THE RAVENNA ORGANIGRAPH: A TOOL TO MAP THE GOVERNANCE STRUCTURE FOR DISASTER RISK MANAGEMENT OF HERITAGE SITES

Eleonora Melandri, Angela Santangelo, Louis J. Durrant, Andrea Ugolini, Simona Tondelli

Abstract

The Organigraph technique, adapted as part of the H2020 SHELTER project, explores the complexities of the governance involved in the disaster risk management of heritage sites with experts. The paper aims to demonstrate the application of the Organigraph technique to the complex of Santa Croce in Ravenna, Italy. The technique proved to be a valuable tool to stimulate discussion among stakeholders, facilitating analysis of current critical issues, and promoting collaboration across sectors to manage risk towards a more resilient cultural heritage.

Keywords

cultural heritage, climate change, governance, disaster risk management, Ravenna

Introduction

Cultural Heritage (CH) is profoundly related to its environmental context, a factor that characterizes and affects its natural degradation process. In recent decades, the effects of climate change are exposing CH to different environmental conditions, posing new and additional challenges to its conservation [Bertolin 2019]. This phenomenon, «attributed directly or indirectly to human activity altering the composition of the global atmosphere and adding to the natural climatic variability observed over comparable periods of time» [UN 1992, art.1], is indeed a paramount concern for practitioners and scholars involved in the CH sector [UNESCO 2006; Sabbioni et al. 2009]. Many heritage sites worldwide have already been affected by disasters intensified – in frequency and severity – by the effects of climate change [Sabbioni et al. 2009; ICOMOS 2017]. These conditions place increasing urgency on the need for an integrated approach to address these challenges [UNESCO 2010; Stanton-Geddes, Soz 2017; OECD 2020]. Scholars and international organizations already widely highlighted the imperative necessity to correctly identify all the relevant stakeholders for disaster risk management (DRM) in a specific CH site [Hajialikhani 2008] and the improvement of DRM capacities to face the new challenges of our time [UNESCO et al. 2013; Jigyasu et al. 2013; Pedersoli et

al. 2016; Fatorić and Seekamp 2017; Jigyasu 2020]. Indeed, incorporating elements of risk management into planning tools and safeguarding practices would result in a more resilient CH [Albris et al. 2020; Cacciotti et al. 2021; Santangelo et al. 2022].

A critical document in this regard is the Sendai Framework for Disaster Risk Reduction (SFDRR), formulated in 2015 by UN member states [UNDRR 2015], in which the governance topic is explored in priority no. two. The voluntary and non-binding agreement recognizes the primary role of the national scale in disaster risk reduction (DRR). At the same time, it stresses that responsibility must also be shared with other actors such as local governments and the private sector. The SFDRR emphasizes the importance of improving risk management and reduction measures by prioritizing and strengthening governance actions throughout the whole cycle of DRM. In addition, the Framework addresses national and global policymakers by drawing attention to the relationships between heritage protection and land resilience. Nevertheless, though the SFDRR frames the integration of DRM measures at an international scale, policies and planning tools at the national and local scale still lack the adoption of a cross-domain approach, and the integration of DRM practices into the CH sphere remains fragmented [UNESCO 2010; UN 2015; Bonazza 2018].

The need for reaching a common understanding and agreeing on shared goals among policymakers, risk management practitioners and heritage managers has become critical to ensure the safeguarding of heritage sites [Jigyasu et al. 2013]. In recent years, more and more scholars are emphasizing the important role of CH in DRM, exploring the potential integration of the two concepts [Fatorić and Seekamp 2017; Santangelo et al. 2020; Rosa et al. 2021]. As also stated by international documents, it is challenging to build a clear shared vision and foster collaboration across sectors to reduce risks for a more resilient CH. Therefore, clearly identifying not only the roles, but also the interactions among the different groups of stakeholders in all the DRM phases is a critical step towards more conscious and effective management of all heritage sites [Giuliani et al. 2020].

In this regard, the paper aims to draw attention to the potential of the Organigraph technique as a valuable self-diagnostic tool by which experts can map DRM governance. The Organigraph technique was originally defined by Mintzberg and Van der Heyden [Mintzberg and Van der Heyden 1999] and later applied to governance by Tiliouine et al. [Tiliouine et al. 2018]. The value of the Organigraph technique is in its ability to provide a quickly understood but infinitely adaptable common platform by which stakeholders can co-create a map of the governance structures of CH around one or more specific hazard.

As already highlighted by Durrant et al. [2022], the Organigraphs, developed within the framework of the Horizon 2020 SHELTER project[1], clearly highlight the perceived roles and relationships between different stakeholders, policy instruments and tools across three case studies. The paper builds upon that research and focuses on the work

[1] SHELTER project website available at: https://shelter-project.com.

behind the development of the Ravenna Open Lab (OL) Organigraph, in which this technique was found to be a relevant tool to stimulate and facilitate a discussion among researchers, practitioners and policymakers on the risk management issues in the area. The governance map, which can be easily adapted to other CH sites of the city with appropriate adjustments, has proven to be a pertinent basis for exploring the strengths and weaknesses of the current governance structure in the area under study and from which to draw considerations to improve its existing management system.

The Ravenna Open Lab: an overview

The Italian case study of the H2020 SHELTER project is the Ravenna OL, consisting of the archaeological area and the church of Santa Croce (Figure 1). The CH site is located in the city centre of Ravenna, next to two of the eight Early Christian World Heritage (WH) properties of the city, the Basilica of San Vitale and the Mausoleum of Galla Placidia. Over the centuries, the area underwent many architectural changes, but it was once a unique building with the Mausoleum. The church was erected by will of the Empress in the 5th Century over the remains of a Roman *domus*. The remains of the sumptuous ancient residence structures and mosaic floors are still partially visible in the archaeological area surrounding the church. Due to its proximity to the Basilica of San Vitale and the Mausoleum of Galla Placidia, the area is included within the site buffer zone perimeter of the UNESCO Early-Christian Monuments serial site.

As the whole Ravenna territory, the city centre suffers from the subsidence phenomenon. The progressive sinking of the soil has been affecting for decades the heritage sites of the city, bringing the aquifer level closer and closer to the surface and the assets [Cerenzia et al. 2016; Simonini et al. 2017]. As a result, the Mausoleum of Galla Placidia is currently more than 1.5 meters below its original level [Riccieri 1992]. The high level of water in the aquifers poses an even greater risk in case of extreme rainfall events, situation that can cause groundwater flooding in below-street-level areas, such as Santa Croce. The risk of groundwater flooding in the archaeological area is heightened due to its basin configuration following the archaeological excavations performed at the beginning of the 90s [Sericola et al. 2018; Ugolini et al. 2019]. Moreover, the lack of proper maintenance and the architectural works that involved the church made its structures extremely precarious.

From the very beginning of the project activities, it has been clear that the Santa Croce area faces a complex governance structure, involving the collaboration of different local actors. On the aspect of ownership, the church of Santa Croce as an ecclesiastical property is owned by the Diocese of Ravenna-Cervia, while the Municipality of Ravenna owns the surrounding archaeological area. However, all management responsibilities are given to the local branch of the Ministry of Cultural Heritage, the so-called Soprintendenza Archeologia Belle Arti e Paesaggio for the City of Ravenna. As anticipated above, the area is also affected by flood risk. The management of these emergencies falls under the responsibilities of the local Civil Protection, a branch of the National

1: The archaeological area and church of Santa Croce. On the background, the WH property comprising the Basilica of San Vitale and the Mausoleum of Galla Placidia are visible.

Civil Protection Agency, which is supervised in its activities of heritage areas by the Superintendence after notice to the owners.

This fragmentation of competences and differing priorities and interests among these stakeholders often make their effective collaboration complicated. Moreover, the complex internal dynamics of collaboration among these authorities also often do not make it easy to understand the roles and relationships among different internal offices and departments within the involved institutions. This often leads to disconnected and timed emergency management interventions. For this reason, one of the main objectives of the Santa Croce case study agreed upon with the key actors is to improve cooperation among the owners, the manager of the area and the different involved stakeholders to ensure better protection of these places.

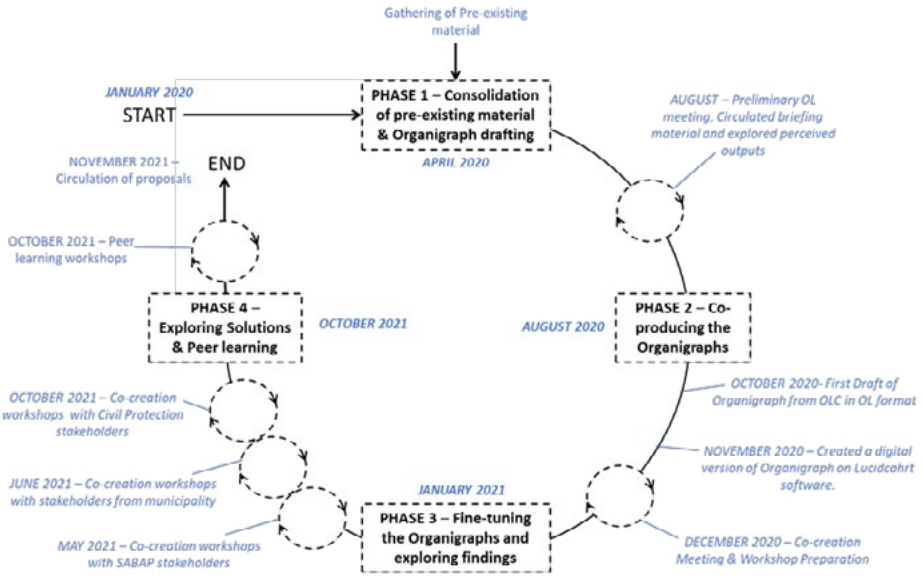
Methodology

An innovative and collaborative semi-empirical research approach was designed and implemented. This approach was based on the methodology outlined in Durrant et al. [2022]. However, the specific approach used to co-create the Organigraph within the Ravenna OL and its key steps have been encapsulated in Figure 2. In full, the approach

consisted of four iterative phases undertaken between January 2020 and November 2021 that facilitated the consolidation of pre-existing material and knowledge, the co-production of the Organigraph, its fine-tuning and refinement and finally the exploration and peer learning of potential solutions.

Phase 1 consisted of preliminary desk research conducted between January 2020 and April 2020, in which the researcher focused on the consolidation of pre-existing material which could aid in the development of the Ravenna OL Organigraph before contacting stakeholders. Phase 2 consisted of a series of co-creation meetings and email exchanges between the partners involved in the related project task, namely the University of Liege, responsible for the Organigraph definition as task coordinator, the University of Bologna, coordinator of the Ravenna OL, and key stakeholders and aimed to develop an initial draft of the governance map within the Ravenna OL.

This second Phase focused on specific elements of the Organigraph culminating in an initial digital Organigraph which was hosted and created on the online digital whiteboard Lucidchart software. Phase 3 aimed at fine-tuning the Organigraph increasing its detail and improving its accuracy. This Phase consisted of three independent online workshops with three key stakeholder groups. Finally, Phase 4 - attempted to use the Organigraph as a platform for peer-learning and highlighting the myriad of strengths, weaknesses, opportunities, and threats identified within the Ravenna OL DRM governance. It is also important to note that from November 2020 within Phase 1 both the OL Coordinators and the stakeholders had access to the online Lucidchart software[2] and were free to make changes as they wished.

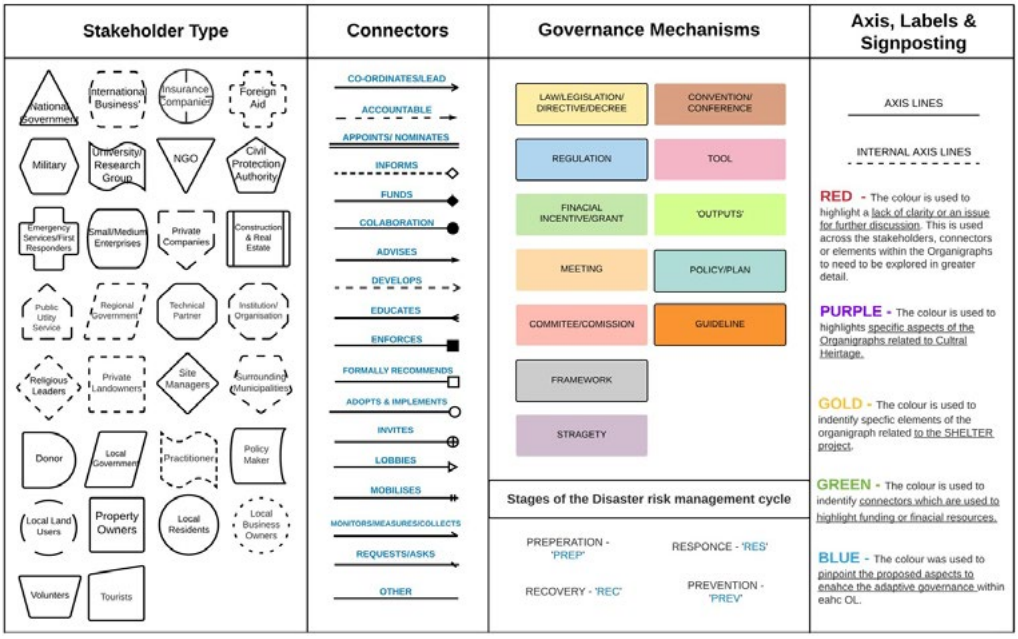


2: The four iterative phases and specific methodological steps used to co-create the DRM governance Organigraphs with experts in the Ravenna OL (Source: figure adapted from Durrant et al. 2022).

[2] Lucidchart software available open access at: www.lucidchart.com.

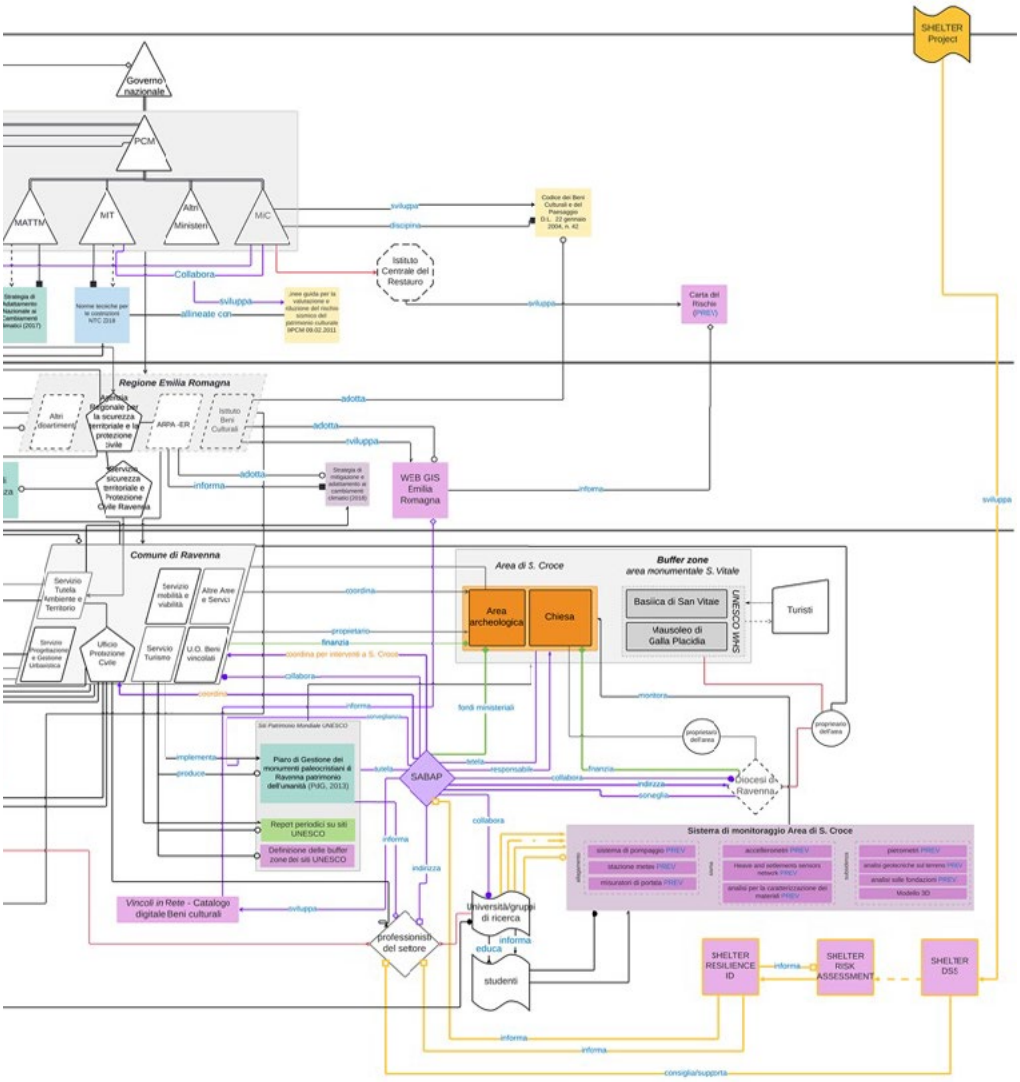
Mapping the governance structure for the Ravenna Open Lab

First, it is important to note that all the Organigraphs created within the SHELTER Project utilise a standardized key (Figure 3). The standardized key ensures that regardless of the OL specific context in which the Organigraph is being co-created, it remains accessible to all users as they are based on the same components. Through the standardized key, the governance structure for the Ravenna OL was successfully mapped from the national to the local scale. In fact, given the hierarchical structure of the Italian governance system, it was necessary to identify the main actors, tools, and policy documents from the national to the regional, provincial, and local scale.



3: The standardized key outlined the components that are used to construct the Organigraphs (Source: Durrant et al. 2022).

The first draft developed by the researchers of the University of Bologna identified and placed on the map the stakeholders involved in the Open Labs activities. This version aimed primarily at exploring the hierarchical structure from the national scale to the Municipal one and to better understand the horizontal relationships among stakeholders. However, a reflection was made that the stakeholder mapping alone would not be sufficient to fully understand the dynamics revolving around the area. In fact, to clarify the roles of the different stakeholders involved, it was decided to expand the contents of the map by including the tools and regulatory references that govern the area. The expertise of the Bologna research team that coordinates the Open Lab allowed to populate the first draft of the Organigraph with key documents and tools related to the area in



4: Focus on part of the refined DRM Organigraph for the Ravenna Open Lab from the national to local scale, after the stakeholder workshops at the end of Phase 3, September 2021.

question, in reference to the key topics explored in the project (e.g., CH, urban planning, climate change adaptation and mitigation, natural hazards management).
As mentioned in the previous paragraph, this primal version was presented and discussed through bilateral meetings with the key stakeholder of the area. In general, all the stakeholders welcomed the Organigraph as a clear tool to visualize the complexity of the DRM governance structure for the area. The inclusion of the national and regional scale was appraised to be useful to easily keep track of the main regulatory framework

and tools at the disposal of the local scale, i.e., the Risk Chart[3] (Carta del Rischio) project and the Web GIS tool of the Emilia Romagna Region[4]. In addition, it was emphasized that it provides a clear understanding of responsibilities according to roles and competencies.
After the three bilateral meetings, a consolidated configuration of the Ravenna Organigraph was agreed upon, part of which shown in Figure 4. The complete version of the Organigraph can be accessed in Durrant and Teller [2021].
During the meetings, it was decided with the actors to include in the map also the tools that have been developed in the framework of the SHELTER project. These tools are codified with yellow lines and borders. The predominance of the violet colour highlights all the CH components in the map, clearly predominant compared to all the others because of the significant heritage value of the site.

Conclusions

The paper presents the results of the Organigraph technique applied to the Ravenna governance structure concerning the church and archaeological area of Santa Croce, the Italian case study of the H2020 SHELTER project. The preliminary version of the Ravenna Organigraph developed by the researchers was refined through a collaborative process involving the key stakeholders of the case study. The tool was welcomed by the stakeholders as a powerful instrument to activate the participatory process to better clarify some critical aspects of the current governance structure.
In particular, some discrepancies related to the due financing in matters of ordinary and extraordinary maintenance were risen. Moreover, the map highlights that there is no legislative document specific to DRM in the area nor direct relationship between the manager of the asset and the Civil Protection, authority in charge of the management of emergency events. In fact, in the event of flooding, the alert is given to the Soprintendenza, which needs to contact the Civil Protection for intervention in the area, following the notification to the two owners. Civil Protection intervenes in heritage sites only under the supervision of Superintendence technicians. These interventions are generally carried out by Civil Protection volunteers - whose inadequate training on risk management in these contexts is sometimes complained about – [Ugolini 2020] also due to the lack of resources and adequate tools on the side of the local CH authorities. As a remark, it was pointed out by the technicians from the Civil Protection, emergencies due to the lack of maintenance or breakage of mechanical systems do not directly lie in the competences of the Civil Protection, whose interventions are aimed primarily at the safety of citizens [Legislative Decree no. 1/2018, art. 2]. The current

[3] Risk Chart GIS tool for Italian CH - *Carta del Rischio del Patrimonio Culturale:* http://www.cartadelrischio.beniculturali.it/webgis.

[4] Web GIS tool developed by the Regional Secretariat for Emilia-Romagna of the Ministry of Culture: https://www.patrimonioculturale-er.it/webgis.

procedure does not allow for prompt intervention in case of emergencies, especially in some critical periods of the year (e.g., public holidays, summer period).
Furthermore, the discussion upon the Organigraph enabled to highlight some weaknesses of the current Management Plan for the WH serial property of the Early Christian Monuments of Ravenna. The Plan, mandatory for all the WH sites as foreseen by the law no. 77/2006, was developed in 2013 and has not been updated since then. As pointed out by the Bologna research group and confirmed by the discussion with the stakeholders, the main critical point of the document is the complete lack of elements of risk analysis and disaster risk management. In fact, the main topic explored in the Plan is tourism and related issues. Without diminishing the importance of all the issues related to tourism, all the involved stakeholders agreed that risk management should be incorporated into the next plan update. These directions should be extended to buffer zones in WH areas too, such as the area of Santa Croce.
In conclusion, the cooperative process established for the definition and tailoring of the Organigraph allowed to refine not only the governance structure of the case study, but also to clarify how to improve the most relevant policy documents for the Ravenna Open Lab. The standardized key allows to map and explore the structures of the DRM governance, by fostering a discussion on different topics and aspects, gaps, and potentialities of the current management system. The established process contributes to improving the management of the area, taking care both of its heritage value and of the risks to which it is exposed because of natural events and climate change.

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