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Co-evolutionary heritage reuse: a European multiple case study perspective

Karim van Knippenberg ^a and Beitske Boonstra^{a,b}

^aDepartment of Civil Engineering, Ghent University, Ghent, Belgium; ^bDepartment of Public Administration and Sociology/Public Administration, Erasmus University Rotterdam, Rotterdam, Netherlands

ABSTRACT

Reusing heritage sites is no longer only a practice of maintaining the historic, built values of a heritage object, but increasingly also a practice of linking heritage buildings to other aims such as involving local (heritage) communities or integrating heritage in its urban context. However, working closely with local heritage communities and incorporating multiple aims and stakeholders – each with their own interests and understanding of heritage – makes projects of heritage reuse highly complex. To address and understand this complexity, various scholars argue for a co-evolutionary perspective that sees heritage as a manifestation of interrelated and interdependent processes. This paper translates the concept of co-evolution into a conceptual model for analysing practices of heritage reuse. We apply this model in sixteen selected European projects of heritage reuse, to analyse how and why co-evolution manifests itself in projects of heritage reuse. This analysis demonstrates that the actions of initiators and other actors in the heritage reuse projects, as well as the social/institutional system in which they operate, are conducive to whether or not a co-evolutionary heritage approach is enacted.

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1. Introduction

Throughout Europe, and much of the world, relicts of the past are increasingly seen as a cultural or economic resource which can be appropriated for contemporary uses (Graham, Ashworth and Tunbridge 2000; Howard and Ashworth 1999). Reuse of heritage buildings is one example of how relicts of the past are appropriated and adapted to meet contemporary needs (Plevoets and Van Cleempoel 2011). Indeed, recently heritage scholars note that the reuse of heritage buildings – transforming them to meet new functional and aesthetic needs and requirements – is a growing domain within architectural and conservation practice (Douglas 2006; Misirlisoy and Günçe 2016; Plevoets and Sowińska-Heim 2018). Reusing heritage buildings is however no longer only a practice of keeping the historic, built values of a heritage object (Bullen and Love 2011) but also a practice of linking heritage buildings to other aims such as incorporating local heritage communities (Yung, Chan and Xu 2014) or making heritage part of broader

CONTACT Karim van Knippenberg  karim.vanknippenberg@ugent.be  Centre for Mobility and Spatial Planning, Ghent University, Sint-Pietersnieuwstraat 41 B2, 9000, Ghent, Belgium.

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strategies of urban regeneration (Bullen and Love 2009). In addition, heritage reuse also assist the promotion of sustainable built environment (Conejos, Langston and Smith 2013) as well as providing social benefits by revitalizing familiar landmarks and giving them a new life (Conejos, Langston and Smith 2011).

These trends in heritage reuse therewith reflect broader developments in heritage practice and scholarly debate. We see that heritage is induced with aims such as incorporating a coalition of diverse and multiple stakeholders into the process of defining and managing heritage (Perkin 2010; Waterton and Watson 2010). We note a growing consideration of community-heritage engagement with the role of local (heritage) communities and their understanding of heritage more and more acknowledged (Harvey 2001; Waterton and Watson 2013). We identify a paradigm-shift towards the adaptation of more holistic notions of heritage that also incorporate immaterial aspects (Ahmad 2006; Vecco 2010). And finally, we note that the management of heritage and the historic environment is more and more seen as an integral part of cities, landscapes and spatial planning processes (Fairclough 2008; Janssen et al. 2017).

We are conscious of the fact that heritage reuse is oftentimes regarded as an act of architectural conservation. In this article, we however acknowledge that heritage reuse is increasingly interrelated with various aims, such as linking heritage reuse to urban regeneration or incorporating local communities. However, when incorporating such divers and multidimensional aims and working closely with local heritage communities – each with their own, but interrelated interests and understandings of heritage – the practice of heritage reuse turns highly complex. In line with the conceptualization of complexity in related domains such as planning and geography, not only objects and forms should be taken into consideration in heritage reuse but also the relationalities and processes connected to these object and forms (Graham and Healey 1999; Massey 2005). The issue of interrelatedness – not only of place and process, but also to context – is not new to the analysis of heritage. (e.g. Graham, Ashworth, and Tunbridge 2000). Much existing scholarly work on heritage reuse, however, has tended to be very place-bound, making Harvey (2015) argue that a processual and present-centered conception of heritage needs to be tied to a more progressive and relational sense of place that is place as a temporary constellation of connectivity. In addition van Knippenberg, Boonstra, and Boelens (2021) argue that understanding the situational and relational performances of heritage is key to understand the complexity (i.e. dynamism and multiplicity) that characterizes heritage practices at present day. They propose to apply a co-evolutionary heritage approach especially in cases in which neither the involved actors, the context, nor the precise challenges or objects of planning are clear.

In this article, we continue this line of argument, hypothesizing that notions of co-evolution – a concept derived from complexity theory (see for instance Gerrits and Teisman 2012) – are particularly applicable with regard to heritage reuse. Seeing heritage (reuse) from a co-evolutionary perspective means that heritage becomes a manifestation of continuous processes of valuation and re-valuation and as something that is always in the process of making (van Knippenberg, Boonstra and Boelens 2021). The concept of co-evolution has however mainly been theoretically elaborated with regard to heritage reuse (see for instance Della Torre 2019, 2020). As such, a further operationalization of the concept is pivotal for its application in heritage reuse practices. To that end, the objective of this paper is twofold. The first objective is to further elaborate on a co-

evolutionary heritage approach and operationalize this approach into a model for analyzing projects of heritage reuse (section 2). The second objective is to investigate sixteen selected European projects of heritage reuse in the light of this model (section 3 and further) in order to reveal key elements of such a co-evolutionary approach in practice. We will investigate the following question: can we see manifestations of a co-evolution in present day cases of heritage reuse in Europe, and if so, what factors explain the presence of this co-evolutionary approach?

2. A model for co-evolution in projects of heritage reuse

2.1. Co-evolution

In heritage reuse, complexity manifests itself as a dynamic process of diversity and multiplicity of stakeholders involved – each with their own, but interrelated interests and understandings of heritage – and consequently a variety of values attributed to heritage. In addition, within the domain of spatial planning and governance, complexity is more and more recognized and to answer this complexity the notion of co-evolution is frequently brought to the fore (de Roo and Boelens 2016; Gerrits 2008; Gerrits and Teisman 2012; Kosunen, Atkova and Hirvonen-Kantola 2020; Teisman, van Buuren and Gerrits 2009). Co-evolution is a concept derived from biology, which describes the process of interaction between two (or more) systems, where these interactions cause change in the nature of these systems (Kallis 2007). The emphasis on interactions and reciprocity makes the concept of co-evolution different from mere evolution. Whereas evolution relates to the process of adaptation and transformation of one specific species, co-evolution describes a process of reciprocal selective interaction with biotic circumstances, including other organisms or systems. The concept of co-evolution thus places emphasis on the reciprocal interactions between two or more evolving systems within and in interaction to a specific context (Gerrits 2008). Within spatial planning and governance, the notion of co-evolution is increasingly being applied in the context of complexity, especially in cases in which neither the involved actors, the context, nor the precise challenges or objects of planning are clear (Boelens and de Roo 2016).

Whereas the application of co-evolutionary approaches (and other governance approaches in which the complexity regarding actors and setting is acknowledged) provides promising examples in planning practice (Bertolini 2007, 2010; Duineveld, van Assche and Beunen 2015; Kosunen, Atkova and Hirvonen-Kantola 2020), the concept remains largely unexplored with regard to heritage reuse. Although not explicitly referring to the term co-evolution, Daniel and Robin (2016) argue for dynamic conservation where heritage objects are not seen not as the relics of a time gone by, but as resources for development through the interaction with new actors and societal processes. Similarly, Della Torre (2020) argues to no longer focus on material heritage objects only but on networks of significance. Della Torre (2019) proposes the implementation of a co-evolutionary approach to heritage reuse to highlight the effects of heritage objects on the environment and society. Similarly, van Knippenberg, Boonstra and Boelens (2021) propose a co-evolutionary heritage approach to understand the complexity that characterizes heritage practices at present day to foster community-heritage engagement. They define co-evolutionary heritage reuse as a continuous and mutual processes of

interaction between material and immaterial heritage, local and/or heritage communities and spatial (re-)development.

2.2. Conceptual model of co-evolution

The concept of co-evolution with regard to heritage has however mainly been elaborated theoretically. The first objective of this paper is therefore to operationalize a co-evolutionary heritage approach further, to be able to apply the concept to the analysis of ongoing heritage reuse projects. Following the theory of co-evolution, three criteria of a co-evolutionary heritage approach are formulated. These are:

- Multiple driving forces in heritage reuse projects;
- A continuous interaction between these driving forces, evoking mutual transformation of these driving forces;
- Interaction with, adaption to and transformation of the broader social and institutional context of the heritage reuse project.

The first criterion of co-evolution is the multiplicity of driving forces in a heritage reuse project. Indeed, to speak of co-evolution two or more systems (in this case aspects), have to evolve together, so that the evolution of one aspect relates to the evolution of another related aspect (Gerrits 2008). Hence, these multiple driving forces are related to various subsystems operational within a heritage reuse project. In our operationalization of co-evolution, we identify four systemically embedded driving forces: (i) material heritage assets or tangible objects – such as monuments and sites, architectural ensembles, archaeological sites, historic townscapes, heritage landscapes – as signifiers of a past; (ii) immaterial heritage assets or practices – such as traditions, festivals, language and expressions – as signifiers of a culture and manifestations of social memory; (iii) local and/or heritage communities, i.e. the signifiers of those material and immaterial heritage values; and (iv) spatial (re-)development, e.g. policies, plans and situational and contextual value of the heritage reuse project. We call these driving forces systemically embedded, as each of these aspects of heritage reuse come with their own set of stakeholders, legislations, discourses, practices and epistemes, and can thus be seen as separated-but-related socio-institutional subsystems (Luhmann 1970; OpenHeritage 2020).

The second criteria for co-evolution in heritage reuse is that these four systemically embedded driving forces continuously and mutually relate and respond to each other's changes. Key to the concept of co-evolution is the idea that there is a mutual relation between two or more evolving systems. The notion of co-evolution therewith shifts attention towards describing relations and processes, rather than objects and forms (Massey 2005). If we translate this to the domain of heritage reuse, heritage is not seen as a fixed thing, but instead depends on specific connections and relations. This relational view on heritage (see for instance Harvey 2015) is increasingly acknowledged in contemporary heritage literature. Yet, it appears that the literature is rather fragmented as there are only few researchers addressing the relations of multiple aspects of heritage reuse. In fact, most research only addresses the relation between two aspects (for instance material heritage and heritage communities). Co-evolution does acknowledge the relations and the reciprocal interactions between these systemically embedded driving forces.

With only addressing the interrelatedness between systemically embedded driving forces as described above, we do however not fully grasp the complexity of projects of heritage reuse yet. Indeed, the concept of co-evolution not only places emphasis on the reciprocal interactions between two or more evolving systems, but also on the interactions in and to a specific context (Gerrits 2008). In other words, co-evolution takes place within a broader evolving social and institutional context (Boelens and de Roo 2016). Hence, the third criteria of co-evolution is that a heritage reuse project is able to adapt to changes in its broader social and institutional context and to evoke changes in that context as well. Concerning the interaction between a heritage reuse project and its wider societal and institutional context, little empirical studies exist within scholarly literature. But it is imaginable that such interaction happens, for instance, when a heritage reuse project influences (societal) thinking about heritage as for instance policy guidelines are adjusted or a discourse on heritage reuse changes. Another way in which such interaction happen is when a heritage reuse project becomes a source of inspiration for other projects. Having a relation to the broader evolving context also means that a heritage reuse project is able to adapt to contextual changes, or able to act in anticipation of future problems, needs or changes. In other words; the extent to which heritage reuse projects are responsive to the emerging challenges of nowadays complex heritage practices. In the analysis of cases that follows, we will therefore not only address the different aspects, and the various and heterogeneous interactions between these aspects, but also the interaction with the broader social and institutional context. In fact, to speak of co-evolution, we argue that all three criteria have to be met.

3. Methodology and analytical framework

In order to identify co-evolutionary heritage approaches in contemporary projects of heritage reuse, and to understand what explains the presence of such a co-evolutionary approach, we draw from a multiple-case study that has been conducted within the context of a Horizon2020 research-project called OpenHeritage. The authors of this article are part of this OpenHeritage project as an academic partner, and took part in the data collection and analysis. The data collected in the OpenHeritage project provided the basis for the analysis presented in this paper.

3.1. Multiple-case study research

The multiple-case study addressed 16 projects of heritage reuse throughout different localities in Europe (see Table 1). In the framework of OpenHeritage these 16 cases have been selected for several reasons: (1) to reflect a variety of regional experiences as well as of geographical positions (urban, peri-urban and rural) across Europe; (2) to represent a variety of heritage assets involved; and (3) to show a variety of reuse aims, from cultural to community-based, societal and environmental. In the framework of this paper, these cases are selected as they are all examples of ongoing or recently realized projects which attempt(ed) to connect material and immaterial heritage with local communities and ongoing spatial developments. As such, these cases are likely to illuminate

Table 1. Overview of the cases, including a short description (for a more elaborate description see (OpenHeritage 2019)).

<i>Name:</i> Cascina di Roccafranca <i>Location:</i> Turin, Italy <i>Date of reuse:</i> 2004–2007 <i>Original function:</i> farmstead <i>New function:</i> multifunctional community center	<i>Name:</i> Stará Tržnica <i>Location:</i> Bratislava, Slovakia <i>Date of reuse:</i> 2013–2016 <i>Original function:</i> market hall <i>New function:</i> market hall
<i>Name:</i> Scugnizzo Liberato <i>Location:</i> Naples, Italy <i>Date of reuse:</i> 2015 <i>Original function:</i> convent <i>New function:</i> social meeting place	<i>Name:</i> Potocki Palace <i>Location:</i> Radzyń Podlaski, Poland <i>Date of reuse:</i> 2015 onwards <i>Original function:</i> Rococo residence <i>New function:</i> cultural facility to attract tourists
<i>Name:</i> Sargfabrik <i>Location:</i> Vienna, Austria <i>Date of reuse:</i> 1994–2000 <i>Original function:</i> coffin factory <i>New function:</i> collaborative housing complex	<i>Name:</i> ExRotaprint <i>Location:</i> Berlin, Germany <i>Date of reuse:</i> 2007 <i>Original function:</i> printing machine fabric <i>New function:</i> place for cultural and social activities
<i>Name:</i> Färgfabriken <i>Location:</i> Stockholm, Sweden <i>Date of reuse:</i> 1995 <i>Original function:</i> industrial building <i>New function:</i> exhibition space and event center	<i>Name:</i> St Clemens hospital <i>Location:</i> London, England <i>Date of reuse:</i> 2011–2020 <i>Original function:</i> workplace, hospital for poor people <i>New function:</i> housing and a community space
<i>Name:</i> Largo Résidências <i>Location:</i> Lisbon, Portugal <i>Date of reuse:</i> 2011–2013 <i>Original function:</i> ceramic factory <i>New function:</i> hotel, community hub	<i>Name:</i> Jam Factory <i>Location:</i> Lviv, Ukraine <i>Date of reuse:</i> 2019 <i>Original function:</i> Jam Factory <i>New function:</i> art center
<i>Name:</i> Jewish District <i>Location:</i> Budapest, Hungary <i>Date of reuse:</i> after 2000 <i>Original function:</i> historical neighborhood <i>New function:</i> 'Party district'	<i>Name:</i> The Grünmetropole <i>Location:</i> Belgian-Dutch-German border region <i>Date of reuse:</i> 2008 <i>Original function:</i> mining region <i>New function:</i> touristic routes
<i>Name:</i> LaFábrica detodalavida <i>Location:</i> Maimona, Spain <i>Date of reuse:</i> 2014 <i>Original function:</i> cement factory <i>New function:</i> cultural space	<i>Name:</i> Marineterrein <i>Location:</i> Amsterdam, Netherlands <i>Date of reuse:</i> 2015 onwards <i>Original function:</i> Navy yard <i>New function:</i> future-proof city quarter
<i>Name:</i> Halele Carol <i>Location:</i> Bucharest, Romania <i>Date of reuse:</i> 2013–2016 <i>Original function:</i> factory hall <i>New function:</i> club, creative events	<i>Name:</i> Citadel <i>Location:</i> Alba Iulia, Romania <i>Date of reuse:</i> 2000 onwards <i>Original function:</i> fortification <i>New function:</i> cultural facility to attract tourists

insights of the interrelatedness and interdependency of the four systemically embedded driving forces of co-evolutionary heritage reuse.

Within the framework of the OpenHeritage project, these cases have been subjected to multiple qualitative techniques and procedures of data collection in order to get an in-depth picture of the case (Creswell 2009; Yin 2014). Document, websites and policy studies were combined with qualitative semi-structured interviews as a method of data collection. Selecting interviewees was carried out based on stakeholder function and included at least the protagonists of the initiative; civil servants (or other governmental stakeholders); investors; users (e.g. local residents or community members). At least 5 interviews per case were conducted so that at least one person of each stakeholder group was interviewed per case. Combining different stakeholders allowed us to provide a comprehensive overview of the project. The interviews usually took place during on-site field observations, in face-to-face settings. This allowed the researchers to have an open-ended conversation whilst addressing all topics identified in advance.

Topics discussed during the interviews were – among others – a description of the project (process, values, identity); an analysis of the role of heritage in the reuse process (regulations and policy, the uses envisioned in the transformation and the design principles); a stakeholder analysis; and an impact analysis (reception of the project, influence on broader context). Interviews were done by researchers of the OpenHeritage consortium; the choice for a certain case analysis was based on language proficiencies; the geographical proximity; and in some case the involvement in the cases of the respective consortium members. 17 OpenHeritage consortium members (including the authors of this paper) conducted in total 110 interviews of which some were audio-recorded or otherwise supported by hand-written notes. In combination with a document study – which also provided detailed contextual information that helped illuminate the processes and structures of the study's context – and the on-site visits, this threefold way of collecting data enabled triangulation of sources. Moreover, after the data collection process, the data went through a review process where missing elements were highlighted and clarification was asked in some matters related to the key components of the study. The results of this case analysis are written down in the publicly available OpenHeritage deliverable 'D2.2 Individual Report on the Observatory Cases' (OpenHeritage 2019).

The data collected in this OpenHeritage report provided the basis for the analysis presented in this article. In case that there were ambiguities, or if certain parts of the analysis were unclear, we could rely on our fellow OpenHeritage consortium members. They could provide us with additional information, the (in some cases translated) transcripts of the interviews, or with contact detail of interviewees to contact them again. This provided us sufficient information to get a contextualized understanding in what ways these practices of heritage reuse correspond to the model of co-evolution.

3.2. Analytical framework

In terms of data analysis, this study followed the basic expectations of multiple-case research – within-case investigation followed by cross-case examination (Eisenhardt 1989). In analyzing the collected information, template analysis was applied (Crabtree and Miller 1999). In this approach, codes are identified a priori, extracted from the literature and referred to particular themes which characterize an area of interest. This provided us with a reasonably clear direction to follow when structuring the examination of the collected evidence and its presentation (Silverman 2010). These themes were derived from the definitions of the four systemically embedded driving forces related to heritage reuse (see section 2.2). To assess these themes, we followed the selection criteria identified by Wang and Zeng (2010) for the analysis of reuse of historic buildings, Yung, Zhang and Chan (2017) for evaluating social and cultural impact of heritage and by Vecco (2010) for immaterial heritage.

As a first step in analysing the manifestation of co-evolutionary practices in the cases of heritage reuse, we observed and compared whether the interviewees referred to the theme's criteria (see Table 2) as a driven force for their project. The outcomes of this analysis are summarized in Table 3 (section 4.1). As a second step in analyzing co-evolution, we checked whether interviewees mentioned the interrelatedness and mutual impact of these driving forces on one another – being it positive or negative (section 4.2). Finally, co-evolution was analysed by analyzing the outcome of these interactions

Table 2. Analytical framework to assess the four systemically embedded driving forces of co-evolutionary heritage reuse.

Theme	Criteria
Material heritage	Historical value and artistic value connected to the building or site; physical authenticity of the building; structural stability and technical state of the building; materials and decorations of the building (Wang and Zeng 2010)
Immaterial heritage	Cultural value, value of identity, and the capacity of an object to interact with memory (Vecco 2010)
Spatial (re-) development	Site and situation; scenic/contextual value; land use plan or zoning; regional development policies, project plan (Wang and Zeng 2010; Yung, Zhang, and Chan 2017)
Local and or heritage communities	Compatibility of newly introduced uses with existing; public interest; social value; increasing public awareness, involvement and support; enhancing the role of communities (Wang and Zeng 2010; Yung, Zhang, and Chan 2017)

Table 3. Overview of driving forces of the heritage reuse projects.

Site	Material heritage	Immaterial heritage	Spatial (re-)development	Local and/or heritage communities
Cascina Roccafranca, Turin				
Scugnizzo Liberato, Naples				
Sargfabrik, Vienna				
Färgfabriken, Stockholm				
Largo Résidencias, Lisbon				
Jewish District, Budapest				
LaFábrika detodalavida, Maimona				
Halele Carol, Bucharest				
Stará Tržnica, Bratislava				
Potocki Palace, Radzyń Podlaski				
ExRotaprint, Berlin				
St Clemens hospital, London				
Jam Factory, Lviv				
The Grünmetropole				
Marineterrein, Amsterdam				
Citadel, Alba Iulia				

and the extent to which a heritage reuse project interacted, adapted to or changed its broader social and institutional context (section 4.3). Criteria for this aspect of co-evolution are related to impact and effect, and included for instance the environmental effect, potential improvement of the environmental quality of the surrounding, changes in policy, inspiration for other projects and/or changes in societal thinking about heritage reuse. To speak of co-evolution, we argue that all three criteria have to be met. The analysis shows that this is only the case in two practices of heritage reuse, these two cases are outlined in section 4.4.

4. Results

4.1. Multiple systemically embedded driving forces

Our first criteria was to identify which systemically embedded driving forces were manifested in the various cases of heritage reuse. Table 3 presents an overview of the cases and illustrates which driving forces aspects were identified by the interviewees. In most cases

indeed multiple driving forces were manifest, be it that some driving forces were more frequently identified than others. In 13 of the 16 cases, there was a particular emphasis on the material values of the heritage object, either as a stand-alone driving force (Potocki Palace, Jam Factory, Citadel) or in combination with spatial development (Jewish District, Halele Carol, Grünmetropole), and only occasionally in combination with spatial development and immaterial heritage (Marineterrein), spatial development and community (St Clemens Hospital) or community (ExRotaprint). Only three cases do not showcase material heritage as a driving force. These are Cascina Roccafranca – which combines immaterial heritage with community and spatial development; Sargfabrik – which combines community with spatial development; and LaFábrika – which only recognizes immaterial heritage as a driving force for its reuse. Only 2 cases combine all four systemically embedded driving forces in their heritage reuse project: Largo Residencias and Stará Tržnica.

In our analysis, we aim to understand what explains either the presence or absence of multiple driving forces in these cases of heritage reuse.

Local community engagement has been identified as a driving force in 8 out of 16 cases, always in combination with other driving forces and never as a stand-alone: including the case of St Clemens hospital in London, the Sargfabrik in Vienna and the Cascina Roccafranca in Turin. Within this latter case – a derelict former farmstead transferred and refurbished in a meeting center for the community – heritage values seem not to have a big role. In fact, the building was not listed as a monument and was only of limited value to the local community in terms of (im-)material heritage values. In this regard, a community center could have been created in any place, and the location of Cascina Roccafranca was chosen for mere practical reasons. An involved stakeholder argues that ‘You first need have some basic conditions since it is hard to fight social isolation without available spaces’. For this reason, they needed a space that was ‘transparent’ to facilitate the idea of sharing and publicness’ (project manager), this space was provided by the Cascina Roccafranca as ‘these places have a spirit, a vibe, but not an excluding spirit’ (involved stakeholder). In this regard, the building supported the community engagement. Yet, it was not the heritage of the site that was the main driving force, but the aim to provide a multipurpose space for socialization, civic engagement and cultural activities.

In line with this, the case Marineterrein in Amsterdam provides an example where it was particularly the immaterial heritage that appeared to guide the reuse project. The buildings on this site are, except from one building, not listed as protected heritage sites. These buildings are typical highly functional buildings from the 1960s and not the main reason why this site is seen as valuable: ‘As heritage, the buildings don’t have much value’ (local resident). An involved stakeholder explains that it were rather the immaterial values, such as the stories related to the site: ‘This has always been a military zone and it has always been close to the city. Even though it is not always reflected in the buildings themselves, this has always been a very important place in a historic sense’ and ‘I find some of the buildings on this site really great. But actually, what I find even more special is the story we want to continue to tell; an area that has always been of great value to the city’.

The context of spatial (re)development is mentioned in 9 out of 16 cases. The Grünmetropole case is an example of a project that particularly focused on spatial development, as reconversion and renewal of the post-industrial landscape in a forming

mining area was one of the main aims of the project. This conversion was intended to take place by the implementation of two cross-border tourist routes connecting various relicts of the mining past scattered throughout the landscape of the region. An exceptional case, in which material heritage only played a very limited role and certainly wasn't the driving force, is LaFábrika. The initiators of this project explicitly aimed at rewriting the memories connected to the site as a part of a healing process for the community and to create a symbol of a new and bright future. This aim has less to do with the relicts of the industrial past but more with present day aims such as strengthening local communities and creating social and cultural infrastructures.

The Citadel in Alba Iulia is one of the cases in which only one driving force, namely material heritage, was identified. This case was indeed set-up around the notion that heritage is a thing to conserve and protect. This is underlined by a heritage management approach strongly focuses on the preservation of the object. In fact, the citadel has been on the tentative list for UNESCO world heritage sites Alba Iulia Citadel is indeed one of the most strictly protected areas of archaeological and built heritage in Romania. This protected status had to be taken into consideration during the reuse process: archaeological research was required before earthmoving or constructions, and the renovation of protected buildings also had to be preceded by research. In this case, however, the conceptualization of heritage as a tangible object led to little interaction with the more immaterial heritage aspects. Indeed, only one heritage narrative – of a political and ecclesiastical – history was addressed, whilst the narratives focusing on the everyday lives of the multiethnic and multicultural population hardly appeared. Stakeholders criticized this one-dimensional way of presenting heritage and consequently there is a long ongoing contest for the ownership of the past, which is also present in the interpretation of the built heritage at present day.

The presence or absence of multiple driving forces in these cases of heritage reuse strongly depends on the extent to which communities' and individual's ideas of (immaterial) heritage are identified and recognized. This however appears to be rather context-dependent and strongly influenced by national heritage policy.

4.2. *Interrelatedness*

In terms of interrelatedness between the driving forces and their impact on one another, it appears that various relations are indeed being established in the projects, yet often more in a conflicting rather than supporting manner. In the Lviv case, we noticed that understandings of heritage in Ukraine are still very much expert-centered, and the opinion of the community is often not deemed so crucial. An involved stakeholder argued for the importance of including the opinions of local residents on the heritage of the Jam Factory, to establish 'a heritage community'. For that reason, a project called 'tell your story' was set-up to map the living memories of those who worked at the factory as immaterial heritage. This project however appeared to have little impact on the heritage reuse project. Although attempts have been made to create an interrelatedness between material and immaterial heritage and the local community, it appears rather difficult to sustain these relations. Indeed, connecting to a local heritage community and their understanding of heritage appears to be rather challenging, as immaterial values are hybrid and divergent, and experts remain focused on material values.

Also the project in Budapest, the Jewish District, shows such conflictual interrelatedness. The problem in the Jewish district is that material and immaterial heritage often appear in an artificial separation, especially in the public discourse, where mostly built heritage is addressed whilst other layers of immaterial heritage (notably the Jewish traditions) are not recognized at all. Also, the Grünmetropole case – with a strong focus on material aspects in the landscape – shows a mismatch between the design (object-oriented and large-scale interventions) and the reality of local heritage communities, their stories and more personal ideas about heritage. One interviewee state: ‘The mining past is not just about the physical relicts in the landscape or about the authorized stories that are told. It is much more about personal, immaterial aspects and feelings; a feeling of being a miner’. These cases show that heritage values are important triggers for a local community to act or to be involved in a reuse project, acknowledging and potentially connecting the immaterial and material aspects of heritage, albeit in a conflicting way, e.g. divergent immaterial values advocated by various communities and material values advocated by experts and formal policies and regulations.

A more harmonious interrelatedness between communities, material and immaterial heritage values can be found in the reuse of Scugnizzo Liberato in Naples. Here, local citizens first became aware of the architectural and historical values of the building as they started to informally occupy the building. Later on, it appeared that the abandoned buildings could still have a certain value to the community and add to the vitality of the city, as one interviewee mentions:

The Scugnizzo Liberato shows that despite that there are many abandoned spaces in Naples they are still able to add to the vitality of the city. A sort of pride is hidden behind the people who are engaged in the transforming these ancient places into a collective one. It is a way to take back what was, and has always been, ours.

This relation actually works in two ways, not only is the community interested in taking care of the heritage, but the heritage in turn also contributes to community building: ‘People were also very curious about the space itself, since it had been locked for almost two decades. They were curious about what was hidden inside. Many of them approached us, so we could establish some first relationships’.

The mutual impact between different aspects is something that we also see when analyzing the interrelation between heritage – either material or immaterial – and spatial development. In several cases (among others: Scugnizzo Liberato, Stará Tržnica, Largo Résidencias, Jewish district), the projects of heritage reuse were indeed linked to broader spatial developments, for instance the revitalization of a neighborhood or district. Yet, spatial developments often bring additional challenges to projects of heritage reuse and the protection of material and immaterial heritage. Material heritage can mostly be incorporated in spatial developments, whereas immaterial heritage values are mostly impacted by the spatial developments rather than taken into account (which we see in the case of the Jewish district). This in turn impacts the local communities as they feel that their stories and values are not incorporated in a spatial development plan based on a confined heritage narrative (e.g. the touristic routes in the Grünmetropole project were strongly based on one narrative without addressing the more immaterial, communal heritage values).

4.3. *Interaction with social and institutional context*

Examples of interactions between the heritage reuse project and its broader social and institutional context are found in cases such as ExRotaprint, Färgfabriken and Sargfabrik. The Sargfabrik project in Vienna – which aimed at creating communal activity – brought a lot of vitality to the neighborhood and challenged the initiators to find ways to not grown their own gentrification project. As such it became an example of a co-housing project that actually build a relation with the neighborhood and therewith also impacted the way housing is thought and discussed in Vienna. Also Färgfabriken influenced the direct area around the project, and changed thinking about urban issues in the city of Stockholm. The project has essentially become a gathering point to discuss the future of the nearby Lövholmen area, taking a position to include working spaces and cultural venues in future developments besides the inevitable residential complexes:

I think the whole area of Lövholmen and more recent industrial buildings offer such incredible opportunity to have another way of living and thinking. Färgfabriken has a role and responsibility to tell the stories of these sites, the topography as well as the negotiation between the building, the city, the water and the climate that such constructions show (involved stakeholder)

ExRotaprint in Berlin is a heritage reuse project that set-up a heritage building right and non-profit status in order to buy and restore an industrial complex. This complex was bought from the municipality in a time that large international investment companies bought many real estate development projects for reasons of speculation. ExRotaprint set a precedent in Berlin in terms of alternative ways of financing a project, and as such inspired many experiments with cooperative ownership, and even started a campaign that changed the city's housing policy. As such, these three projects were inspirational cases in terms of shedding a light on similar spaces in the area, or in terms of changing the discourse on urban issues in their city.

4.4. *Two cases of co-evolution: Stará Tržnica and Largo Résidencias*

Applying the conceptual model for co-evolution reveals differences with regard to the driving forces behind the reuse projects, the level of interrelations between various aspects of heritage reuse, and interaction with the wider social and institutional context. Although some multiplicity in driving forces was identified in most cases, a multiplicity and plurality of interrelations can only be found in some. In addition, the relatedness and mutual influence between cases of heritage reuse and their wider social and institutional context remains limited to only a few cases. We therefore conclude that most cases we analysed do not comply to our definition of a co-evolutionary heritage approach. Two cases make an exception, as within these cases all four systemically embedded driving forces for heritage reuse were present, interacted, and an interrelatedness with the wider social and institutional context was identified. These are the Stará Tržnica project and Largo Résidencias.

The Stará Tržnica project combined material heritage, the stories and histories around the place (immaterial heritage) with community engagement, influencing the broader urban context as well. These connections appear to be one of the main aims: 'As we started to revitalize this small square which is right in front of the old market hall, we

wanted to be involved also further as it connects us with other communities in the city' (involved stakeholder), in line with this: 'We moved our focus to the surrounding area and thought about how to create added values through our spaces' (co-founder of the project) thereby using the material values as the starting point 'All our actions fit to the protected status of the building' (idem). Various strategies are applied to create an interrelation between the various aspects in this project. Initially small-scale events were organized in this former market hall, to get local communities involved and interested in the material heritage of the place. Moreover, the idea of a 'flexible forum' was implemented in the building allowing to create a space as multifunctional and flexible as possible to fit the needs of the neighborhood's residents. Eventually the reuse into a community-based functioning of the building, resulted in a highly engaged local community who in turn also shared their stories and histories of the place. In other words, there was a constant process of interaction between the various aspect.

In addition, the project of Largo R sidi ncias showed interrelatedness and interconnectivity of all four aspects. The project's aims were not only to renovate a building into a multipurpose space for the community but also related the building to its surroundings, therewith contributing to the regeneration of a marginalized area in Lisbon. Within this project, especially the link with the wider area was considered as an important element: 'We want to build this area and not to abandon it. This project only makes sense if it's locally based and if you manage to build the area' (involved architect). A project adviser furthermore stated:

Largo is a symbolical center of radical change in Lisbon. This area of the city used to have a flourishing market of drugs and prostitution, it was considered a dark area and many Lisbonans would not come here. Things began to change when key community agents started working in this area to create new living conditions, to increase the quality of life, and to attract people here.

The project founder underlines this 'I tried to convince my colleagues to do something bigger for the neighborhood'. During this process of connecting to the neighborhood, and the wider community, Largo R sidi ncias has been working on embracing both the material and immaterial heritage of the building and the neighborhood. The stories related to the building's past as a ceramic factory, are for instance translated into a variety of activities related to ceramic tiles, which were once produced in the building and used across the neighborhood and the city. A process of mapping the neighborhood's social memory also contributed to countering the process of forgetting as a consequence of gentrification and touristification, it is argued. A local journalist states:

In some parts of the city we cannot speak of social bonds anymore because many inhabitants have moved out. The social capital and memory that was essential to the resilience of these places is lost. That is a big issue that has to be understood to prevent the worst gentrification and urban transformation yet to come.

In these two cases, we can recognize a co-evolutionary approach. Not only because these cases show multiple driving forces and interrelatedness of all four aspects but also since the analysis revealed an interaction with the wider social and institutional context. What is furthermore notable about the cases Largo R sidi ncias and Star  Tr znica is that they both had a rather flexible approach allowing them to implement diverse and changing functions to best fit the community and the surrounding areas.

In the case of Stará Tržnica, the main idea was to create a space as multifunctional and flexible as possible to find a community-based content and functioning of the building. Being adaptive and flexible to deal with changing contextual circumstances appears to be a critical factor for establishing and maintaining a certain interrelatedness over time.

5. Discussion and conclusion

In this article, we investigated where and how co-evolutionary practices occur in European practices of heritage reuse. Applying the model of co-evolution, presented in this article, on 16 projects of heritage reuse throughout Europe, reveals major differences between the driving forces behind these projects. In most cases, multiple driving forces were present, yet the interrelation between these driving forces turned out to be often conflictual and only occasionally supportive. The extent to which interrelations are established and maintained over time strongly depends on (i) the initiators of the heritage reuse project and (ii) the social and institutional context of the project.

It has been demonstrated that the relation between material heritage and spatial development is frequently strong in the projects. Community-heritage engagement and incorporating communities' and individual's ideas of (immaterial) heritage on the other hand appears to be rather context-dependent and strongly influenced by national heritage policy. Developing a community around the site from an earlier moment in the process, can be a way to make sure that the restored buildings are part of the community, and they are taken care of as such in the future. From the start of the initiative to reuse Stará Tržnica, linking heritage to the community has been a key aspect, the reuse initiative started from a proposal with the support from various communities who were convinced that the reuse project would serve their purpose. This support also helped to convince the municipality about the public interest in their reuse plan. Rather than starting with renovation works and only find occupants later on (as was the case in Potocki Palace and Alba Iulia), engaging with the local community in an early stage of the heritage reuse project helps to establish links between the local community and the material heritage object.

Another important aspect is the integration of a heritage site in its wider context. This can be done by incorporating an area-based approach in the reuse project, or by actively reaching out to existing structures, organizations and communities. In the case of Largo Rêsidencias there are many supporting policy programs that support the integration of the site into its environment. The project has been in the focus of various municipal policies such as a special investment program in Lisbon that provides funding to civic projects, including heritage preservation. In a number of socio-economically disadvantaged ('priority') neighborhoods the municipalities' policy (BIP/ZIP) helped to see heritage as a resource that can be integrated in a wider network of social and cultural activities that help to make the area around a heritage object more attractive. Another important aspect is to explore and reflect on the different understandings of heritage. In some countries the 'public' nature of heritage means public authorities have the main responsibility (example: Potocki Palace). This can mean a fairly inflexible approach to (formally designated) heritage assets, following an inflexible legal system, and focusing on materiality, aesthetics, and a very narrow set of values. Opposite to this, and to also address and incorporate immaterial heritage

values, co-creative project on heritage meanings can create a sense of belonging and raise awareness of heritage values that go beyond the material ones alone. These values have been explored in both Largo Rêsidencias and Stará Tržnica by organizing all kind of social mapping activities, and by incorporating stories and histories in the reuse plan. In turn, this became an opportunity to rediscover identity and symbolic values for the community and the entire district.

Answering the question where and how co-evolutionary practices occur in European practices of heritage reuse it must be noted that only two cases showed a co-evolutionary approach: Largo Rêsidencias and Stará Tržnica. In these cases, heritage is linked to the community, integrated in its wider context, and besides multiple and different understandings of heritage are explored, and a flexible and adaptive approach is implemented to adapt to future changes. A heritage approach based on these characteristics assures that heritage remains relevant in a complex world of multiple heritage values and different stakeholders involved. Based on the cases discussed in this paper, it can be concluded that co-evolution depends on the complex interplay of the actions of initiators and others in the heritage reuse projects, as well as the social/institutional system in which they operate. Indeed, the extent to which interrelations are established and maintained over time strongly depends on the initiatives of local actors and the extent to which their actions impact policy and institutions.

However, we also note that co-evolution can be a long-term process and might turn out differently than initially expected, or even change over time. Co-evolution also implies that heritage reuse is transformative in many ways, as a project can continue to adapt to changing needs or new demands. The here applied descriptive method to identify co-evolutionary practices was mostly based on retrospect on a realized project and did not consider the long-term impact of the projects. While studying co-evolution in future practices of heritage reuse, we therefore recommend more longitudinal, anthropological, living lab-based research methods, to study how driving forces come and go, mutual interact and change one another and how social and institutional context may change over time. Our operationalization and conceptual model for co-evolutionary heritage practice might then again be instrumental.

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ORCID

Karim van Knippenberg  <http://orcid.org/0000-0003-2920-8772>

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