations through policy and expert-driven changes and management strategies. For instance, urban heritage related work under the **URBACT program**² (URBACT 2011, 2019) covered many different angles concentrating on historic buildings and urban landscapes. For example, the “*Heritage as Opportunity*” Project (**HerO**, 2008-2011) aimed to develop integrated and innovative management strategies for historic urban landscapes. The main objective was to facilitate the right balance between the preservation of built cultural heritage and the sustainable, future-proof socio-economic development of historic towns to strengthen their attractiveness and competitiveness. Emphasis was placed on managing conflicting usage interests and capitalizing the potential of cultural heritage assets for economic, social, and cultural activities. Another sub-topic of heritage under the URBACT program dealt with specific areas of cities, such as abandoned military assets (**REPAIR**, 2008-2011) or ports (**CTUR**, 2008-2011). Finally, heritage areas were discussed according to their current functions, how centrally located buildings with heritage values can be used to fulfil important functions such as offering well-located sustainable and affordable housing for the city’s population (**LINKS**, 2009-2012).

In 2011, UNESCO adopted the *Historic Urban Landscape (HUL)* recommendation and called for the application of a landscape approach to ensure the integration of cultural heritage policies and management concerns in the wider goals of sustainable urban development. The Recommendation defines HUL as the urban area understood as the result of a historic layering of cultural and natural values and attributes, extending beyond the notion of “historic centre” or “ensemble” to include the broader urban context and its geographical setting (for a review of the literature on the HUL, see Fouseki 2018; Ginzariya et al. 2019; Pereira Roders & Bandarin 2019; Rey-Pérez & Pereira Roders 2020). As a result, the term ‘historic urban cultural landscape’ has been proposed to reflect a dynamic sociocultural setting rather than the static physical canvas implied by the term ‘historic urban environment’ (Landorf 2019:93, see also Fouseki et al. 2020:2). It is a definition of urban heritage that recognizes the complex layers of physical components and patterns, as well as the **sociocultural values** and traditions that together give rise to a sense of identity and place.

The Joint Programming Initiative (JPI) on Cultural Heritage Project called “*A Sustainable Future for the Historic Urban Core*” (**SHUC**, 2013-2015) studied the historic urban core as a critical repository of cultural heritage in its buildings, monuments, public spaces and townscape. With comparable case studies through Europe the project examined how urban cores have been formed through incremental change over many years in response to changing pressures on the role of the city to produce a complex, highly differentiated urban fabric in terms of urban structure, ownership, and the historic periods represented. The characteristics of the historic cores, many of which are shared across many cities, make them a primary European cultural asset. The project presented a lesson learned from the fundamental reforms in urban governance and planning in the wake of major shifts in political, social and economic conditions, and defined the main challenges for the management of the cultural heritage of urban cores.

² Following the success of the URBACT I (2000-2006) and II (2007-2013) programmes, URBACT III (2014-2020) has been developed to continue to promote sustainable integrated urban development and contribute to the delivery of the Europe 2020 strategy.



Figure 7: The EU-funded project 'Cultural Heritage Counts for Europe' (CHCFE 2015: 17) revealed final results and publications at the CHCFE concluding conference held on 12 June 2015 in Oslo, Norway. The illustration is showing the four pillars of societal values generated by heritage values for sustainable development: Economic, Environmental, Social and Cultural.

A project which can be defined as a canon in the portfolio in heritage-led regeneration research projects was “*Cultural Heritage Counts for Europe: Towards a European Index for Cultural Heritage*” (CHCFE, 2013-2015), funded by the EU Culture Programme, aimed to raise greater awareness on the multiple benefits of cultural heritage and to present policy recommendations for tapping into heritage’s full potential. The project produced a comparative overview of the value and relevance of heritage which formed a basis for policy recommendations that reflect an integrated and holistic approach towards the increased importance of heritage in today’s society. The project collected evidence-based research conducted in the European Union Member States on the economic, environmental, social, and cultural impact of immovable cultural heritage. The project showcased the increasing interest in **cultural heritage impact studies** which underlines the potential of cultural heritage as a key driver of sustainable development. The project distinguishes between the values that society attaches to cultural heritage and the influence/impact of cultural heritage on its economic, social, cultural, and environmental context. The project covered a review of international



theoretic and methodological literature on heritage impact and indicators (both qualitative and quantitative) employed to measure this impact. A **toolbox approach** was implemented, which means to assess all relevant heritage values and impacts using a set of different methods in complementary ways, assuming that layering different, complementary pieces of information will produce a more accurate result than the pursuit of one or two facts would. This includes **quantitative research** which refers to the systematic examination of impacts via mathematical, statistical or numerical data. It is mostly used to analyse effects on the economy (including two main categories of evaluation techniques: market-based evaluation techniques such as conventional financial and economic analyses and regression analyses, and non-market-based evaluation techniques, including stated preferences methods). **Qualitative research** aims to obtain insights and an understanding of prevalent trends in the impact of heritage, relying on non-statistical data. This includes **qualitative participatory research methods** geared towards conducting the research process with the people whose lifeworld and actions are the subject of the study, including civil society, political institutions as well as local communities. This again often includes methods selected to produce a dataset that can be **triangulated** to provide a comprehensive analysis of the site (e.g., physical traces mapping, behavioral mapping, transect walks, individual interviews, expert interviews, impromptu group interviews, focus groups, participants observation, historical and archival documents, analysis). The advantage of a qualitative analysis procedure is that the data are not abstracted from their context, and so they retain their validity and detail. The final step involves a triangulation of the different analyses and a search for common elements and patterns of behavior and the identification of common areas of interest and conflict, both in the nature of the data and in the groups themselves.

In connection with the emphasis on cultural heritage as sustainable resource, the UN adopted *Transforming Our World: The 2030 Agenda for Sustainable Development* in 2015 created, for the first time, a direct relationship between cultural heritage and the **sustainability of urban environments** (UN 2015: 14 and 22). Although heritage in the agenda “is treated as the ‘passive victim’ of rapid urbanization that threatens its existence rather than as an active agent that can substantially contribute to the sustainable development of cities” (Fouseki et al. 2020:1) the agenda “reflects efforts on the part of the international community to advocate for more effective links between sustainable development and cultural heritage. It also demonstrates the fundamental role assumed in that effort by urban heritage, and the focus placed on the **social dimension of sustainability**, primarily through strategies that encourage participation, inclusion, diversity, and sense of place as a means to enhance equity and quality of life.” (Landorf 2019:85).

To examine how heritage values impact on social sustainability, for instance in strategies for enhance **place identity**, requires a set of complex and interrelated questions. An example of this approach was the project “*European Network on Heritage Values*” (**H@V**, 2013-2015) funded by the Joint Programming Initiative (JPI) on Cultural Heritage, which initiated a European, cross-disciplinary dialogue between heritage practitioners, researchers and policymakers on heritage values. In order to create a simple framework that would allow these complexities and dynamics to be expressed, Harold Lasswell’s 1936 classical definition of politics (who gets what, when and how) was used. The JPI on Heritage Values asked Why, Who, What, Where & When and How heritage relates as values (NIKU 2015).

A similar focus has also gained a foothold in urban heritage-led regeneration studies, such as the Joint Programming Initiative (JPI) on Cultural Heritage Project called “*The impact of urban planning and governance reform on the historic built environment and intangible*”



cultural heritage” (PICH, 2015-2018) aimed to provide a much-needed development of the state of the art on the impact of wider forces on the management of the urban cultural heritage in the context of the different mix of models of urban planning found in the four case study countries (UK, NL, IT, NO). In particular, the project intended to explain changes in the management of the urban cultural heritage and their effects in relation to different dominant models of urban governance and planning. It also explained more explicitly the relation between the planning and management of the tangible heritage to the intangible place identity. The associate partners assisted in extending the findings to other countries and tested the relevance of findings in places where there was a different mix or approach to urban planning. The central objective in the PICH Project was to understand how reforms in urban governance and planning are affecting the management of the cultural heritage; to identify the consequences for place identity; and to explain how practice can respond most effectively to promote more sustainable management of the cultural heritage. The PICH project provided a platform where academic, government and civil society partners could explore and share knowledge about these processes, learn about both good and bad experiences under very different conditions, and understand the potential for transferability of solutions.

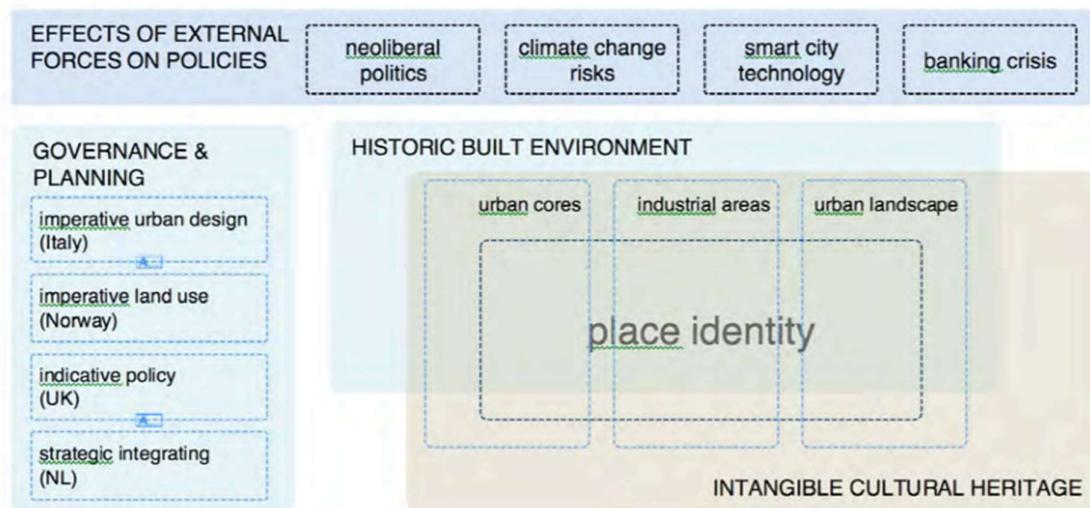


Figure 8: Components of the PICH project. From PICH Project 2018.

Since 2015, several research projects with people-centred or community-led approaches have emerged. The “*Community-Led Urban Strategies in Historic Towns*” project (CUMUS, 2015-2017), for instance, was a joint Council of Europe/European Union initiative and part of the second Eastern Partnership Culture Programme (see Negau et al. 2017). The goal was to stimulate social and economic development by enhancing cultural heritage in 9 historic towns in Armenia, Belarus, Georgia, the Republic of Moldova and Ukraine. Similar community-led approaches to urban transformation as heritage values have been promoted in several new research projects which have been culminating in contributions to for instance “*The 9th European Conference on Sustainable cities and towns*” that took place in 2020 (sustainablecities.eu/Mannheim2020) aimed at demonstrating the urgent need for local governments to assume responsibility for urban transformation and lead the way in guiding Europe towards a secure and sustainable future.



The Horizon 2020 project called “*Regeneration and Optimisation of Cultural heritage in creative and Knowledge cities*” (**ROCK**, 2017-2020) aimed to develop an innovative, collaborative and circular systemic approach for regeneration and adaptive reuse of historic city centres (see Dane et al. 2019; Amann et al. 2020; ROCK Project reports 2020). Implementing a repertoire of successful heritage-led regeneration initiatives, it tested the replicability of the spatial approach and of successful models addressing the specific needs of historic city centres. ROCK focused on historic city centres as extraordinary laboratories to demonstrate how cultural heritage can be a unique and powerful engine of regeneration, sustainable development and economic growth for the whole city. The project aimed to support the transformation of historic city centres afflicted by physical decay, social conflicts and poor life quality into Creative and Sustainable Districts through shared generation of new sustainable environmental, social, economic processes. ROCK conceptualizes an **innovative circular urban system model – the ROCK Circle** - to implement such process. ROCK aimed to develop an innovative, collaborative and systemic approach to promote the effective regeneration and adaptive reuse in historic city centres by implementing a repertoire of successful heritage-led regeneration initiatives related to 7 Role Model selected cities: Athens, Cluj-Napoca, Eindhoven, Liverpool, Lyon, Turin and Vilnius. The replicability and effectiveness of the approach and of the related models in addressing the specific needs of historic city centres and in integrating site management plans with associated financing mechanisms was tested in 3 Replicator Cities: Bologna, Lisbon and Skopje. The impact of the ROCK project can be identified in different domains of innovation: **organizational, technological and social**.

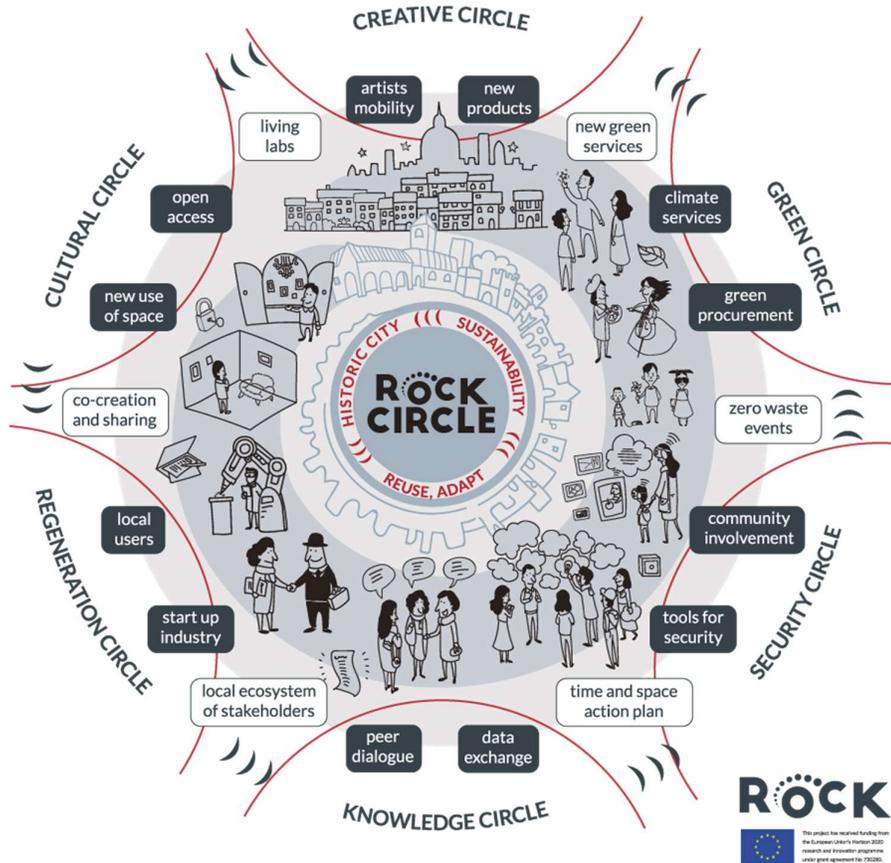


Figure 9: ROCK Circular Model, from ROCK Project 2020.

Another relevant project is the **Baltic Urban Lab** project financed over the INTERREG Central Baltic Programme 2014-2020. The aim of the project is to improve urban planning by developing and testing new integrated planning and Public-Private-People partnership models for the regeneration of four brownfield sites in Norrköping, Tallinn, Turku and Riga (see Perjo et al. 2016). The project identifies and promotes already existing good practices on brownfield regeneration and facilitates learning and exchange of experiences between planners and experts in the Central Baltic region. This includes a focus on local City Pilots implemented leading to viable Integrated Plan and Development Strategies for the selected brownfield sites; find ways for implementing new Public-Private-People partnership models in the planning of Pilot sites ensuring timely and relevant input from the variety of stakeholders and integration of different views; analysing planning systems and principal legislation and policies related to brownfield redevelopment in Sweden, Finland, Estonia and Latvia; as well as testing and developing traditional and novel participatory methods utilizing advanced digital technologies (Mobile apps, 3D visualization tool etc.).

The Horizon 2020 project called “*Organizing, Promoting and ENabling HERitage Reuse through Inclusion, Technology, Access, Governance and Empowerment*” (**OpenHeritage**, 2018-2022) aims at creating sustainable models of heritage asset management. The project puts the idea of inclusive governance of cultural heritage sites together with development of heritage communities at its center. This means empowering the community in the processes of adaptive reuse. OpenHeritage intends to introduce an inclusive governance model which calls for the incorporation of stakeholder coalitions (e.g., community groups, NGOs, local government representatives, small businesses and universities) into such processes, the integration of resources and the exploration of innovative financial models. In doing so, the transformation of abandoned cultural heritage sites becomes an opportunity for increased community cohesion and social integration, the appearance of innovative bottom-up



economic activities and the creation of employment possibilities. One significant goal with the project is to create platforms where different stakeholders (e.g., local actors, local administration officials, financial partners, researchers, policy makers) can meet on an equal footing, learn from each other, and establish networks. To reach its goal OpenHeritage produces a detailed overview and evaluation of current adaptive reuse policies in Europe (see Veldpaus et al. 2019; Veldpaus et al. 2020; Mérai et al. 2020), focuses on understanding good practices in 16 different sites (Observatory Cases), and tests novel approaches/practices in six Cooperative Heritage Labs dispersed over Europe. At the end of the project, it delivers a supporting toolbox promoting the uptake of the inclusive models.

Conclusion

It is, as stated in several of the projects mentioned above, a shift of focus during the last 10 years from studying management systems and policy to including participatory people-centered and stakeholder approaches to heritage-based regeneration projects for achieving sustainability. Although several of the latest research projects include a community-driven participatory or people-centred approach to heritage-led regeneration (or adaptive reuse), a theory-based approach linking these aspects of analyses and inclusion to diverse sustainability issues is still vague. In addition, among the various sustainability approaches to heritage, **social sustainability** “challenges remain vague and complex to operationalise [...] and consist of “hybrid sets of hard—to—measure ‘soft’ indicators and emphasis on ambiguous concepts such as governance, community and culture” (Landorf 2019:78). Further, according to Fouseki and Nicolau (2018:232) studies evaluating the impact of heritage on sustainable development often adopt one-dimensional methodological approaches by using social and economic indicators separately rather than in interconnection. An **urban system** (and an urban heritage system) is complex and dynamic. Therefore, a more complex method is needed to capture heritage-led regeneration programs. Fouseki and Nicolau (2018:230) also argue that a **conservation-driven approach** to heritage-led urban regeneration fails to contribute to sustainable and resilient development over time unless such an approach is imbued by participatory planning and environmental concerns related to sustainable **living of communities**.

Policies (cf. UN 2014) are demonstrating the good intentions of using heritage for urban sustainability, for instance for creating better employment opportunities, equitable access to basic infrastructure, reduction in the number of people living in slums, for creating economic vitality, social diversity, and the production of cultural meaning. However, where do we go from here for being able to conceptualize and analyze heritage-led urban regeneration for e.g., well-being and livability, social cohesions, community resilience, and local identity in placemaking? In accordance with Landorf (2019:93), a framework to manage socially sustainable urban heritage would address at least three major issues of concern:

- 1) to include a diverse stakeholder perspective that captures tangible and intangible characteristics of heritage values, that is producing a **negotiated understanding of a collective identity** and sense of place and where limits of acceptable change for sustainable development are established.
- 2) to include a **governance model** that embraces a holistic strategic orientation and ongoing stakeholder participation, which ensures that sustainable heritage management goals are supported through consideration of a **long-term circular model** of causality, although democratic participation is necessary for equitable fairness, empowerment, and accountability.



- 3) to include a set of conservation principles that **respect change** as an inherent tradition of the city. This aims to support social inclusion and diversity, as well as continued improvements in quality of life.

Further, Landorf concludes that the principles of analyzing socially sustainable development into management practices should include: a) **a situation analysis** that considers property-specific factors and tangible heritage fabric as well as external trends and issues, and intangible cultural practices; b) **assessment of local enterprise skills and business capabilities** (traditional tradespeople as an asset and an active tradition of volunteering) as well as a socially sustainable approach aiming to strengthen economic vitality, social diversity, and community networks through enterprise development; c) a particular concern for social sustainability where **community participation** includes a broad selection of stakeholders engendering a collective sense of ownership and commitment not found through consultation on already developed concepts and strategies (like in management plans); d) to develop adequate **performance indicators** (beyond measurement of visitor demographics) that could include status on equitable fairness, inclusion, diversity, and quality of life; e) to include a **complex mixed—methods research strategy** providing a comprehensive understanding of the planning process at both policy and practical levels.

In the next chapter 4 we will take a step further based on the knowledge gained in chapter 3 and reveal theories with epistemological significance for how **social life**, and thereby **social sustainability**, would be an asset for defining placemaking and heritage-led urban regeneration. We will focus particularly on the theoretical basis for using systems dynamic (SD) thinking in a complex mixed theoretical and methodological research strategy. Our aim is to review the theoretical (metaphorical, conceptual, model-based) lenses that would be significant for CURBATHERI's approach to SD thinking.



4. A systems dynamic theoretical framework

Based on the previous sections notion on socially sustainability we will in this section examine an epistemological approach to **systems dynamic (SD) methodology** and its relation to urban heritage-led regeneration in Change Management, and how **critical realism (CR)** and **critical (urban) theory** would be epistemological bridges for this approach that connects ‘images of thoughts’ (theories, concepts, models, methods). This includes to define how **critical urban theory, assemblage theory, grounded theory** and other related concepts that connects to CD thinking, all together would be a theoretical asset in the CURBATHERI project.



Figure 10: Tagging at a Nordic ‘Starbucks-like’ coffeehouse chain at Grünerløkka in Oslo, Norway, writing “Stop-the-gentrification” (of our neighborhood) signed by the symbol “A” for Anarchists, a social activism protest movement against global capitalist gentrification which is believed to promote stereotype places and the loss of uniqueness promoting alienation.

Systems dynamic epistemologies and heritage systems

The term ‘system’, in systems dynamic, refers to “a set of things and/or people interconnected in such a way that they produce their own pattern of behaviour over time” and as part of system thinking it “is underscored by the idea that events and patterns, or things that we observe, are driven by systemic structures and hidden mental models [...], in other words, about understanding the interconnection and systemic structure of elements that form a whole” (Fouseki and Bobrova 2018:12). SD simply means the changing behaviour of systems, which can be used in computer modelling for also simulating behaviour of large complex systems (Mingers 2014:6-7). SD modelling simulates or conceptualizes complex relatively constant over time **structures** and dynamic **processes of change** (ibid.:31). SD can be used both in retrospective analysis for understanding historical changes and for prediction modelling and scenario analysis on how the future will possibly change (cf. Monat and Gannon 2015:17). As an example, the most ambitious model that has been developed is the so-called ‘world model’ where the whole world economy was running to cover of 50 years based on the interaction of five major factors – population growth, food production, industrialization, natural resource depletion and pollution – and the results suggested that the rates of growth then being experienced were not sustainable because of lack of natural resources and the growth of pollution.

A valuable insight of systems thinking is that it defines a binary related and dynamic relationship between **behaviour** and **systems**, more precisely how various systems defines



patterns of behaviour. For example, a pandemic caused by Covid-19 would define new patterns of behaviour today and for the future. Covid-19 becomes in this sense a systemic structuring factor for new behaviour. Systems thinking is also **anti-reductionist** in the sense that we cannot explain the behaviour of objects and entities purely in terms of the nature and constitution of their parts or components. Rather, the parts are related together in such a way that the whole has behaviors or, more generally, properties that are distinct from, and irreducible to, the properties of the parts (the whole is more than the sum of its parts). However, although anti-reductionistic SD with its focus on system behaviour and system mechanism is **deterministic** in the sense that the modelling is based on regularity (behavioral rules) and predictive actions (underlying patterns and deterministic laws). Future behavior follows a unique evolution and is fully determined by their initial conditions, with no random elements involved. However, the deterministic nature of these systems does not make them predictable, which is central to behavior known as **deterministic chaos**. Chaos theory is stating that, there are apparent randomness of chaotic complex systems within underlying patterns, interconnectedness, constant feedback loops, repetition, self-similarity, fractals, and self-organization. This notion brings a critical reflection about in which extent a focus on evolutionary paths and ‘push-and-pull’ factors can cover the complexity and randomness of how social life evolves and develops in societies when they historically and geographically are contextually specific and unique.

More fundamentally, an epistemological framework for SD thinking is **critical realism (CR)** “that embodies **systemic and holistic themes** at its very heart, with concepts such as totality, holistic causality, emergence, open systems, autopoiesis, and levels of stratification” (Mingers 2014:28). A critical realism view of epistemology and ontology is involving a middle way between a positivistic ‘hard’ system thinking, sometimes called first-order cybernetics, to a (socially) constructivist or phenomenological ‘soft’ systems, or second-order cybernetics, approach that includes the world that we experience, whether perceptually or linguistically, a world that we construct (ibid).³

A critical realism approach in SD thinking would analytically be defined for instance as a distinction between physical vs. social (or cognitive) systems, and when including **complexity theory**⁴, also non-linear dynamical systems theory that includes closed vs. open systems, positive vs. negative feedback loops, and stratified systems. Methodologically, the fusion of ‘hard’ and ‘soft’ science coming to forth in critical realism, thereby SD thinking, is connecting

³ In sociological theory formation, ‘social constructionism’ and ‘social constructivism’ are sometimes used as synonymous concepts. To the extent that a distinction is made between the two concepts, it is to illustrate the relationship between an ‘anti-realistic’ view of relativistic knowledgebase on the one hand (reality is exclusively socially constituted, a view attributed to the constructionists), and on the other a realistic knowledgebase within a relativized knowledge orientation (there is also a real norm-setting reality that structures the social, a view attributed to the constructivists). The latter ‘constructivist’ perspective is often referred to in critical realism (cf. Roy Bhaskar) and critical discourse theory (cf. Norman Fairclough). Based on critical realism, discursive practices are always related to **non-discursive elements**, something existing that strives to be lasting, a kind of norm-setting ‘deposited’ (‘mudded’) social practice or stable cultural horizons that is resisting change. Another meaning of the non-discursive is that the real material world, the materiality of history, is given an active role (actants, actor) in what is constituted socially.

⁴ Complexity characterizes the behaviour of a system or model whose components interact in multiple ways and follow local rules, meaning there is no reasonable higher instruction to define the various possible interactions. The term is generally used to characterize something with many parts where those parts interact with each other in multiple ways, culminating in a higher order of emergence greater than the sum of its parts. The study of these complex linkages at various scales is the main goal of complex systems theory (<https://en.wikipedia.org/wiki/Complexity>).



both **quantitative methods** in systems research (be it deterministic, stochastic or a simulation from an empiricist or positivist viewpoint) with **qualitative methods** in systems research (be it interpretivist philosophical assumptions that stress the meaningful nature of social processes and the need to understand, and see things from the point of view of, participants in the research situation) (Mingers 2014:chapter 9).⁵ The inclusion of some sort of ‘soft-system methodology’ requires a focus on **how systems become complex and observer-dependent**. Further, this ‘soft’ focus is challenging how to approach the ‘dynamic’ in systems dynamic modelling.

Although still scarce, there are some examples where SD thinking has been used for examining the function of heritage (for a SD approach to heritage-based opportunities for rural regeneration, see Aitziber et al. 2020). For instance, within tourism studies Xu and Dai (2012) used SD for analyzing **cultural tourism system** to gain a new perspective regarding the interrelation between community development and tourism at heritage sites. The stakeholder analysis (of residents, tourists, and businesspeople) involved questionnaires about the motivational factors that drive tourism development at a micro and macro level in China. They investigated the implementation of four different scenarios, having concluded that controlling the use of residential houses for tourism and using the generated income to restore the monuments leads to a sustainable preservation and to a change in residents’ attitudes. The article shows the interaction among components of such system and tests different policies. Overall, SD proved to be an effective and useful technique in capturing the complexities and nonlinearities of cultural tourism. Moreover, the results showed the necessity of evaluating the vulnerability of cultural resources and the ability to transform them into cultural attractions.

In tourism studies, SD have also been used to create generic models for regions where environmental conservation is necessary due to tourism activities, for instance by combining how different scenarios reveals the importance of exploring resource development **policies** for regional tourism development (for a literature review, see Sedarati et al. 2019). SD is used in tourism studies to demonstrate the interrelations between policy issues as well as by emphasizing the role of stakeholders’ collaboration at an organizational level for achieving sustainable tourism development. CD is for instance used as a tourism model to test different scenarios (or as ‘Tourism Future Simulator’), developed for **policy planning** and **stakeholders’ engagement**. In addition, tourism studies have conducted SD to explore **conflicts**, for instance between economic development and environmental conservation, for the purpose of reaching an environmentally sustainable development. Also, how stakeholders had the opportunity to **participate in decision making** through a learning process would be feasible through SD modeling, for instance by proving to be a strong tool for creating a **shared vision and understanding** of the tourism system. The application of SD (for instance by simulation) can, in other words, be helpful to gain a better perspective in order to reach an **agreeable decision** by all the stakeholders. In heritage sites, SD can be used in stakeholder involvement using group model building which helps to engage stakeholders and modelers to achieve a **consensus over the problems**. There is a need to increase the number of case studies in order to expand the scope of the research about heritage systems (Sedarati et al. 2019:272). Concurrently, alternative sustainable development approaches have to be found for risk

⁵ This could for instance be to combine ‘hard’ statistical modelling with ‘soft’ traditional methods such as interviews, ethnography, hermeneutics, participant observation and also systems methods oriented towards action such as soft systems methodology (SSM), cognitive mapping, action research, the viable systems methods (VSM) and so on.



management in heritage sites. Altogether, SD in tourism studies have been aimed to identify the tourism complex problems to planning and development in different sectors. Furthermore, it investigated the ways in which a system was structured, and what kind of behaviors it would generate as a result of different scenarios and policies. The use of SD in tourism studies could therefore be a valuable reference literature for urban heritage studies.

Fouseki and Nicolau (2018:232) consider “a heritage city as an urban heritage dynamic system that is subject to constant change.” According to Fouseki and Nicolau, the **urban heritage system** is the result of dynamic interactions of three main subsystems including the subsystems of urban heritage environment, socio-political environment, and economic environment. Each subsystem is affected by wider social, economic and environmental changes posing sustainable development of declined areas at risk. Each subsystem comprises of multiple components and dimensions that are in dynamic interactions.

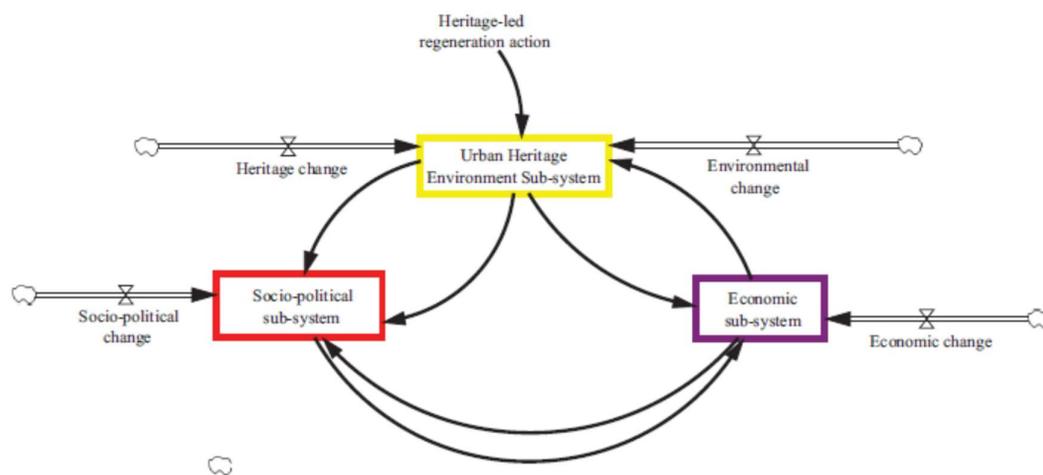


Figure 11: Conceptual framework of urban heritage systems. Diagram from Fouseki and Nicolau 2018:234.

The proposed innovative model understands a) cultural heritage as an approach moving beyond object-oriented and one-dimensional approaches to heritage, to integrate a **socio-spatial** approach that conceives heritage as a **socio-cultural** practice; b) **Sustainable lifestyles** as diverse patterns of actions and consumption that enable better quality of life (eating, consuming, living, moving and enjoying); c) **Heritage-led regeneration as a dynamic and participatory process** that leads to social, economic and environmental benefits for citizens; regeneration is understood as revitalization of identities (ibid: 240).

Fouseki and Nicolau (2018:244) point out that cultural diversity is also vital, but it remains to show how the dimension of **cultural sustainability** is included in SD modelling. In addition, the model has a predominant focus on sustainable **lifestyles as an unconditional good**, which means that it is not clear from the model how negative aspects and situations where **conflicts** arise through the use of cultural heritage are handled by SD thinking. This factor will have an impact on the very premise of a SD modeling situation. Are there conflicts over the cultural heritage which will affect the CD modelling and its results? Is the cultural heritage forgotten and thus insignificant in the first place or is the cultural heritage already a driving force for local actors to create a development? These questions will set the mode for key issues for involved processes and actors and how a SD modeling will degenerate. Another point of relevance is the other end of systems dynamic modelling achieved from the problem statement: that the outcome is not only sustainable lifestyles but also advise for the Change



Management and policymaking whereas “...one of the main applications of system dynamics is to inform, design and evaluate policies” (Fouseki and Bobrova: 2018: 20). This emphasis on Change Management is key topics in critical urban theory.

Critical theory and critical urban theory

An epistemological outlook in critical theory is the Frankfurt School and its reception of social research which according to Max Horkheimer ([1937] 1982) is defining a nonreductive, interdisciplinary, and holistic approach that acknowledge the relational conditions in society. In other words, critical theory contains an epistemic **critical realism approach** where parts and totality are connecting as an integrated whole and examined in a hermeneutic, historically situated, and socially complex contextual and critical perspective. Further, Horkheimer stated that a theory can only be considered a true critical theory if it is explanatory, practical, and normative (Horkheimer [1937] 1982). This means that the theory must adequately explain the **social problems** that exist, offer **practical solutions** for how to respond to them, and abide by the **norms of criticism** established by the field. The role of critical theory is, in other words, not to only expose and criticize, but also to “promote change and help organize” (Russel et al. 2011:577), an ambition that resonates with the ambitions in Change Management and SD thinking in heritage-led regeneration initiatives.

According to Fouseki and Nicolau, a SD methodological approach would be a tool for examining social sustainability through heritage, more precise for the examination of “heritage-led regeneration which has **strategic partnerships, community participation and sustainable lifestyles** at its heart” (2018:231). In this way, ‘urban SD methodologies’ with its focus on dynamic, complex and holistic interrelated causalities addresses theoretical concerns about social urban life and social change which resonates to critical theory. The perspectives from critical theory are forwarded in **critical urban theory’s** emphasis on **social change**, how it arises, and how it can be mobilized. Critical urban theory is all about making inclusive cities for all, about citizenship and wellbeing, thereby becoming a vital theoretical asset for approaching **social sustainability**. As critical urbanist Neil Brenner writes⁶ that critical urban theory “insists that another, more democratic, socially just and sustainable form of urbanization is possible” which “involves the critique of ideology and the critique of power, inequality, injustice and exploitation, at once within and among cities.” (Brenner 2012:11; see also Brenner et.al 2012:5). With reference to critical urban theory “[m]apping the possible pathways of social transformation [...] involves, first and foremost, understanding the nature of contemporary patterns of urban restructuring, and then, on that basis, analyzing their implications for action” (Brenner et.al 2012:3). In this context, it would be of interest to examine if the use of ‘urban SD methodologies’ for the examination of heritage-led regeneration would be a way forward to map ‘possible pathways of social transformation’.

⁶ The chapters in the book ‘Cities for people, not for profit. Critical urban theory and the right to the city. Critical urban theory and the right to the city’ edited by Brenner, Marcuse and Mayer and published by Routledge in 2012 are reusing articles published in the journal CITY, volume 13, nos. 2–3, June–September 2009. We will refer to the 2012-version of these articles.

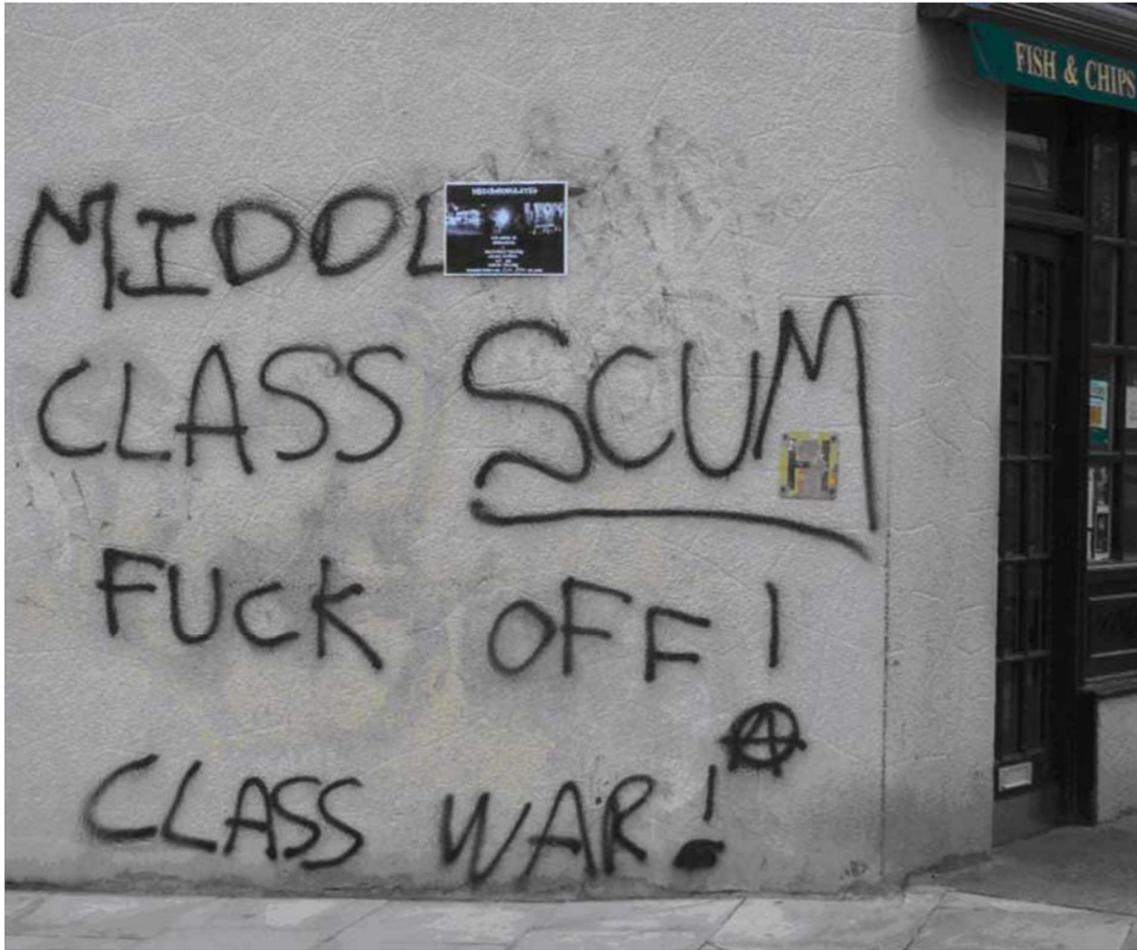


Figure 12: From the special issue in the journal *City* on “Cities for people, not for profit. Critical urban theory and the right to the city.” (2009). Image taken in Hockney, July 2006. Photo: Tom Slater.

The literature on **critical urban theory** provides rich insights into the dialectical relationship between social processes, capitalism (designed urban places interwoven in the fabric of planetary urbanization), and the environment (both built and ‘natural’). From a SD approach, the concept of planetary urbanization gives a valuable framework for analyzing ‘urban heritage systems’ from place specific situations to worldwide comparable processes of urbanization. Brenner and Schmid (2014, p. 751) argue: *Today, urbanization is a process that affects the whole territory of the world and not only isolated parts of it. The urban represents an increasingly worldwide, if unevenly woven, fabric in which the sociocultural and political-economic relations of capitalism are enmeshed. This situation of planetary urbanization means that even sociospatial arrangements and infrastructural networks that lie well beyond traditional city cores, metropolitan regions, urban peripheries and peri-urban zones have become integral parts of a worldwide urban condition.*

Importantly, this planetary perspective on urbanization does not exclude the dynamic relationships in local urban environments. In the most general terms, “critical approaches to urban studies are concerned: (a) to analyze the systemic, yet historically specific, intersections between capitalism and urbanization processes; (b) to examine the changing balance of social forces, power relations, socio-spatial inequalities and political—institutional arrangements that shape, and are in turn shaped by, the evolution of capitalist urbanization; (c) to expose



the marginalizations, exclusions, and injustices (whether of class, ethnicity, “race,” gender, sexuality, nationality, or otherwise) that are inscribed and naturalized within existing urban configurations; (d) to decipher the contradictions, crisis tendencies, and lines of potential or actual conflict within contemporary cities; and on this basis, (e) to demarcate and politicize the strategically essential possibilities for more progressive, socially just, emancipatory, and sustainable formations of urban life”. (Brenner et.al 2012:5).

The phrasings within critical urban theory, such as ‘*right to the city*’ and ‘*cites for citizens*’ through the reinvigoration of participatory urban civil societies, resonates with the aims in the CURBATHERI project to implement a complex methodological approach to capture the evolution of heritage-led regeneration programs over time. Critical urban theory thus addresses a main goal of the CURBATHERI project, which is to include local participation and stakeholders in a holistic SD methodological approach, and where the outcome is to investigate how urban transformation as heritage value contributes to social sustainability (welfare, good living conditions and environments etc.). The question remains how to methodologically proceed for connecting SD modelling with a critical urban theoretical approach. Assemblage theory could lead the way.

Assemblage urbanism

Another, although debated, connection to critical urban theory which is of value to examine as a branch of epistemic critical realism and for an urban SD approach, is the **theory of assemblage urbanism** which seeks – from empirical, methodological and ontological levels of knowledge – to combine urban trajectories on human vs. nonhuman interfaces (actants), networked interdependencies and the production of socio-material infrastructures, as well as human agency and social forces in the processes of social transformation (Brenner et al. 2011). Assemblage urbanism brings critical urbanism (and its focus on overarching power structures which determines city life and politics) into studying the concrete and situated practices of socio-material ordering in urban space.

The concept ‘assemblage’ builds on the work of Deleuze and Guattari’s ‘rhizome’ and ‘agencement’ theory and Latour’s ‘actor-network theory’ (ANT) and describes not only “...the coming together of heterogeneous elements within an institution, place, built structure or art form” (ibis.:227) but brings also “careful attention to the multiple materialities of socrionatural relations” (ibid.:233). Although the multiplicity of assemblage thinking is used in many ways it has in common that it relates to dynamic and heterogeneous, about relations and differences, in socio-spatial complexities.

Assemblage theory would be an asset for avoiding essentialism and reductionism, in for instance the use of systemic-dynamic methodologies (for this concern cf. Fouseki and Bobrova 2018:12). Transferred to urban studies, “assemblage theory reads place as a multiplicity that is in the process of “becoming” in relation to social-spatial and material-express alignments. Hence, methodological frameworks can also run the risk of reductionism. In a sense, focusing on the production of “numerical knowledge” and attempts to quantify some of the unquantifiable concepts can be considered as a reductionist approach in urban studies that often overlooks the complexity of place as a socio-spatial assemblage. In effect, to explore how a place works requires a deep understanding of its socio-political processes in relation to the spatial structures. [...] Assemblage thinking offers a range of twofold concepts that can be used as a theoretical toolkit to understand the underlying processes of continuity and change in the cities.” (Kamalipour and Peimani 2015:406-407).



Interestingly from a **deep cities** approach, is how assemblage thinkers focus on process of “becoming” by referring to change as ‘thick descriptions’ that is defining how relations are “assembled and change over time through new and changing interactions; that seeks to reveal how interactions might create surprises, opportunities, injustices and new revelations” (McFarlane 2011:735). Rather than focusing on sites as singular objects or actors, an assemblage perspective is interested in emergence and process, in the multiple temporalities and possibilities which exist in and develop cities (Munthe-Kaas 2017). Assemblage urbanism is a lens through which we can see the diverse and emergent **processes of ‘becoming’** in the city. In a socially sustainable city perspective, assemblage thinking “is not only interesting to talk about a general turn towards ‘liveable cities’, but also how the notion of liveability influences and destabilizes the different actor-networks of the city and opens for other developmental patterns. In this perspective a potential for public governance is to work with meta-governance strategies. Here, the role of public managers is not to produce public innovation by themselves, but rather to create open and flexible arenas for interaction and collaboration between actors, who in different ways can contribute to public innovation and to create multiple possible futures in the city.” (Munthe-Kaas 2017). This approach opens for interesting perspectives on urban heritage in participatory processes involving publics whereas heritage as **‘becoming’**, and not only in its **‘being’** (in the world) (for distinction between becoming vs. being see Kamalipour and Peimani 2015:404-405), put focus on **change as a driver** in spatial- and socio-material assemblages, and were ‘becoming’ then defines a continual process of both past changes (history) and possibilities for future changes (potential).

Twofold concepts (or images of thought) like being/becoming, formal/informal, tree/rhizome, striated/smooth, and hierarchy/network will in accordance with assemblage thinkers be a valuable resource for understanding socio-spatial assemblages of urban places and spatiotemporal (and sociomaterial) interactions where new interactions might create new use of places and materials. The formal/informal twofold can for instance elaborate on the ways in which the “strategies” of the state collide with the everyday “tactics” of the citizens. The twofold conception of tree-like/rhizomatic is another valuable contribution for understanding urban places. As exemplified by Kamalipour and Peimani (2015:404):

“Tree-like structures are hierarchic and rigidly stratified while rhizomatic and meshwork-like ones are often loosely structured. In a sense, rhizomatic structures contribute to the generation of resilient and flexible assemblages as intensive networks of multiplicities with external/internal relations. In other words, the differences between “strata/tree-like” and “rhizome/self-consistent aggregate” are about the articulation of the homogeneous and the heterogeneous elements. Hence, the hierarchical city (central place structure) is distinguishable from the meshwork-like one (network system) since the former gives rise to the rigidified pyramid-like and homogenised cultural structures while the latter advocates for interlocking heterogeneous elements. Nonetheless, the dichotomy of strata and rhizome is a continuum with two ends of the most hierarchic and the most intense and destratified matter. [T]he experience of the everyday urban life encompasses a variety of rhizomatic and hierarchic practices in relation to the public and private spaces.”

This notion of the twofold conceptions, like the tree-like/rhizomatic (thereby on the homogeneous versus heterogenous), in assemblage thinking contextualizes, as a vivid structural epistemological framework, the ability to capture the socio-material and -spatial complexities of the use of systemic-dynamic methodologies.



Example of theory working as a metaphor and model for thought:

Deleuze and Guattari assemblages 'In A Thousand Plateaus' (1980): "As a model for culture, the rhizome resists chronology and organization, instead favoring a nomadic system of growth and propagation. [...] In this model, culture spreads like the surface of a body of water, spreading towards available spaces or trickling downwards towards new spaces through fissures and gaps, eroding what is in its way. The surface can be interrupted and moved, but these disturbances leave no trace, as the water is charged with pressure and potential to always seek its equilibrium, and thereby establish smooth space."

Assemblage methodologies in urban regeneration research are extensive, and as illustrated here with some examples, assemblage thinking is all about capturing a multiple participatory approach that works empirically from the ground up. McFarlane (2011: 735, original cursive), for instance, define three assemblage methodological approaches to 'thick description' (1) what, 2) mode, and 3) form): "about *what* to describe (e.g. which stories, voices, interpretations, actors or places to privilege and which to exclude, or whether to focus on singular or multiple accounts of events, processes or actors), about the *mode* of description (e.g. focusing on how possibilities are closed down or opened up within assemblages; exposing or passing over, etc.) or about the *form* of description (e.g. a focus on linear time [A led to B led to C . . .] versus a focus on the particular temporalities of different actors—e.g. the linear time of, say, urban policy versus the times of different groups of workers, activists, age groups or subcultures; or a structured and hierarchical unfolding of narratives through, for instance, scale, network, reach or juxtaposition of a range of connected sites). All of which points to the particular ways in which description might assemble different contexts".

In McGuirk et al.'s article "*Assembling urban regeneration? Resourcing critical generative accounts of urban regeneration through assemblage*" (2016) critical urban theory and assemblage theory are combined for conceptualization on urban regeneration in the city Newcastle, NSW, Australia. The article explore how assemblage thinking can unpack how regeneration is made. Applied to urban regeneration, they define four capacities of assemblage thinking:

- 1) Revealing the relational, multiple and processual nature of urban regeneration. Assemblage understands the urban—and hence its regeneration—as multiplex that works empirically from the ground up.
- 2) Revealing the multiscalar labouring involved in the (socio-material) assembling that constitutes urban regeneration. Assemblage thinking's insistent focus on specific sites of practice and the labours of composition underlies a fluid and unfinished conception of regeneration as always in-the-making.
- 3) Identifying openings for multiple possible trajectories of urban regeneration. Assemblage trajectories are never fully settled but always open to the possibility of reordering associations, and hence capacities, create dynamic potential for innovation, novelty and differentiation.
- 4) Providing critical insights into how urban regeneration trajectories are constrained. Assemblage thinking allows us to recognize both potentialities *and* vulnerabilities, and where these are closed down via particular materialisations of power and inequality in which not all potential outcomes are equally possible.



As described by McGuirk et al. (2016) methodological approaches on assembling regeneration are starting from empirical detail; by tracing the material practices of actors from state and local government bodies, developers, special purpose taskforces, bureaucrats, consultants and facilitators, business associations, not-for-profits, media, residents, artists, community groups, public transport and cycling advocates, and Indigenous groups; tracing the role of the non-human from standards, modelling and funding formulae, heritage and architecture, maps of sites undermined by historic mining shafts and grouting used to render undermined sites developable, and visualisations of a renewed part of the city circulated through public consultations, reports and strategy documents; tracing practices from strategic planning and development, securing planning approvals, decision making around public infrastructure dis/investments, public consultation, visioning events and workshops, protest and lobbying, to negotiating, enabling temporary occupation of vacant commercial sites, and a multitude of small-scale community and private sector-led 'place making' activities; tracing the constitution and contestation of central regeneration concepts such as livability, sustainability, decline and renewal and their differential discursive mobilisation and material rendering by differently located actors.

In the article '*Rotterdam: Do-It-Yourself Assemblages in Urban Regeneration*' (Boonstra and Lofvers 2017) the urban regeneration history in Rotterdam is described as 'innovative assemblages for urban regeneration' that consisted of complex bottom-up initiatives and stakeholder cooperation alongside local politicians' abilities to bend local protests towards productive forms of cooperation. The innovative assemblages are defined by participative and community-oriented, differentiated and more place-specific planning approach that would fit an increasingly diversified set of stakeholders and interests. These dynamic relations would again open for the search towards new, innovative – and situational – assemblages for urban transformations. The Rotterdam case illustrates that placemaking encompassing two distinct, if related, conceptualizations: "formal practices of urban planning and redevelopment, and informal practices such as those identified as Do-It-Yourself (DIY) urbanism, tactical urbanism, or everyday urbanism" (Sweeney et al. 2018: 574).

In Sweeney et al. (2018:572) the lens of assemblage is used to "reveal the great diversity of elements, connections and labours which come together to produce placemaking, and to highlight the many human and non-human agencies, materialities, ideas, regulatory technologies and significantly, absences, which have been assembled [...] to produce such things as community gardens, festivals, markets, small bars, workshops and public art. An assemblage lens enables us to view the 'material, actual and assembled' elements that constitute these projects as well as the work that brings those elements into conversation with each other. Second, and as a consequence, [the authors] offers an assembled understanding of placemaking that reflects its open-ended and indeterminate nature. [They] view placemaking as an ongoing achievement, never a finished product, where the labour of placemaking continues long after the initial project has been installed.". Sweeney et al. address that assemblage thinking is not only about examining the connections but how social life in placemaking are *connecting*: It is about "the labour of placemaking and regeneration which continues long after the planned installation or renovation has occurred." (ibid.: 584). This perspective has implications for the ways in which we understand urban regeneration. Rather than perceiving the creation of placemaking as a movement from design (management and planning) to a finished product ready-to-use, thereby measured as a success or failure depending on intended purpose (like a loop), an assemblage perspective will involve complex



placemaking mechanisms at work as a *verb* in the constantly continuous process of becoming and being (re) created (out of the control of a singular plan or ‘Mover’).

In conclusion, assemblage thinking open for an understanding of the complexity of involving factors that creates places in the making. The knowledge gained from assemblage thinking when it comes to SD methods is that social processes in placemaking that are based on heritage-led regeneration can not be simply understood as loops and two-way directions in a closed system but as many complex (rhizomic) flows of open system behavior. The question is then if these flows are too complex to predict in a SD model (e.g., taking the shape of a ‘deterministic chaos’). A vital asset with assemblage thinking in placemaking is that it is defined by its practices. To study the interactions between activities and practices that takes place or could take place in future scenarios would be an analytical way forward for SD modelling and SD conceptualizations, whereas, phenomenologically, assemblage thinking in this way reveals the importance of routinized repeated practice in connecting placemaking and place.

Constructivist grounded theory

Grounded theory resonates with the methodological approaches on assembling regeneration, which puts to ground the importance to starting from empirical detail (see above). A focus on how to implement participatory approaches in heritage-led urban regeneration will lead our attention to ‘constructivist grounded theory’ (constructivist GT as opposed to Classic and Straussian GT), which in short defines a systematic methodology where the construction of hypotheses and theories ‘emerge’ from experience, observations, and practices (inductive reasoning) of for instance the collecting and analysis of qualitative data (cf. Allan and Davey 2018:222-225). Instead of relying on objectivist, positivist assumptions “constructivist grounded theory celebrates first-hand knowledge of empirical worlds, takes a middle ground between postmodernism and positivism and offers accessible methods for taking qualitative research into the 21st century. Constructivism assumes the relativism of multiple social realities, recognizes the mutual creation of knowledge by the viewer and the viewed, and aims towards interpretive understanding of subjects’ meanings.” (Charmaz 2000: 510 in Allan and Davey 2018:225). Grounded theory (or methodology) goes from data to defining theory of generalized knowledge, that for instance could be social variation in systemic behaviour when defining the relationship of built urban environments and social sustainability (e.g., quality of urban life). In this way, constructivist grounded theory could be a method for working systematically with for instance qualitative interviews in developing the theoretical coding for being implemented in SD modelling and conceptualizations.

Hussein et al. (2020) is utilizing constructivist GT as a qualitative approach for investigating how cultural memory impacts the psychosocial well-being and quality of life (QoL) of users of, and visitors to, historic urban landscapes (HULs). Three historical HUL case studies in Alexandria, Egypt, was selected. The data for each selected HUL were collected via multiple methods, from observation and interviews to photos, social media commentary, and mental maps. One of the goals with the constructivist GT analysis was to examine how “cultural memories can be maintained through place, and how future redevelopment plans should be shaped to promoted social inclusion and sustainability”. (ibid.:10). In this way, constructivist GT are used by the authors for going from knowledge in practice gained from interviews of people’s experiences at place to a better understanding of social urban sustainability (ibid.:13).



A combination of observations by the researchers and knowledge from interviews was used: “...multiple visits to the sites over considerable periods of time enabled the researchers to become familiar with the people who lived in and used them; hence, it was easier to gain trust and **build up a more accurate picture of patterns of behaviour** and usage. The knowledge gained from observation was then fed back into the interview questions and the researchers’ analysis of the responses to these to ensure participants were engaged and felt the project was relevant to their lives.” (ibid:11, our emphasis in bold). The analysis by Hussein et al. (2020) gave the researchers a comprehensive understanding of how the users inhabit and experience their worlds, hence significant factors of attractive uses of place and organising principles for symbolic interpretations and uses of surrounding monumental buildings through their uniqueness for defining place identities, ‘rootedness’ and engagement.

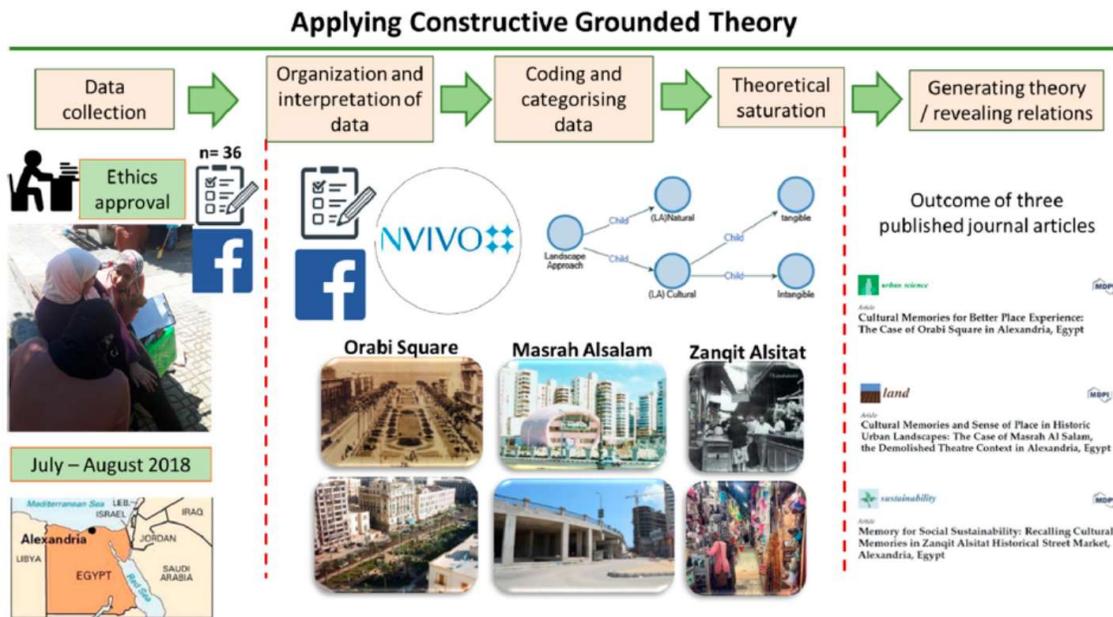


Figure 13: Diagram showing the stages of applying constructivist GT for this research. Source: F. Hussein. Hussein et al. 2020 suggest that constructivist GT offers a methodological roadmap for future urban management research and a robust grounding for studies of the role played by cultural memory, particularly the impact it has on human psychosocial well-being in HULs and other urban settings.

Participatory System Dynamics

In recent years, SD methods has also included participatory approaches. The goal of SD projects, not at least for including participation, is in most cases to provide a solution to a problem every stakeholder can subscribe, can help bring about, and is then accepted as the new norm. Király and Miskolczi (2019) is in their empirical review arguing that the sociological theoretical background for approaches to participation in SD can be understood on the basis of three metatheoretical point of view: interpretative, nomological and normative sociology. Although participatory is implemented in CD methods “it is not straightforward how the idea of participation can be translated into practice within a methodological approach drawing heavily on quantitative thinking and simulation” and how participatory SD can grasp the dichotomous nature of SD modelling with “contradiction between objectivity and expertise on the one hand, and subjectivity and lay knowledge on the other.” (ibid.:200). According to



the authors, the above-mentioned sociological theories (interpretative, nomological and normative) go beyond such dichotomies and structural determinism and transcend the structure/agency divide. The theories should be treated as ideal types of cognitive styles, which help our understanding, and actual research initiatives cannot be put solely into one category. Here are the distinctions of the cognitive styles (ibid.:201) of:

- **interpretative sociology:** dialogic whereas involving researchers in the situation that includes the people they investigate where their characteristics (such as their social position, value system, culture, and gender) are part of the dialogue. The aim is not the production of context-free universal knowledge, but a new understanding and new interpretative frames. People involved are considered as participants (not research subjects) who bring their knowledge, perspectives, and experience into the research process.
- **nomological sociology:** formal thinking style, which emphasizes precision, consistency, and logic. The aim of the research is to develop mental models that can grasp the internal dynamics, processes, or causal mechanisms of a phenomenon. People involved are considered as research subjects or informants.
- **normative sociology:** ethically driven thinking style which differs radically from the first two insofar as its aim is not empirically based “knowledge production” but aims to bring about a preferred social order via political action (the world as wishful or ‘ought to be’, justifications for the modification of reality). Within this research framework, the roles of both the researcher and participant/people are defining a common ground whereas they are jointly sharing their knowledge and experience to create (solutions for) a “better” world.

This multifaceted nature of participatory SD raises a number of questions. For example, which of the three dimensions should be emphasized most strongly: “objective” model quality, the creation of a shared understanding, or the provision of a solution? How button-up are participatory SD compared to for instance constructionist GT?

Concerning consensus, learning, and shared commitment, a question is whether it is possible to achieve “consensus” in both a cognitive (everyone truly accepting a shared reality) and social (subjective feeling of unity) sense, or rather, the most a participatory SD intervention can guarantee is a model, which is not contested because it does not touch on the most contentious issues (Rouwette and Smeets 2016) in Király and Miskolczi 2019:202).

Király and Miskolczi (2019) examines three SD approaches, moving from the less intensive towards a deeper involvement of participation: **Group model building (GMB)**, **participatory system dynamics modelling (PSDM)**, and **community-based system dynamics (CBSD)**. GMB means the involvement of for instance clients and customers commissioning a project whereas their knowledge for the understanding and solution of a problem would be a valuable resource that should be utilized and incorporated in the modelling. PSDM (often used in sustainable environmental management modelling) stresses the importance of a quantitative (stock and flow) simulation model as well as its utilization and experimentation with the simulation model which offers quick feedback and deepens the participants' understanding of the given problem. CBSD attempts to provide a specific solution to decision making problems (e.g. policy, planning) within the context of distinctly ‘local’ social problems affecting a community. Solutions to such problems cannot be initiated in a top-down manner



but must be defined and directed by (and with a simulation model developed by the members of) the community. CBSD has strong local and community orientation, which is based on a dialogue between problems identified on the field and academic knowledge, which is exemplified in this way:

Enabling people to visualize their system, to see the feedback loops, and to understand that their circumstances are the consequence of a larger system and not their own fault and that others both within and from outside the community see this too, while at the same time building connections and helping people identify ways to influence the larger system, can be validating, uplifting, empowering, and even healing as new narratives are formed about the system. (Hovmand 2014:33 in Király and Miskolczi 2019:205).



	Group model building	Participatory system dynamics modelling	Community-based system dynamics
Selected literature	Vennix, 1996, 1999	Stave, 2002, 2010 Videira et al., 2017	Hovmand, 2014
Initial context	Corporate context	Environmental management issues	Supporting marginalized, disadvantaged groups ("social therapy")
Social background of participants	Clients in a corporate context (high level of education and professional knowledge)	There are examples of projects with laypeople (low initial expertise and different levels of education), yet in most cases representatives of NGOs and government agencies are involved (high level of expertise and education)	A whole community participates (low initial expertise, different levels of education); strong commitment to involving marginalized communities
Type of model to be achieved	Results which are also understandable to laypeople (CLD)	Collaborative construction of a CLD model and joint testing of the simulation developed by the experts	Development of CLD and quantitative simulation with high level of involvement of participants throughout the process
Ideal level of participation	Average, in one or another project phase	Strong, but not in all project phases	High level of participation throughout the process
Role of researchers	Professional or "consultant" role	Involved expert who facilitates processes in the group	Long-term commitment
Standpoint concerning knowledge development	Developing knowledge and skills without overburdening the subjects	Development of practical knowledge in order to solve a problem, development of participants' thinking	Development of an empowered, knowledgeable community who acquire real expertise
Future vision of the group/community involved	Better preparedness, better organizational operation, better relationships	Strengthened social capital, greater knowledge of the given problem	<i>Empowerment</i> (see above)
Normative argument (participation is a democratic right)	Hardly typical	Strong, in a "positive" sense	Strongly implied, with a "critical" emphasis (i.e., creating the conditions of "real" participation)
Substantive argument (better quality of decisions)	Strong	Strong	Less strong (the quality of the decision/policy is not the most important aspect)
Instrumental argument (participation enhances commitment and likelihood of success)	Strong	Present	Strong
Transformative argument (enhancement of community ties, social capital)	Present	Present	Strong

Figure 14: Summary of the participatory SD approaches, from Király and Miskolczi (2019:206).

Conclusion

In this working paper we have described valuable theoretical approaches for being considered in different phases of the CURBATHERI project. The intention has been to promote ideas and concepts that will stimulate for a joint outlook that will bridge the Systems dynamic (SD tool/methods with a participatory approach to modelling approaches to social sustainability. We also hope this will stimulate for a discussion on the elements to take into consideration for developing a digital toolbox for the development and management of urban transformation in heritage-led urban regeneration.

With the highlight of systems and complexity theory in SD thinking, and connections to critical urban theory, assemblage theory, grounded theory and participatory SD our intention has also been



to define a methodological toolbox that complements and challenge each other for understanding key concerns in urban heritage-led regeneration (like archetypes, processes of systems/structure and behaviour in change management etc.). All the theories mentioned will have significance for how to do the mapping of key drivers at places for heritage-led regeneration with the possible bridges and linkages between theories and practice that contain a complexity science that includes systems, dynamics, flows, and uncertainty.

Possible conclusive remarks

- The exploration of social values combining social and humanities approaches used in **the heritage field** can advance the **understanding of process of change** and the intrinsic differences that make a process sustainable or not.
- Urban heritage preservation as a tool for bringing forward the social dimension in the planning practice
- The role of Heritage experts as mediators between institutional and social practices that help reducing tensions resulting from changes.
- Methodological implications on the use of digital and social media in participative and co-production approaches to be further explored.



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