

The story lives on

Optimizing Narrative driven Design for a
Zero-Waste conversion of ex churches

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Bas Nijenhuis – 4486269 – MSc3 Graduation studio Revitalizing Heritage: Zero-Waste Church

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Introduction

In an ever changing world the traditions and practices evolve along with the times. One of these changes is that religiousness is in decline and the churchgoing population shrinks. As a result of this ongoing development, one in four churches in the Netherlands now serves a new purpose (Ministerie van Onderwijs, Cultuur en Wetenschap, 2021). With the prediction in 2020 that around 1500 to 4500 churches will have to close in the next ten years, which as a result of the Corona pandemic's temporary ban on large gatherings, the aging parishes and communities that use the churches and the overall secularization, this number is likely to be rising still (BOEi, 2021; Rijksdienst voor het Cultureel Erfgoed, 2011).

Being threatened by demolition, these buildings are in need of a use for future. Not only is this relevant for maintaining some of the most characteristic buildings that often dominate the skyline of the old city center, it also helps limiting the waste produced by the building sector. Where this sector amounts for up to half of global carbon emissions (Treggiden, 2020), major gains can be made when shifting our focus to repurposing rather than rebuilding (TU Delft chair of Heritage and Architecture, 2022). Church buildings, especially older buildings, have an architectural and cultural distinctiveness, if not a uniqueness, which make them good candidates for recognition by preservation organizations and agencies (Duckworth, n.d.). Because the architecture and design of many of these buildings are unique to the use of a church, adaptive reuse strategies are challenging to implement but, due to their place in the vernacular of their respective neighborhoods and their ties to cultural heritage, the loss of the building is generally deemed tragic (Duckworth, n.d.). Creating sustainable methods of repurposing vacant churches for a future use will then not only save these characteristic buildings from demolition but also work towards the goal of a sustainable building industry.

This research topic is also the result of a personal fascination by historic buildings as a de facto time machine that reflect a past time, culture and practices. An historic church with often a prominent role in the cityscape is an example of a building that can teach us about the past (Duckworth, n.d.). As such, to preserve not only the building but also its history, the complete story behind the building should guide the repurposing and converting of these buildings for a new use.

The planned thesis will be performed within the MSc graduation studio of the zero waste church. This studio focusses on the repurposing of vacant churches while minimizing the waste produced in the transformation process. Laying the focus on the stories behind the building and what they represent, takes this zero-waste challenge beyond just maintaining the tangible, but also seeks to have zero-waste in the intangible aspects and values integrated in and represented by these church buildings.

Problem statement & Relevance

To save this influx of impending vacant churches from demolition, good methods for keeping these buildings, their principles and stories alive have to be established. Hereby focusing on retaining both the heritage values of this heritage and help create a more sustainable built environment. This research aims to find fitting future for vacant religious heritage by implementing a narrative driven design.

Heritage is defined as an inheritance, the valuable material and intangible aspects of historic culture (Centre for Global Heritage and Development, 2022a). As this representation lays at the very core of heritage, the backstories behind physical heritage is fundamentally important to the understanding of the object itself. In the case of churches, they often have a prominent role in the city. Some of the older churches have become icons of their city as a result of their visibility due to their height and often decorations and among which many local and national monuments (BOEi, 2019), becoming part of the city's identity (Duckworth, n.d.). Identity and local character are part of a city's competitive edge, but are increasingly under threat and destroyed by globalizing processes of urban development (Tongji University, WHITRAP, & UNESCO, n.d.). Heritage and local culture then become determinants of the quality of life and the well-being of local communities, offering opportunities to both increase sustainable development potential and conserve cultural heritage (Tongji University, WHITRAP, & UNESCO, n.d.).

Often being used in the design of a museum, storytelling is adopted in their interpretive framework by use of audiovisual techniques to convey the meanings contained within artifacts (Lu, 2017). Narrative design is using the stories contained in the existing context of the design brief as a foundation to create a spatial storytelling within the design, conveying these stories through the shape and use of a building (Lum, 2019). A narrative driven design provides an ideal approach for a redesign where both tangible and intangible attributes are respected, therefore not only preserving a building but also the stories of the building. This means walking the tightrope between romanticism and rationalism to achieve depth in the architecture embracing and making the heritage values transparent and engaging to the user. Using narratives to combine both positive aspects of romanticism with rationalism could help design a more successful environment. This would imply creating a complete story, in which passion, feeling and rational functionality are in harmony. (Tissink, z.d.)

"Including a story in a building creates a level of meaning and connection to the patron or user that can be engaging and provoking."

- William A. Browne, Jr., FAIA, LEED AP

This narrative driven approach can help capture and embrace the integral sentiments about a project, clarifying and reinforcing the projects goals (Sze T. et al., 2019). Approaching the building as a story when redesigning will allow to embrace the backstory and make it more legible to the user and the observer, adding a layer of depth and transparency to how it represents itself. This way the built heritage can be an open book of the heritage it represents, rather than just a building with for example a monument label. Though the narrative driven approach seems like an obvious strategy when dealing with heritage, where the backstory is essential to the quality of the building, this field is still underexplored. Especially how this narrative driven approach can aid in the minimization of material and immaterial waste in churches, where icons and symbols no longer have a real place

outside of their past religious meaning. This will then be the main focus of this research, filling the void of how the narrative driven design approach affects the potential for a circular and zero waste design that embraces and showcases its values. The aim of this research is to support future generations to appreciate and understand their past as well as giving them the tools to create a more sustainable built environment.

The transformation of obsolete built heritage is also closely related to circularity. Circularity means the reuse that which already exists, forming a closed loop system that is regenerative and focusses on the minimization of resource extraction and environmental impact (Ikiz Kaya, Dane, Pintossi, & Koot, 2021). Usually related to the reuse of materials, in the context of heritage it can also apply to the reuse of meaning and representation in built heritage. Heritage does not only provide the opportunity of maintaining the material components but also offer opportunities to increase the sustainable development potential of the historic cityscape (Tongji University, WHITRAP, & UNESCO, n.d.). Therefore preserving the historic cityscape while stimulating its continuous development.

To conduct the research a main focus will be on the R.K. Barbarakerk in Culemborg. This late 19th century neogothic church is a prime example of the Catholic faith once again establishing their presence after being forced underground for centuries (Frijters, n.d.). With its grand stature and dominant place in the city center, it has become an integral part of the city image. However due to diminishing use and expensive maintenance urgently required, this building needs a plan for the future or will be under threat of demolition. Having been constructed as a catholic church, where iconography and symbolism play a significant role, this building also contains a rich inventory of items related to specific history, backstory and legend that will struggle to find a new place outside of religion. This provides the ideal candidate to test the effects of a narrative driven design on the circular redesign of vacant churches.

Currently the rising vacancy in churches provides a challenge for architects. In buildings like the R.K. Barbarakerk, the poor state of conservation makes the need for a future role urgent, or this characteristic building in the city center will be demolished. However when we define these buildings as our heritage, we specifically note that these buildings have inherent cultural and or historic value (Ministerie van Onderwijs, Cultuur en Wetenschap, 2019). Becoming a part of the historic urban landscape it becomes important that the values of these buildings don't fade away as the buildings lose their original functions and change to accommodate new functions (Tongji University, WHITRAP, & UNESCO, n.d.). As more churches become vacant in the coming years, understanding how using what is already there as a foundation for the redesign and a way to better integrate this will form an approach that maximizes the future potential of these building while safeguarding everything they have always stood for. Making sure that the values of the heritage will be maintained, embraced and even highlighted to the community. Resulting in a stimulating historic urban landscape where the heritage reflects the culture and history and provides great depth to the observer (Tissink, z.d.).

This research will be crucial for the design stage as well as guide the decision making process for now and for the future. Giving me crucial experience how to respect and embrace heritage when it needs a new life. Also it might provide other architects with context for possible approaches for heritage that use the inherent narrative of the building to achieve zero-waste and transparency to why the heritage is heritage. The result of this thesis will be a series of guidelines, tested and refined in different design scenarios for the R.K. Barbarakerk in Culemborg. These guidelines will show how to incorporate the stories of heritage in the spatial and structural form of the architecture itself. Allowing these buildings to be a teaching tool about culture and history for current and future users and observers.

Research Questions

In today's architecture, architects often use the shape, structure and space of the building as the main foundation for a redesign. Adding to this, being of the opinion that when dealing with characteristic buildings like religious heritage, the wish of the architect to add his own signature or voice to the building can result in the story portrayed by the building becoming blurred and unclear. Here the focus will be shifted to continuing the story that already exists as a foundation for the design process.

To address the topic of integrating the stories as part of the redesign process, and its effects on circularity within the design process the following main research questions and subsequential sub-questions are formulated: *How to make the stories that are integrated in religious built heritage legible in a redesign?*

- *What is the symbolic value of the neogothic church architecture of the 19th century?*
- *What elements tell stories and carry symbolic value in Catholic religious heritage?*
- *How are the intangible stories and symbolism connected to the tangible building and its elements?*
- *What are the effects of the narrative design approach to the circularity potential of the tangible and intangible building elements of the R.K. Barbarakerk?*

The scope of this research will be limited by how these questions apply to the case study of the R.K. Barbarakerk, hereby preventing this thesis from become a study of theology.

This research aims to analyze the neogothic catholic church as a linear narrative to create a comprehensive understanding of the existing values and their representation, which can then form a basis for a redesign. The research aims to discover how interpreting and approaching the building as a story can both make its historical and cultural values more visible and legible for current and future generations, as well as how a deeper understanding of church icons and symbols might aid in giving these elements a purpose in their future after religious significance. This thesis approaches the zero-waste challenge as more than just a material challenge and embraces these buildings as a reflection of the past, safeguarding the heritage the buildings represent even after having lost its original purpose. Therefore this thesis aims to find a strategy that guarantees that the new function after a transformation makes sense on a spatial and narrative level, hereby truly fitting into the canon of the building.

The gained knowledge in the initial literary part of the research, will be tested and developed in a redesign exercise. In this redesign exercise various scenarios will be explored based on de findings. Employing different strategies and starting points to verify which approach within the narrative based strategies gains the best results in minimizing both material and immaterial losses. Additionally the impact on legibility of the history and present stories will be tested with these design scenarios.

Methods and Planning

In order to execute the research different methods will be employed. First of all literature research will form the basis of existing knowledge and methods of narrative based design. Creating a foundation of existing strategies for implementing narrative design and heritage transformation, will aid translating this to an approach for circular design for religious heritage. Furthermore the literature sources will provide a wealth of information the symbolic meaning of 19th century use of gothic architecture for catholic churches and their use of iconography in religious practice. Combining these fields will then give insight how narrative driven design could apply to the intangible stories and their embodying icons and symbols in the church.

To find answers for the original inventory of icons and symbols in the R.K. Barbarakerk and how they may have changed over time Archival research is employed. Using the archives of the original parish of the R.K. Barbarakerk in Culemborg pieces about acquisitions of items and maintenance dossiers for the church can be found and researched. This will provide answers to the evolution of and changes to the church, providing an understanding of how closely the interior elements, icons and symbols are original and bound to a specific location. This will help understanding the originality and evolution of the narrative that is part of the case study.

To better understand the anecdotal significance of items in the church and the church itself interviews will be conducted. Speaking to parish members and the local community in Culemborg, the personal stories related to the building and its elements can be researched. Priests or church elders with specific theological knowledge about symbolism and iconography can also provide more depth to the backstories present in the church. This will show whether these stories vary between different communities and what the most important aspects are that represent these stories.

Finally reference Case-studies are observed to see how they handle the symbolism and storytelling in the redesign process. The following case-studies will be specifically researched:

- De Sint-Petruskerk in Vught, a previous catholic church having been converted to a library. This redesign has generally been considered a successful transformation of a late 19th century neogothic church. Therefore this church will also have had to deal with icons and symbols prior to the redesign, providing an interesting reference as to their approach and how it impacted the overall redesign
- De Broerenkerk in Zwolle, a late medieval Dominican monastery that has a long transformation history. This long history and how it translates to its current function of a bookstore will provide crucial reference as to the legibility of historical changes in the current building and how redesign can influence this.
- Furthermore, projects like the Saint Martin's hotel in Mons and the Heilige hartkerk in Breda will be looked at to analyze the impact of a transformation to various new uses have on the circularity of both the tangible and intangible aspects of the former church.

These specific case-studies were chosen because they are generally considered successful transformations of religious heritage. The Sint-Petrus follows a form based redesign approach, and the Broerenkerk a mostly functional one with some subtle narrative elements. These case studies combined with a general look on church conversions where the focus of the conversion was more commercial will provide a well-rounded view of how narratives change transformed heritage and how much of the original building, both tangible and intangible, is retained and how well it displays

its heritage values. This knowledge will demonstrate the most effective methods to incorporate narratives in the redesign process.

Additionally, parallel to the formulation of this research plan, an ABC analysis was performed on the R.K. Barbarakerk in Culemborg. This already provided a base level of knowledge on the building itself, its history, context and some of its symbolism. This was concluded in an overview of present values in and of the building itself. These values already demonstrate some of the stories that are present in the church and how they are bound to the building itself. Revealing that this church that celebrated the return of catholicism in the Netherlands was built with a very limited budget. This means that the number of icons and symbols is more subtle then some of its contemporaries. The donated stained glass windows demonstrate the works of mercy, this provides some of the first clear narratives that can be integrated and related to in the redesign. Also revealing that a lot of the attributes of the church have been moved around and altered a lot in its lifetime, this shows that these attributes are not very bound to a specific location but can be moved around and retain there value, in the redesign this will form the reference for how to handle, integrate and respect these pieces. This lays the groundwork upon which the further research can be built and elaborated. And eventually tested in the design process.

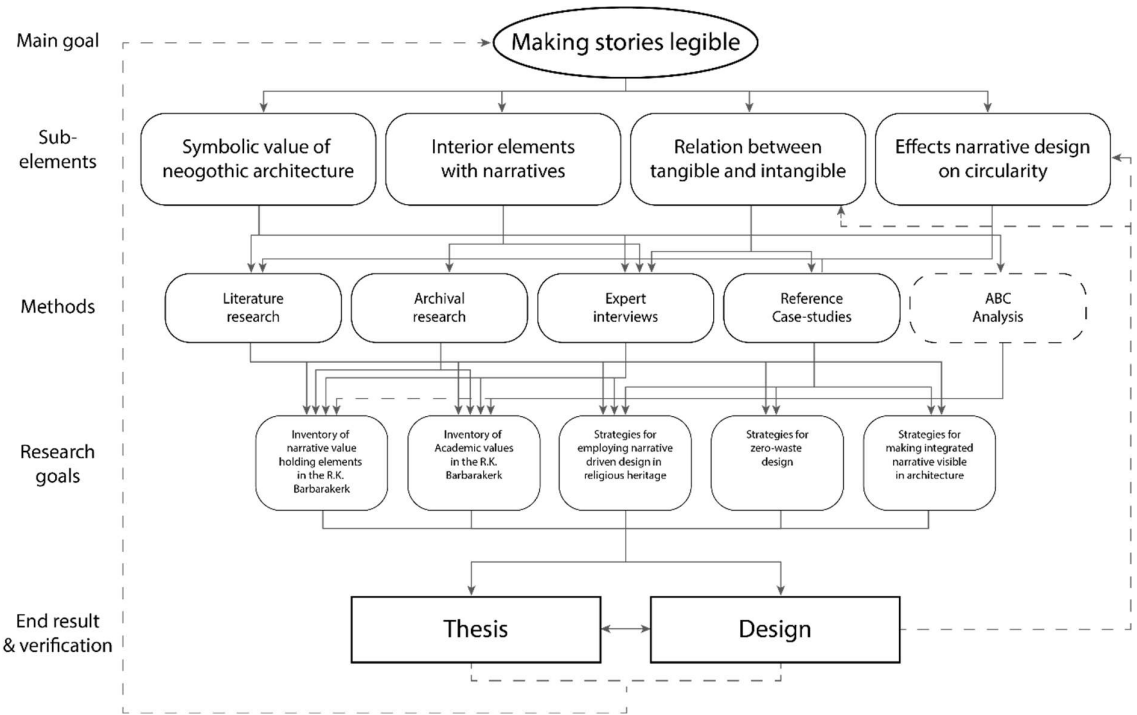


Figure 1: Methodology diagram, illustration by author.

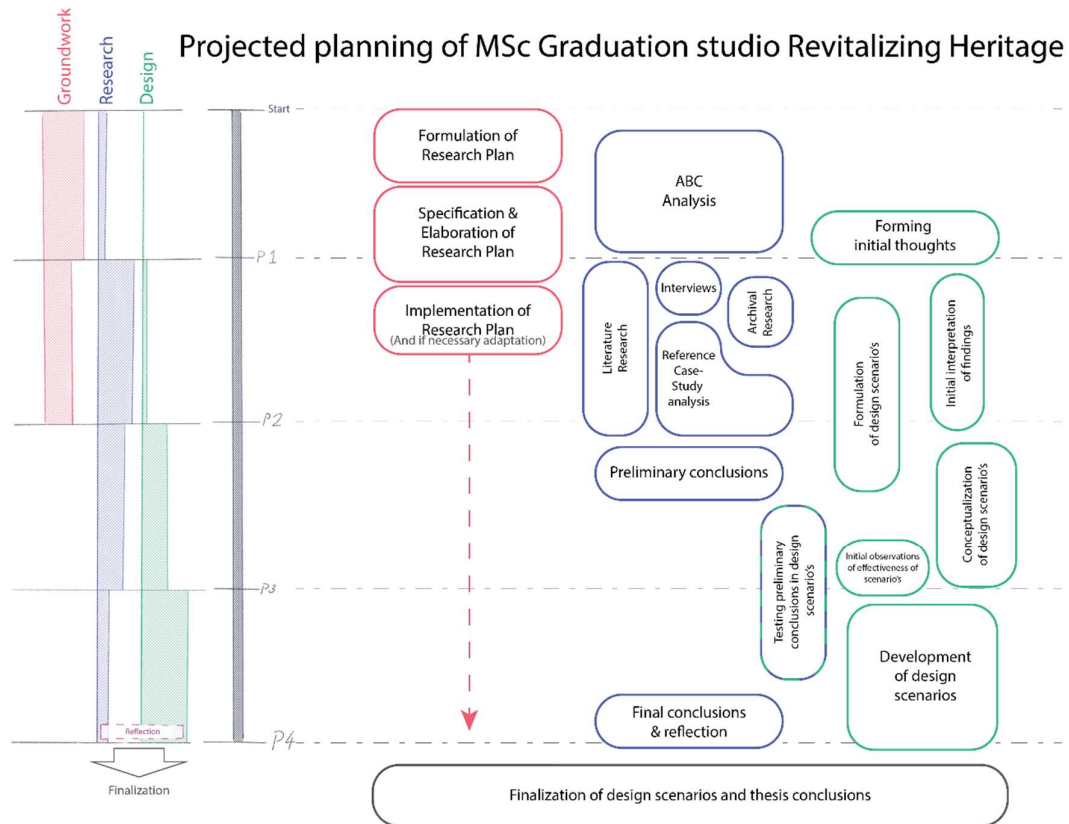


Figure 2: Graduation studio planning, illustration by author.

Theoretical framework

In this research various topics are introduced. First of all is the narrative driven design process. As defined by Sze T. et al. Narrative driven design incorporates storytelling into the design process (2019). Where narrative design usually is employed for new designs with a specific goal in mind, this research will apply the narrative method to the redesign of the built religious heritage that is the focus of this graduation studio. Narratives are then defined as stories, a spoken or written account of connected events (Oxford Languages, n.d.). For the built heritage that is the focus of this research that translates to the principles the original buildings were constructed with and what they were meant to portray and represent, and how to make them apparent and legible.

The next topic is the subject of icons and symbols. As we are dealing with religious heritage, there are various elements that portray scenes from the bible and symbolize a great spiritual meaning or connection. These symbols are often giving physical shape in the form of icons of saints and attributes. Some of these symbols and their meaning can be found in McNamara's book on how to read churches (2011). About the significance of the saints that are portrayed in the church a wealth of knowledge can be found on catholic web sources. These will not only dive into the backstory behind the saint itself but explain their connection to various fields and practices in and outside of the Catholic faith. This way the transformation architecture can react to the entire backstory, creating new functions that make sense with the space, structure and story to make a sensible ensemble. This allows even the symbolic icon or ornament to get a functional and fitting place in the transformed church.

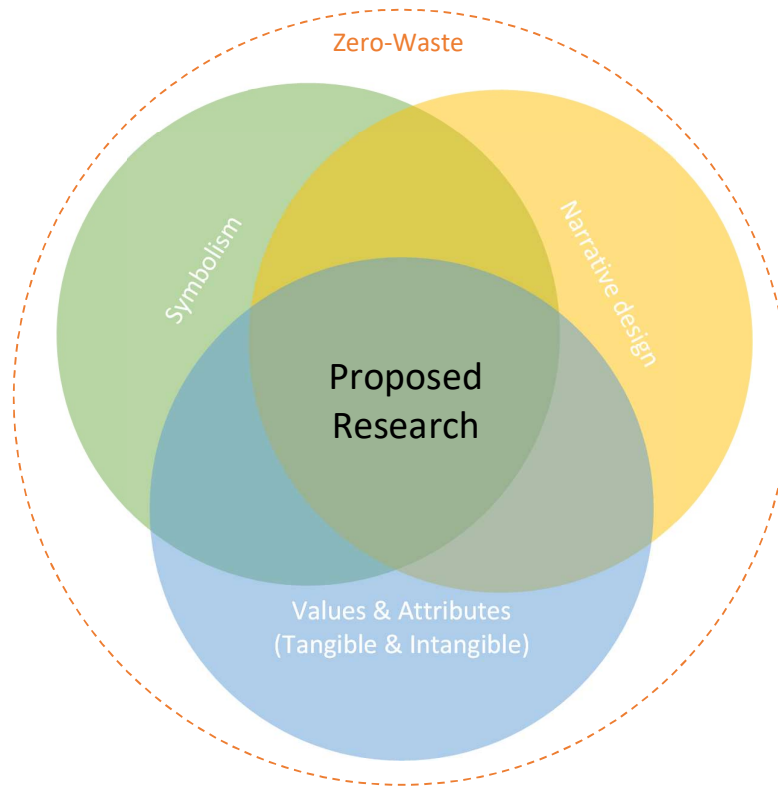


Figure 3: Primary research fields, illustration by author.

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