

# **Physical Collections for Social Sustainability**

## **Research Plan**

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17-04-2025



## ABSTRACT

The National Library of the Netherlands (KB) is undergoing a significant transformation, prompted by the relocation of its physical repository to an off-site facility. This move is motivated by economic and environmental sustainability, but lacks social perspectives.

The KB is already prioritizing digital collection over physical ones, decreasing physical accessibility of its materials. According to statistics provided by the KB, there is a reduction in visitors to the reading room and overall loan of publications, while planned events and digital collections are increasing in popularity (Boersma, Martens, Ankersmit, & Stappers, 2022) (KB, 2025).

This research aims to include social sustainability into the strategy of the off-site repository to fill the lack of spontaneous visits to the physical collections of the KB. This is to tackle the risk of over-digitalization as this has a negative impact on social cohesion among individuals and institutions (Sociaal en Cultureel Planbureau, 2025).

This goal is explored across three interrelated scales: collection, building and urban scale. At the collection scale, risks and opportunities of the off-site repository will be assessed together with management strategies. At the building scale, architectural balance between porosity and security will be examined to create an accessible building which provides security for the special collections. At the urban scale, the local purpose of a public building will be balanced with KB's national goals, introducing the topic of sustainable tourism. The methodology combines literature reviews, case studies and interviews with librarians and local stakeholders.

This research will be used to determine design principles for the renewal of the KB. The preliminary principles include: wandering, visibility and separation. These three values will be explained in the final chapter.

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## PROBLEM STATEMENT

The National Library of the Netherlands (KB) is continually evolving to fulfill its mission of preserving and promoting cultural heritage. The relocation of its repository to an off-site location with an automated retrieval system is driven by economic and environmental sustainability considerations, including higher-density shelving and reduced energy needs. However, this shift raises a concern about the social sustainability of the library, as it may lead to a reduction in physical presence and public engagement with its collections.

Since 2019, the KB has prioritized digital collections over physical ones, resulting in a decrease in physical collection usage and a growing reliance on digital services (Figure 1) (Boersma, Martens, Ankersmit, & Stappers, 2022). This advancement is also evident in the numbers presented in KB's annual report for 2024. The user group of KB's digital services has grown visibly compared to 2023, while the number of people renting physical books or using the reading room has decreased (KB, 2025). Notably, the number of people who visit events in the KB has more than doubled. This can partly be attributed to the opening of Club Erasmus, a public event space.

Despite the success of digital initiatives and event spaces like Club Erasmus, a gap remains in promoting spontaneous engagement with the physical collections. The governmental Social and Cultural Planning department states the risks of losing social cohesion among not only mutual individuals but also individuals and institutions due to digitalization (Sociaal en Cultureel Planbureau, 2025). This highlights the importance of striking a balance between digital and physical accessibility.

The current building's design, characterized by closed facades and security measures, discourages casual visits and exploration. As digitalization continues to reshape library services, e.g. the relocation of the book repository to an off-site location, there is a pressing need to strike a balance between digital advancements and physical accessibility to maintain social cohesion and community engagement.

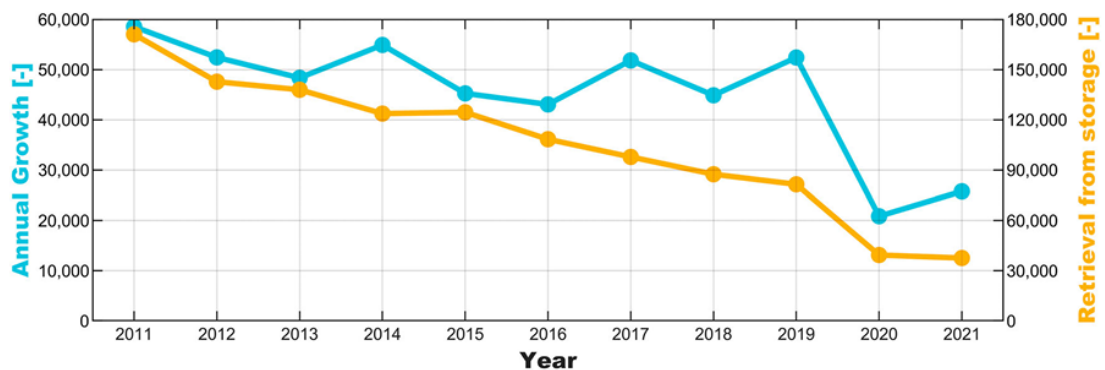


Figure 1: observable decrease in annual growth of physical materials (Boersma, Martens, Ankersmit, & Stappers, 2022).

# RESEARCH AIM AND QUESTIONS

In short, the aim of this project is to increase **spontaneous engagement** with KB's **physical collections** by using the **off-site repository** to enhance **physical accessibility**.

This is a response to the gap within KB's services.

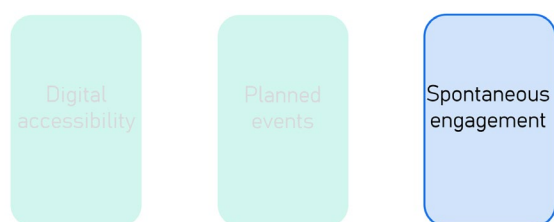


Figure 2: Spontaneous engagement is the focus.

- **Main research question:**

***How can architectural design enhance accessibility and public engagement with the physical collections of the National Library of the Netherlands?***

This research aims to promote spontaneous and informal interactions with KB's physical collections. This will be done with three interrelated sub-questions. The first question is related to current development plans for KB's physical collections. The second question investigates the impact of physical accessibility on architectural concepts. The third question aims to respond to local needs, defining the urban position of the KB.

These topics will give a complete overview, exploring three different scales of accessibility: collection, architectural, and urban. The main question brings these together.

## 1. **Collection Scale**

***What impact can the off-site repository have on the physical accessibility of KB's collections?***

- *This involves assessing the risks and opportunities arising from the relocation, including changes in public services and collection management.*

## 2. **Building Scale**

***How can the library building ensure security for KB's collections while promoting public engagement?***

- *This requires finding a balance between architectural porosity, which encourages unplanned public engagement, and the necessary security measures.*

## 3. **Urban Scale**

***How can the library building balance its national purpose with the local needs as a public building?***

- *This involves reconciling the KB's national role with its local context, considering the impact of tourism and the diverse needs of different target groups.*

By addressing these questions, this research seeks to contribute to the design of a library building that not only safeguards its valuable collections but also fosters an inclusive space that promotes social sustainability and community engagement with physical heritage materials.

# METHODOLOGY

## Sub-question 1

***What impact can the off-site repository have on the physical accessibility of KB's collections?***

- **Literature Review**

Goal: identify risks, potentials, and management aspects of an off-site repository. Use this in combination with the other sub questions to determine collection management for the design project.

The KB is not the first library to relocate its repository to an off-site location. This strategy has been used for decades, particularly by academic libraries in the United States. The impact of this system on academic libraries has already been researched by Priddle and McCann in 2015, providing a librarian's perspective on this development. One of the findings was that the impact on public services was the highest, stating that librarians are less aware of the materials that have been relocated, resulting in a narrowing down of information. They quote "out of sight, out of mind" (Priddle & McCann, 2015).

Besides this specific research, many papers can be found that describe the management of relocating a library's collection. These papers provide a solid foundation for understanding the system, its risks, and its potential, using case studies.

One example is the case of the Amherst College, where after relocating, the repository was only used twice a week for a collection with over 90.000 volumes. This emphasizes the concept of "out of sight, out of mind", but also from a user's perspective. However, the concerning paper also mentions that the selection of materials to be relocated is based on popularity, with only the least popular materials being moved to the off-site repository (Bridegam, 2001).

This raises another question regarding the management of the off-site repository: How will it be determined which collections will remain in the KB and which will be moved off-site? This is another aspect that will be examined during the literature review. However, in the end, a decision must be made on how to determine this for the KB, relating it to the other sub-questions.

The risks, potential, and selection of materials will be presented in a table to provide an overview. The draft for this can be found below.

**Table 1: Risks of off-site repositories as found in literature.**

<b>RISKS</b>	<b>EXAMPLE PROJECT</b>	<b>SOURCE(S)</b>
Reduced browsability.		(Bridegam, 2001) (Pop & Mailat, 2011) (Priddle & McCann, 2015) (O'Connor, Wells, & Collier, 2001) (Ballegooie & Borie, 2020)
Materials that are out of sight are often forgotten. This also impacts the services that librarians offer.	The Amherst College Library	(Priddle & McCann, 2015) (Bridegam, 2001)
Off-site materials have to be described better to be perceived as relevant.		(Priddle & McCann, 2015) (Ballegooie & Borie, 2020)
The system cannot operate without staff: the service is not available late at night or during weekends (depending on the library).	Library at the University of Limerick	(McCaffrey, 2021)
Losing the library ambiance that engenders scholarly behaviour among students.		(Barclay, 2010)
Delayed access		(Priddle & McCann, 2015) (Payne, 2007)
Difficulties in selection for storage		(O'Connor, Wells, & Collier, 2001) (Priddle & McCann, 2015)
Additional cost for delivery		(Bridegam, 2001)
New workflow for librarians		(Priddle & McCann, 2015) (Bridegam, 2001)

**Table 2: Potentials of off-site repositories as found in literature.**

<b>POTENTIALS</b>	<b>EXAMPLE PROJECT</b>	<b>SOURCE(S)</b>
Increases the area that can be used by visitors.	M. D. Anderson Library	(Sharpe, 2012) almost all sources...
More seats for students and more storage for books.	Library at the University of Limerick	(McCaffrey, 2021)
Security and climate control.		(Riley, 2012) (Hazen, 2000)
Materials will not be misshelved anymore, or at least not as much as by human error. (PROOF?)		(Riley, 2012)
The off-site repository can easily be shared with different institutes.	The Harvard Depository; National Depository in Finland; Norwegian Repository	(Riley, 2012) (Ugodu, Ibenne, & Durodolu, 2025) (Vattulainen, 2004)
Allows for more expansion space due to a new location.	The Harvard Depository	(Riley, 2012)
While the ability to browse decreases, it also takes away the problem of browsing regarding book placement (middle row is more prominent)		(Barclay, 2010) Another
In shelves, materials are often stocked according to topics. A book that touches multiple topics can only be located on one shelf.		(Hazen, 2000) Another

**Table 3: Methods on how to select materials.**

<b>HOW ARE THE MATERIALS SELECTED?</b>	<b>EXAMPLE PROJECT</b>	<b>SOURCE(S)</b>
Evaluation of usefulness. The facility wants to reflect the information vision of the 21st century. All volumes older than 20 years are relocated. A distinction of 'low demand' materials.	The Louis Stokes Health Sciences Library  Library at the University of Limerick; Harvard Depository	(Bryant, 2004) (Bridegam, 2001)  (McCaffrey, 2021) (Nitecki & Kendrick, 2001)
Size can play a factor in the decision to move a collection off-site Online accessibility		(Priddle & McCann, 2015) (Bridegam, 2001)

- **Interviews with librarians**

Goal: Find out about the current workflow and determine how this will change/ can be improved with the off-site repository.

This project is in collaboration with the KB, and the contact person is already working on finding suitable employees to conduct interviews with. These interviews will be conducted in cooperation with other students as part of the group's research.

The result of the interviews will also be a value assessment from a librarian perspective. What is, at the moment, valued by KB's employees?

## Sub-question 2

***How can the library building ensure security for KB's collections while enhancing public engagement?***

- **Case Studies**

Goal: Identify institutions with comparable goals to the KB and determine how they balance public accessibility with asset safeguarding.

While there are many public libraries in the Netherlands, the KB is the only National Library, making it its duty to protect valuable Dutch heritage materials. The importance of security is arguably higher in the National Library, contradicting the goal of this paper, which is to increase public accessibility. Museums are other institutions that have the same goal of preserving and making accessible heritage materials. This typology will be used in this chapter, as relating to security, it has more similarities to the National Library than public libraries. It is also useful to get insights from more typologies than just National Libraries.

### **Case study 1:**

Boijmans van Beuningen Depot, Rotterdam  
→ chosen because of its unique accessible depot



Figure 3. Depot, Rotterdam. Source: uitzinnig.nl, Ossip van Duivenbode.

Based on literature research and existing case studies, architectural elements will be identified to assess the projects. Besides the predetermined elements, additional aspects that are specific to a building can also be included. The elements to be studied are, at least:

- The visual accessibility of the **entrance** and security measures (Gallardo-Frías & Mairesse, 2021). This influences the threshold to enter the building, which is directly linked to accessibility. Threshold can be seen as a transition space, where the visitor can still decide whether to turn back or enter a 'new world' (Van Genneep, 2008).
- **Physical interaction** with original collections or even replicas (Grillo, Morelli, Rubano, & Vitali, 2023).
- **Routing and sightlines** as stated in guidelines by the Arts Council of England (2013).

The analysis of the case studies will be visualized with the use of pictures (security measures, entrance accessibility, etc.) and mapping (sightlines, position of security, physical collections, etc.). This will show different strategies to propose for the KB.

### **Case study 2:**

Kunsthal, Rotterdam  
→ Chosen because of its urban accessibility.



Figure 4: Kunsthal, Rotterdam. Source: Archdaily, Flickr User: Kleiobird.

## Sub-question 3

### ***How can the library building balance its national purpose with the local needs as a public building?***

This question will be answered in three parts: identification of local needs, KB's response to local needs and how to balance this with KB's national purpose.

- **Identification of local needs and problems**

National statistics and surveys/interviews will help investigate local needs and problems. For this section, it is first essential to acknowledge that a National Library's architecture cannot directly solve societal issues. It can, however, provide locals with spaces and education to strengthen social cohesion and knowledge. It can serve as a first step in tackling local problems, but will not resolve them overnight.

Statistics provided by the municipality of The Hague and Statistics Netherlands (CBS) offer insight into national and local problems and particularities. Notable data include relatively high immigration numbers, segregation between highly educated and lower-educated individuals, illiteracy, economic concerns, and issues related to health and weight.

The surveys or interviews will identify aspects that locals appreciate about the KB and what they are missing. This part will be a collaborative effort with fellow students. Specific questions will be determined together.

- **How do other institutes respond to local needs?**

How to respond to local needs will be studied with literature that describes case studies. In London, there is an interesting initiative that has 'revived' the library system in East London: the Idea Stores (Lushington, Rudolf, & Wong, 2016). This project was chosen as a case study because it focuses on lowering the threshold for using the library. This is done by implementing a retail model to lower the psychological barrier to entering the library. This reduced formality, compared with traditional libraries, contributes to the inclusion of non-traditional users (Idea Store, 2023).

In at least 2016 the Idea Stores are still successful according to the CIPFA Public Library User Survey, as 92% rated them as either 'good' or 'very good' (Pitman, 2016).

The reason this chapter will focus on literature research rather than a case study is the uncertainty of personally visiting the projects. Besides this, multiple papers have been written about the Idea Stores and their architectural and functional aspects (Komatsu, 2015) (Marsh, 2008) (Aitani, 2017) (more if necessary) and the institution shares data about its strategies and statistics on its website.



Figure 5: Whitechapel Idea Store, London (Lushington, Rudolf, & Wong, 2016).

- **Balance between local and national purposes**

After it is decided how the KB can respond to local needs, it needs to be assessed whether this approach does not interfere with the KB's national goals.

Simultaneously, this also needs to happen the other way around. Mass tourism and its impact on the cityscape should not bother local residents. Tourism in this context does not only imply foreigners but also individuals from other Dutch places.

Tourism can also have a positive impact on the local environment. The World Tourism Alliance (WTA) and UN Tourism published a paper about 'sustainable tourism', explaining how tourism can help to achieve the SDGs (WTA & UN Tourism, 2024). These guidelines will be used to determine a strategy for the new design.

It is still debatable if the KB should become a tourist attraction or remain withdrawn, but with its national duty, it is properly to consider the impact of national tourism.

## TIMELINE

	Week 4.1	Week 4.2	Week 4.3	Week 4.4	Week 4.5	Week 4.6	Week 4.7	Week 4.8	
Risks and opportunity assessment	█								
Prepare interview questions for librarians	█								
Interview librarians (date still needs to be discussed)		█							
Process the data from the interviews			█						
<b>Conclude sub question 1</b>			█						
Prepare case study visits with literature		█							
Case study visit: Kunsthal Rotterdam			█						
Case study visit: Depot Rotterdam				█					
Mapping of previous case studies				█					
<b>Conclude sub question 2</b>					█				
Case study on literature: Idea Stores				█					
Literature research on the effect of tourism					█				
<b>Conclude sub question 3</b>						█			
Find connections between the three sub questions to make design decisions and statements			█						

Interviews or surveys with locals is not yet included in this timeline, as this is assigned to other group members. If the result of this groups' effort is not satisfactory for this research goal, surveys will be handed out to passers-by or spread among mail boxes nearby.

If the interviews with librarians cannot be conducted within the first few weeks, the second sub question can be explored first.

## DESIGN PRINCIPLES



The concept of wandering is based on the risk of losing physical browsability, which is an essential part of information seeking (McKay, Chang, Smith, & Buchanan, 2019). Extra space can be made for the collections that stay at the BK, providing the opportunity to focus on the accessibility of those materials. Prioritizing the physical browsability of these materials can increase spontaneous engagements.

### Strategy:

Focus on continuity in horizontal and vertical routing.

### Examples:

- The renewal of the Rotterdam Central Library focuses on horizontal continuity by placing closed functions and bookshelves at the core. The open floor plan now does not have any dead ends.
- In Forum, Groningen, the vertical connections are becoming part of the routing as they provide views to not disrupt wandering.
- When entering the Exeter Library, the hall provides an overview of all levels, making the vertical connections clear.



Based on the statistics that show that 70% of the people still view a library as solely a place to read or study (KB, 2024). Visibility of both the functions and the physical collections will be tackled to intrigue passersby. Porous architecture will play a role here.

### Strategy:

#### • Physical collections

Exposing KB's collection to the public comes with challenges regarding security and preservation. Museums here can be used as an example again. They sometimes use replicas or 3D printed models as a way to exhibit their collection to create a multisensory experience (Grillo, Morelli, Rubano, & Vitali, 2023).

This concept can be combined with modern technologies and the retail model from the Idea Stores to exhibit KB's physical collections towards the street.

AI can easily translate a picture or image from a book to a usable 3D model, ready for printing:

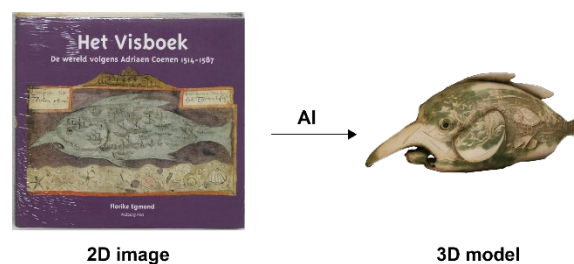


Figure 6: 2D to 3D with the help of AI.

These models and replicas of special collections can be exhibited in the path through KB, as can be seen in the picture below. This street is an extension of a retail street to the North of KB.



Figure 7: Possible 'retail' street in KB.

- **Functions**

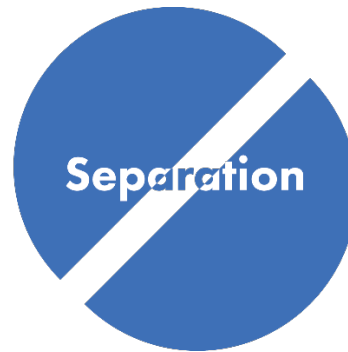
Make use of the parts of the building that are visible from a distance and from the station. Opening these closed facades is easier now that the repository will be relocated.

- **Functions: Reading room**

The reading room is taken specifically due to the decrease in visitors, shown in statistics by the KB, and its connection with physical collections.

The reading room is now hidden in the building, which ensures privacy and lighting from above. However, there is a lack of awareness of the room by locals, making it impossible to be used for spontaneous interaction (the unawareness is based on just a few people; this point needs to be part of the group's survey to be proven).

After the relocation of the repository, the basement will be empty. This can become the reading room, ensuring visibility from both outside and inside the building. The benefits from the previous reading room will be kept due to the isolation of the space, only now it will become a visible function.



A clear separation between secured functions and leisure functions assures the distinction between security and porosity in the architecture of the façade and interiors. Separation can also be used to split the building into a department that responds to local needs and a department that is focused on national tourism.

**Strategy:**

The KB building can be divided into research and leisure activities. With the construction of the new repository, the KB organization is already being split over multiple buildings. The research part will focus on security and formal spaces, while the leisure part can fully focus on physical accessibility and spontaneous visits. Based on London's Idea Stores, the latter can even be branded as a commercial/retail building.

As the goal is still social sustainability, the commercial functions should not be a competition for local businesses!

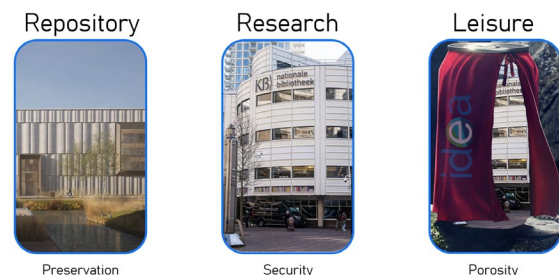


Figure 8: The KB split into 3 departments.

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## APPENDIX: RESEARCH PLAN DIAGRAM

# Research Plan Diagram

## Problem Statement

The National Library of the Netherlands (KB) is evolving to prioritize digital collections to achieve economic and environmental sustainability, but this shift raises concerns about social sustainability due to reduced physical engagement with its collections.



## Project Aim

Enhance accessibility and public engagement with KB's physical collections to stimulate social sustainability.

## Main Research Question

How can architectural design enhance accessibility and public engagement with the physical collections of the National Library of the Netherlands?

### Collection Scale

What impact can the **off-site repository** have on the **physical accessibility** of KB's collections?

Risks assessment

Opportunity assessment

Change in public service

Librarian and user perspective

Collection management

### Building Scale

How can the library building ensure **security** for KB's collections while promoting **public engagement**?

Collection security

V.S.

Public accessibility

Security measures

Architectural porosity

### Urban Scale

How can the library building balance its **national purpose** with the **local needs** as a public building?

Identify local needs

Respond to local needs

Balance national duty

Physical accessibility

Public engagement

Social sustainability

**Preliminary!!**

Research ↔ Design

