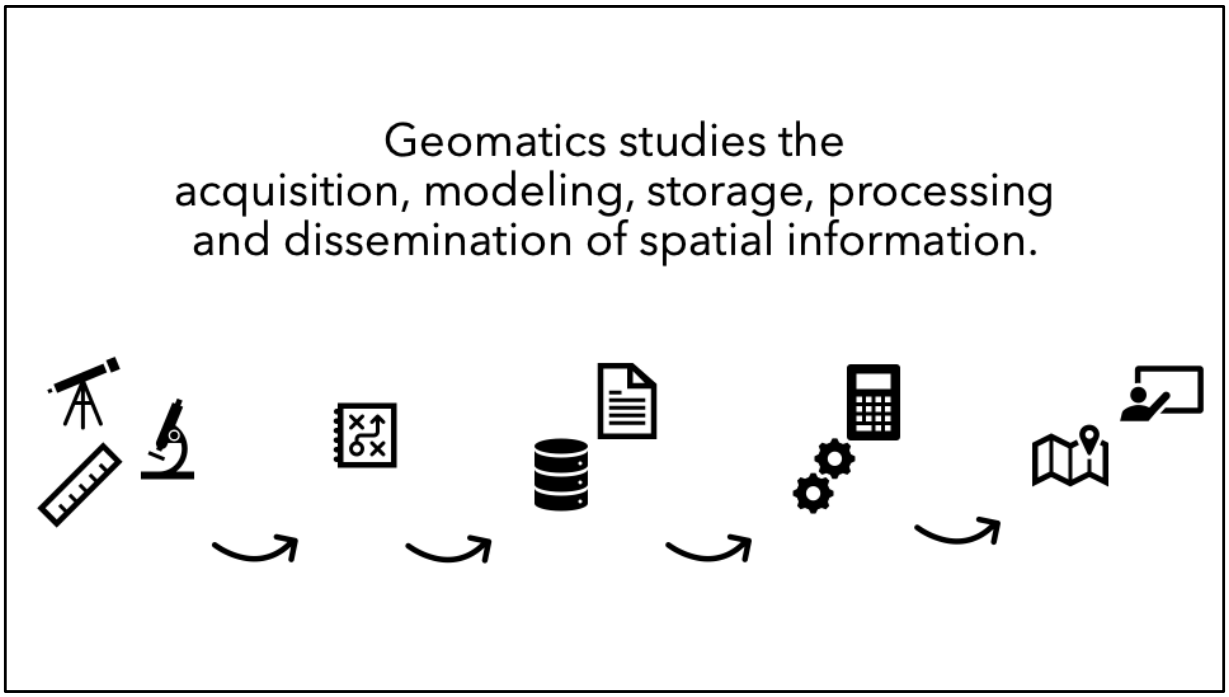
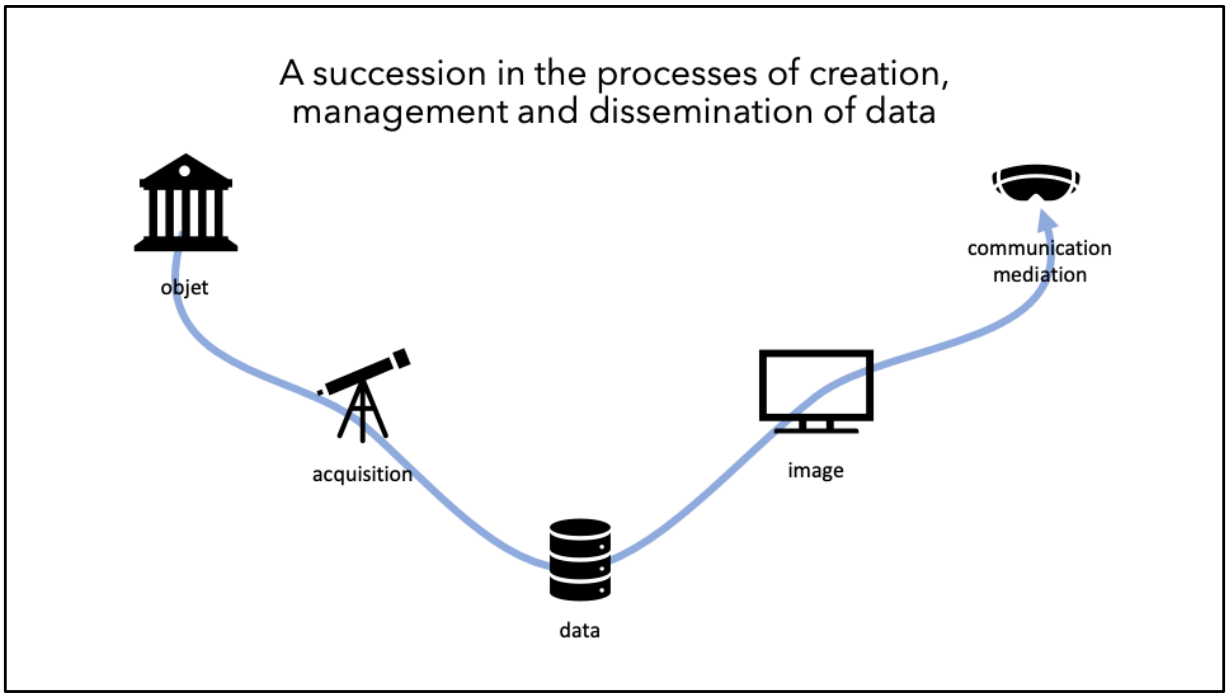
Hello everyone,
I am going to take advantage of the time allowed to me to present the interim results of a project that is still in development.
This project aims to define and formalise how digital heritage representation tools can help

support heritage values. In other words, we seek to identify whether a digital representation can have a value in relation to the heritage it represents.

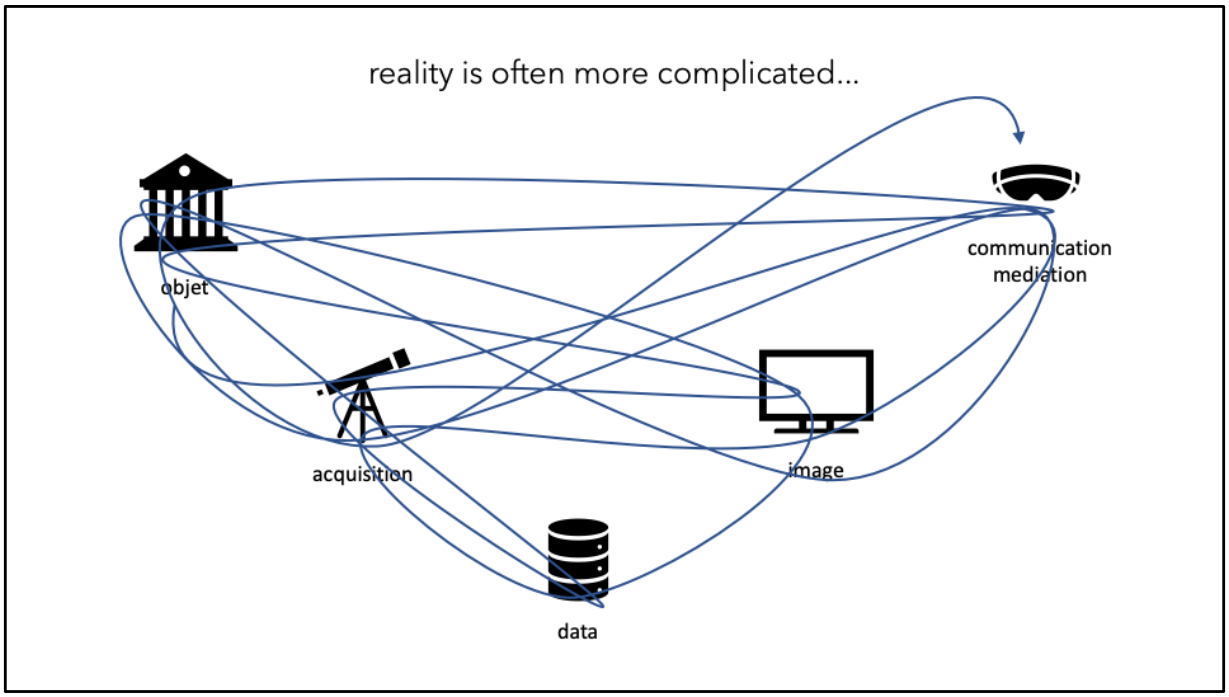
The presentation will be divided into two phases. Firstly, we will see how geomatics concepts can help generate reliable information that is considered an authentic source of heritage. Secondly, we will see how the tools for mediating this information influence the potential value transmitted by digital representations.



Geomatics is the science that studies the acquisition, modelling, storage, processing and dissemination of spatial information. Therefore, we can directly see a strong link between the classical geomatic process of information acquisition and the development of digital heritage. Each element of the process is applicable to heritage and corresponds to a field of development that we are all familiar with now.

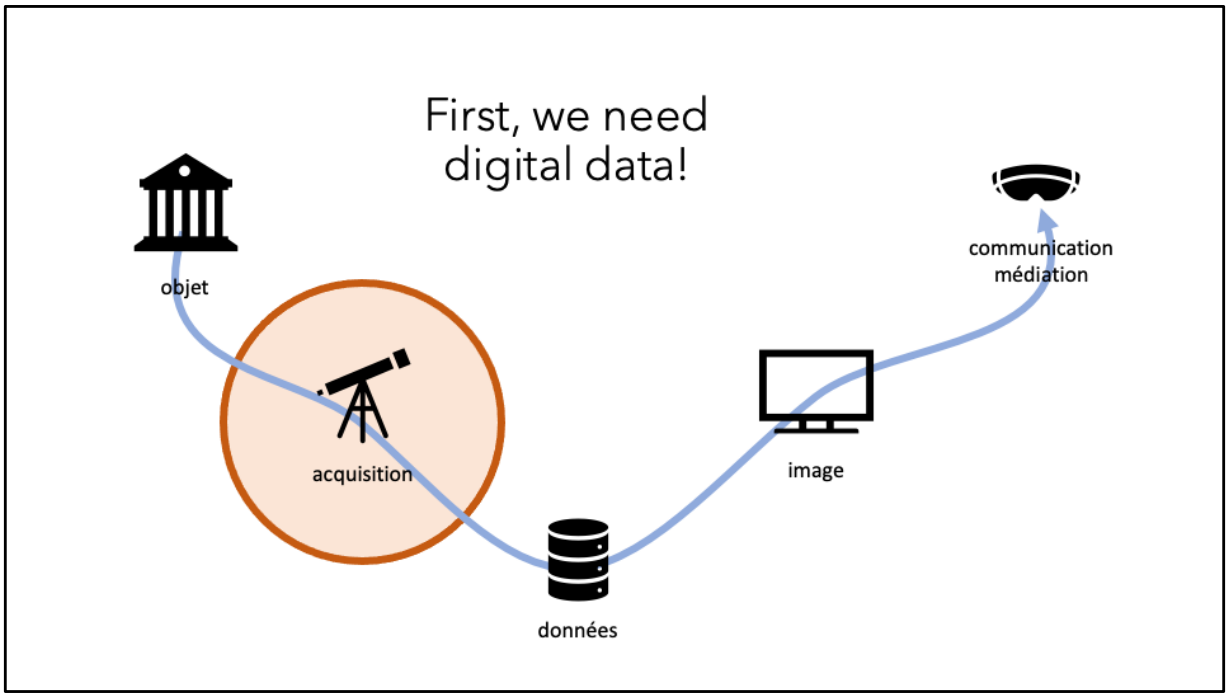


If we look at the processing chain applied to digital heritage, we can plan the realisation of a communication tool as the succession of acquisition, processing, storage, creation of a representation - of a particular image of the heritage - and its diffusion, otherwise known as mediation.

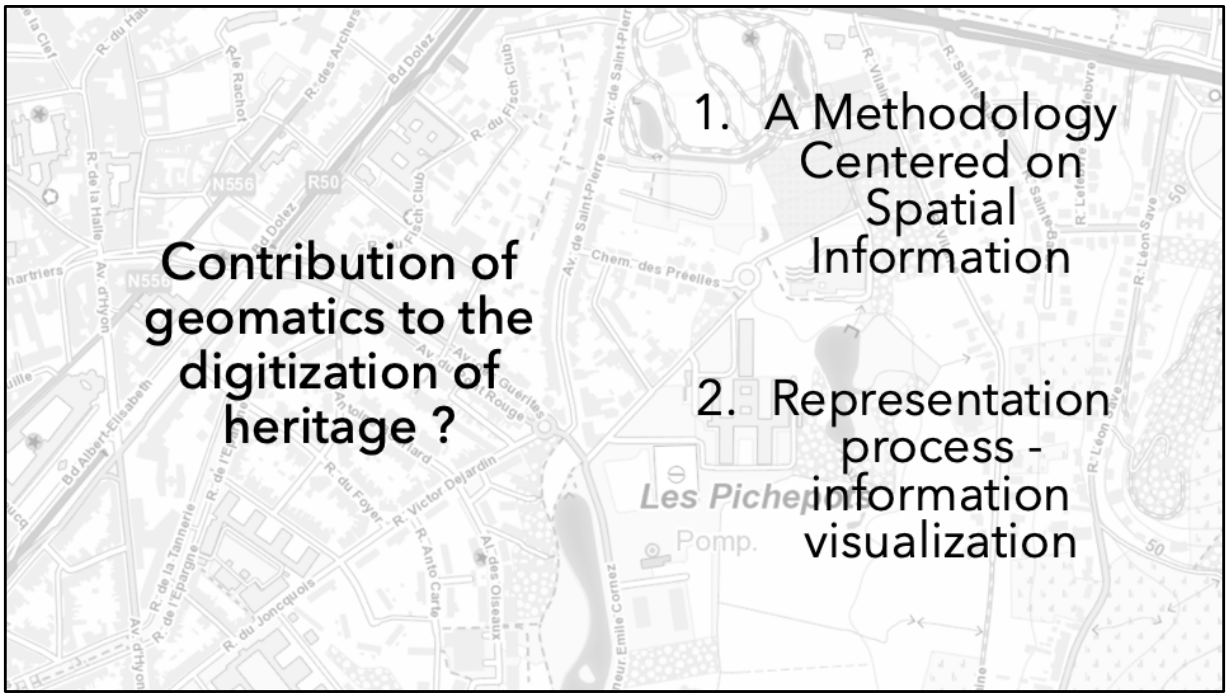


Unfortunately, the reality is often a little more complex and the process looks more like this ...

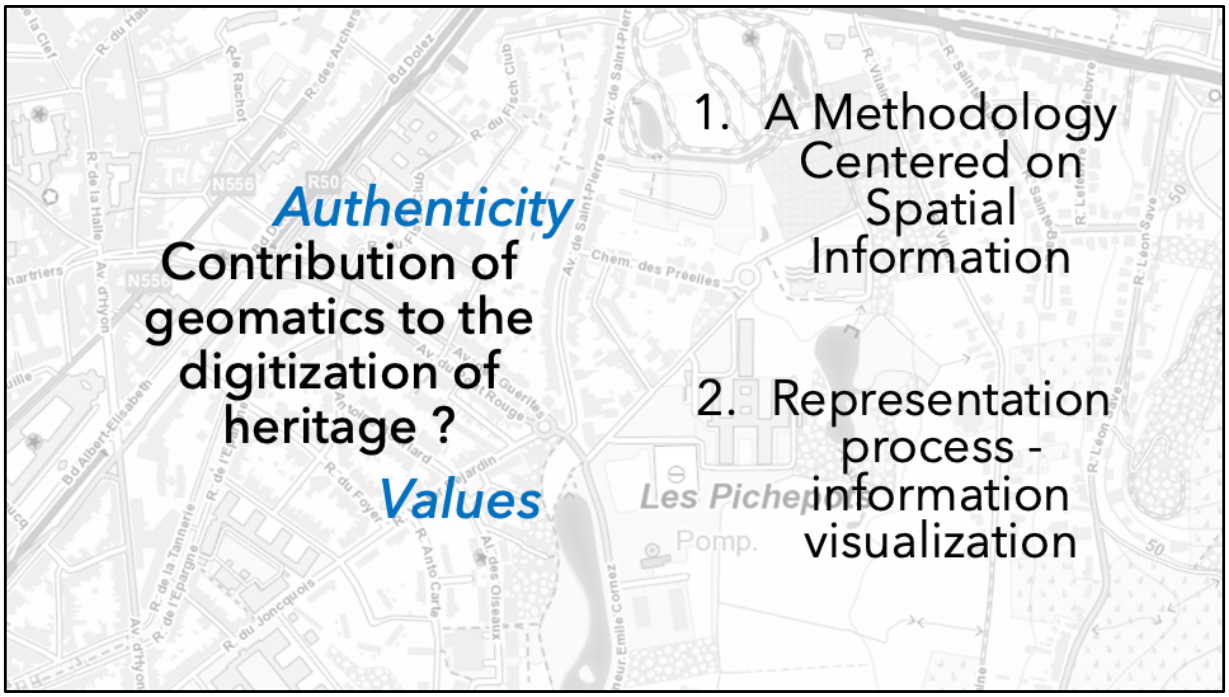
Each stage of the process has a strong impact on the previous ones and an early definition of objectives helps to simplify the succession between each stage.



Let's start with the contribution of geomatics in the acquisition stage of information related to heritage.



Geomatics brings - as we all know - a method centred on spatial information - and - a process of representation and visualisation of spatial information.



Looking at these elements through the prism of heritage brings us back to two well-known concepts: authenticity and values.

Authenticity ?
Values ?

But what link can be made between digital data and authenticity and value?

In order to do this, it is useful to delve a little into the reference documents that we all use in the context of heritage.

Authenticity ?
Values ?

VALUES AND AUTHENTICITY

9. Conservation of cultural heritage in all its forms and historical periods is rooted in the values attributed to the heritage. Our ability to understand these values depends, in part, on the degree to which information sources about these values may be understood as credible or truthful. Knowledge and understanding of these sources of information, in relation to original and subsequent characteristics of the cultural heritage, and their meaning, is a requisite basis for assessing all aspects of authenticity.

The Nara Document on Authenticity, 1994, ICOMOS

According to nara's document,

Authenticity ?
Values ?

VALUES AND AUTHENTICITY

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Source ?

VALUES AND AUTHENTICITY

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The Nara Document on Authenticity, 1994, ICOMOS

We can therefore see the need for credible and truthful information to support the value it represents.

Reliability
of
sources?

Credibility ?
Truthfulness ?

VALUES AND AUTHENTICITY

12.Therefore, it is of the highest importance and urgency that, within each culture, recognition be accorded to the specific nature of its heritage values and the credibility and truthfulness of related information sources.

The Nara Document on Authenticity, 1994, ICOMOS

Later in the declaration, we find this notion again, a sign of the importance attached to the quality of the interpretation given to a source.

In our context, we need to question the use of digital data as new sources of heritage documentation.

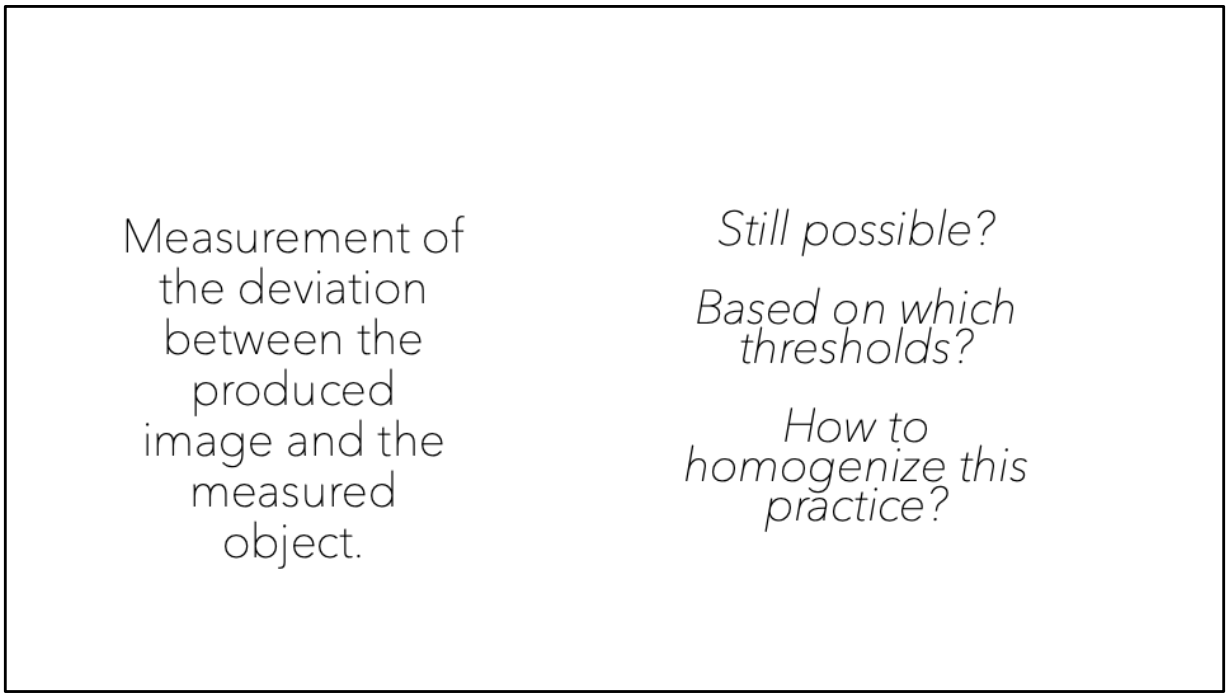
Are these sources trustworthy?

Are all the heritage sources representatives?

The representation we see here shows the long hall of the funeral chapel of the notable Sennefer in the valley of the nobles in Luxor. To what extent can this representation become a source of information about the value of the site?

This representation was generated from a 3D model generated under controlled light for which the images were calibrated.

Can the same be said for each acquisition? Does the balance and merger problem in this panorma always make it a reliable source?



For this, we can use geomatics concepts that define processes and methods for authenticating sources by verifying their quality.

The main aim is to measure the difference between the image produced and the real object.

However, is this always possible?

What are the thresholds to be defined? Is a representation that is beyond a certain deviation to be eliminated automatically?

How can the quality and quantification of these deviations be homogenised?

So far we can say that many representations of heritage are not geometrically and semantically controlled (except in the framework of this conference, where so far all experts show a high quality of work).

However, current representations are a vision of communication in a given context.

This is particularly the case in this representation, which - although produced from corrected images - produces a mediating video where artificial light distorts the real vision of the object (where natural light only enters very little).

To enter the second part of our presentation, we can now ask ourselves what happens when heritage is destroyed?

The building you see on the left side of your screen was recently demolished in the centre of the city of Liège in Belgium - due to the need for more public space in front of the station.

We seized the opportunity of the planned demolition to digitise the site and propose the VP NUM project.

The project aims to study the values carried by the digital representations of the heritage, all that remains of this site.

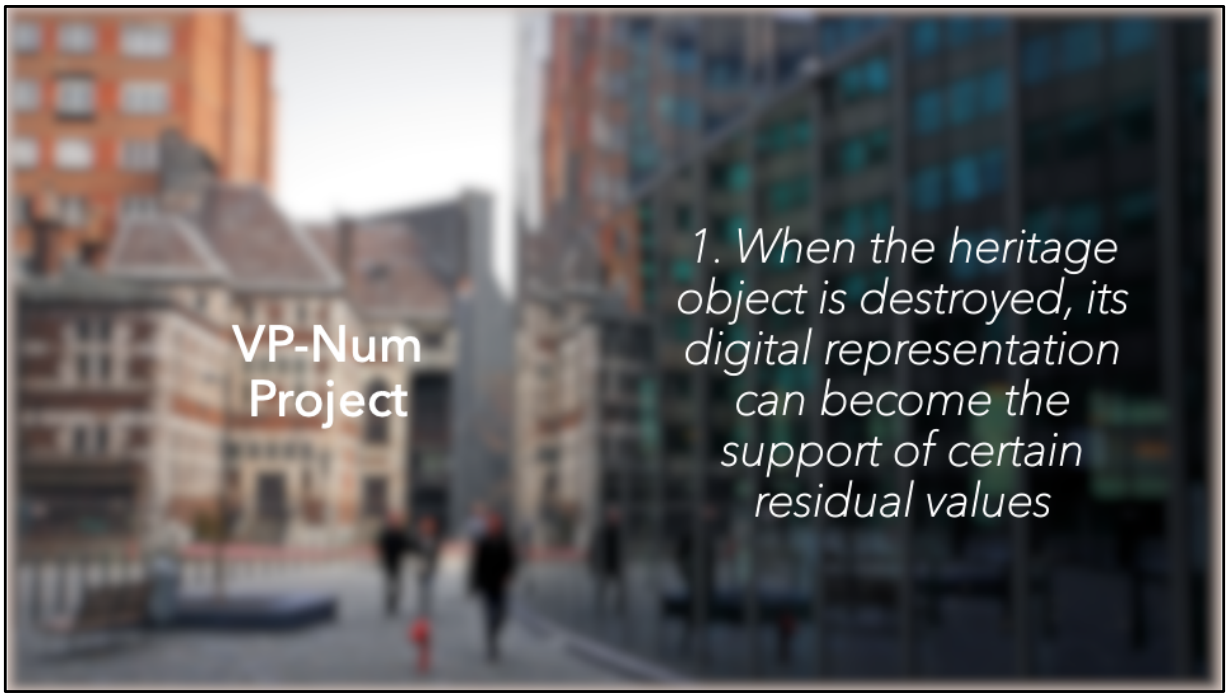
We are also studying a church, the Collegiate Church of Saint Croix, which is entering a planned 10-year restoration phase. The site is therefore inaccessible for a long period of time.

« La maison Rigo, à Liège », in *Dérivations*, numéro 4, juin 2017, pp. 196-203. ISSN : 2466-5983.

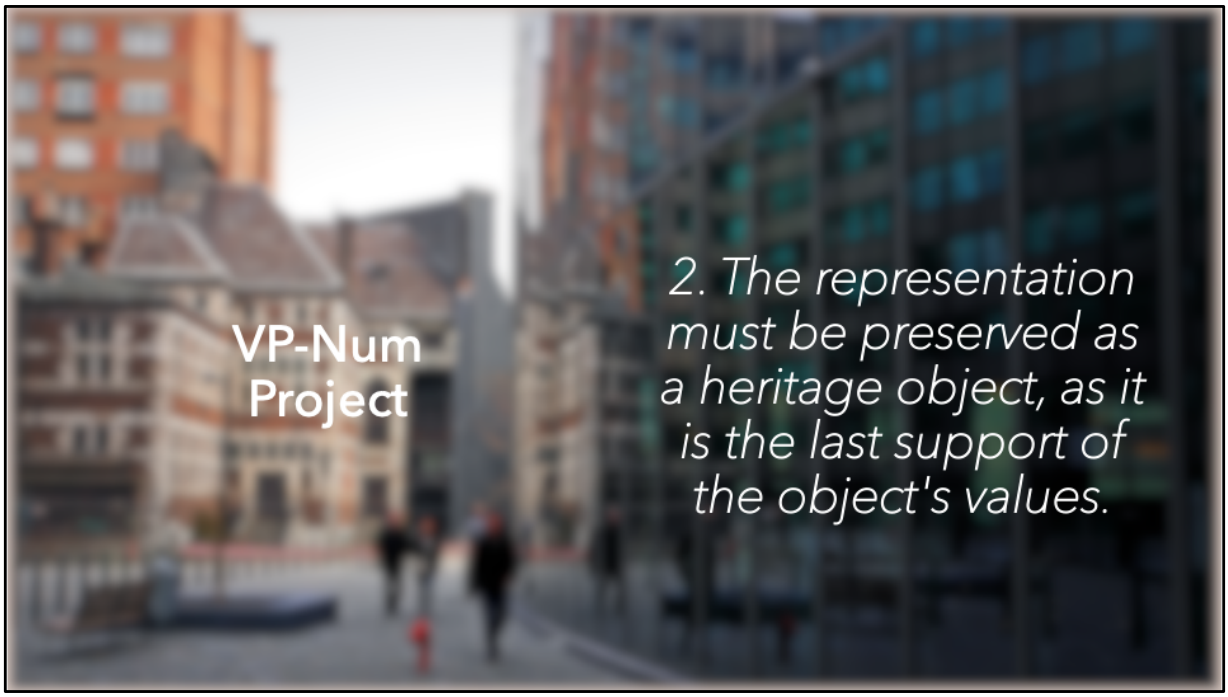
Maison Rigo, Liège Belgium

Here you can see a representation of the interior of the building and the symbolic Delft tiles of recognised practice and high artistic value.

But the digital dataset is now the only remnant of the site.

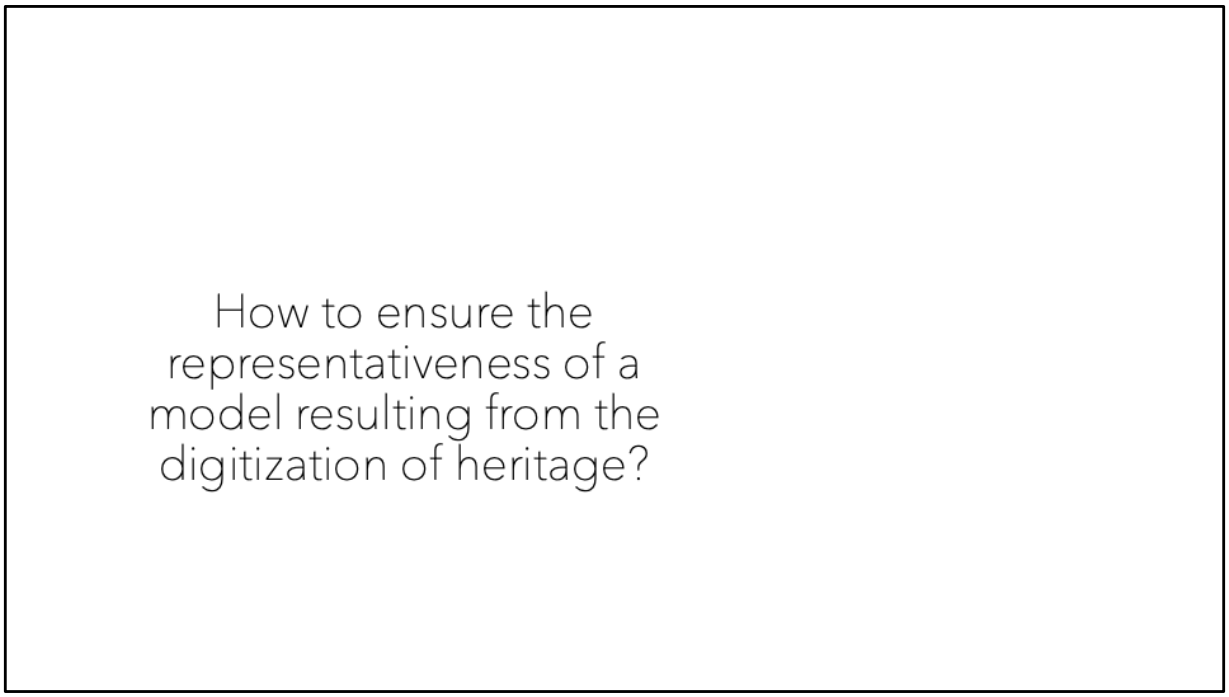


The project makes the following observations:


VP-Num
Project
2. The representation must be preserved as a heritage object, as it is the last support of the object's values.


VP-Num
Project
The digital representation thus becomes an "ultimate backup" in its state of quality, completeness and technicality.

But the proposed data set has all its imperfections...

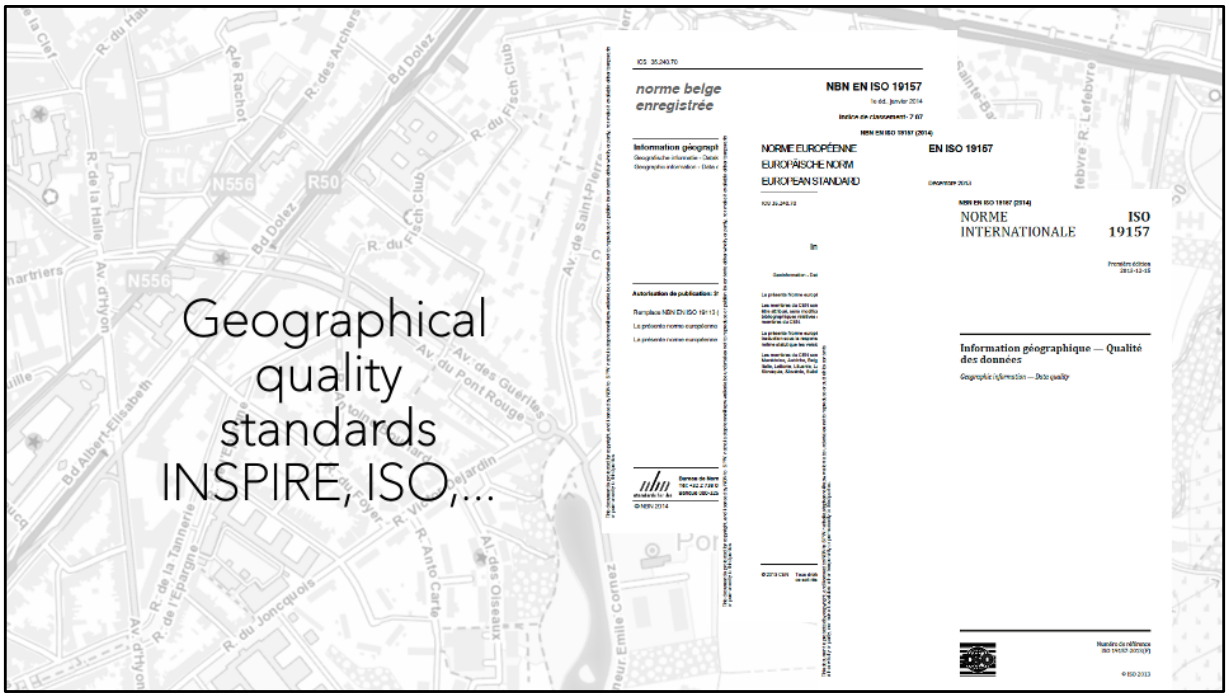


Therefore, we must ask ourselves

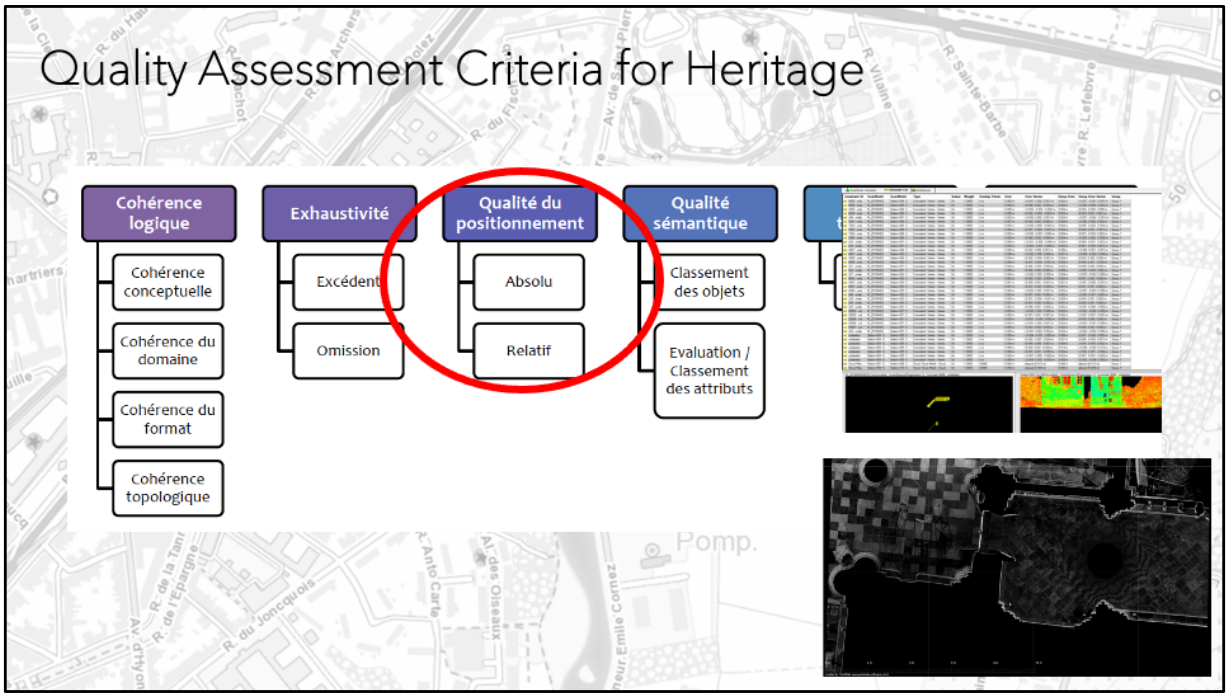
How to ensure the representativeness of a model resulting from the digitization of heritage?

We need to make these sources - value carriers – credible, truthfull.

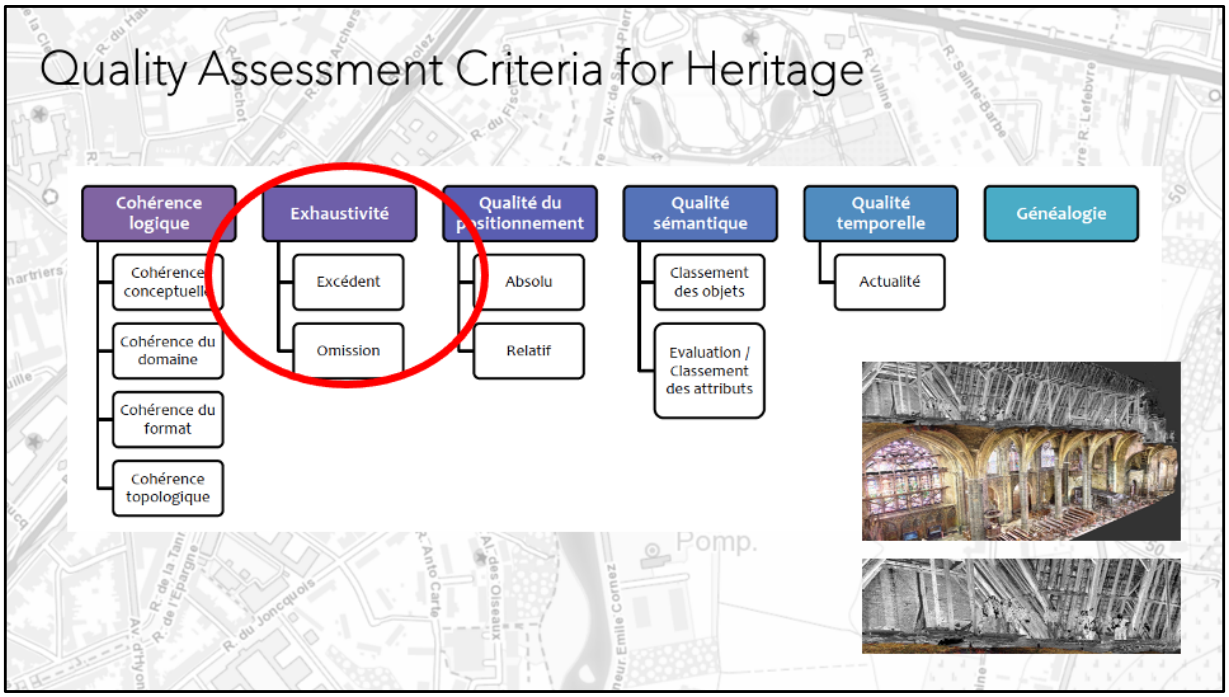
To do this, the acquisition process must be made authentic, i.e. controlled and defined.



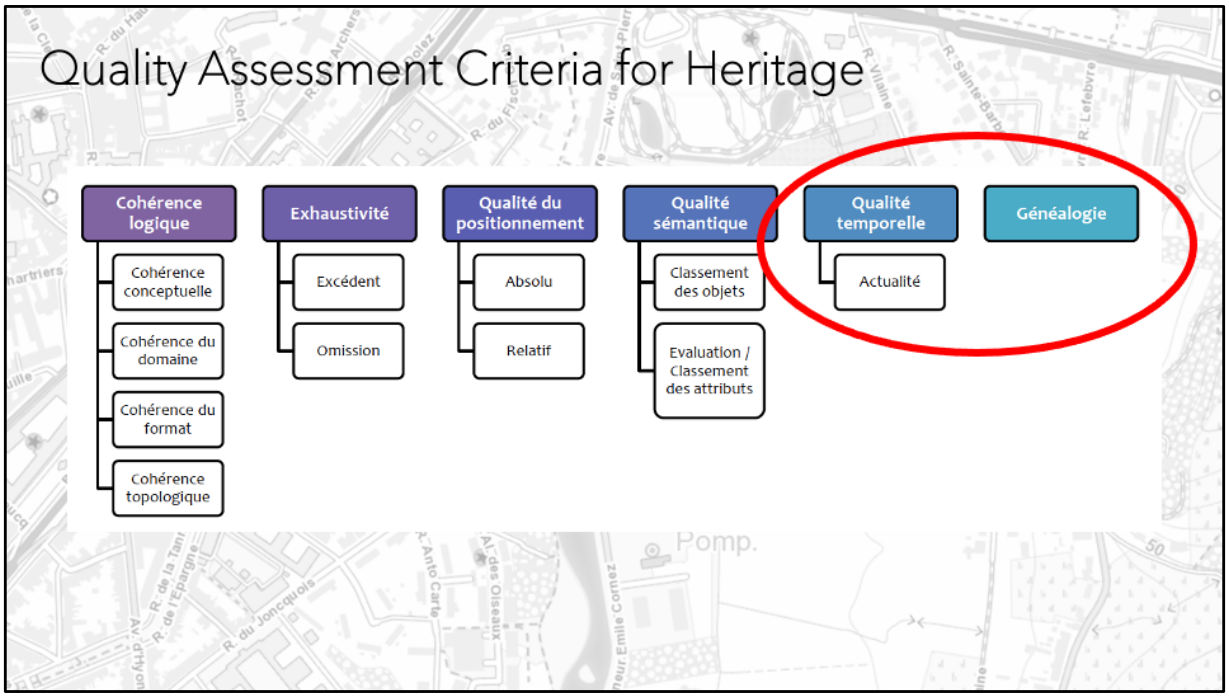
Geomatics can help us in this case, the processes for acquiring authentic spatial information exist and are even standardised!



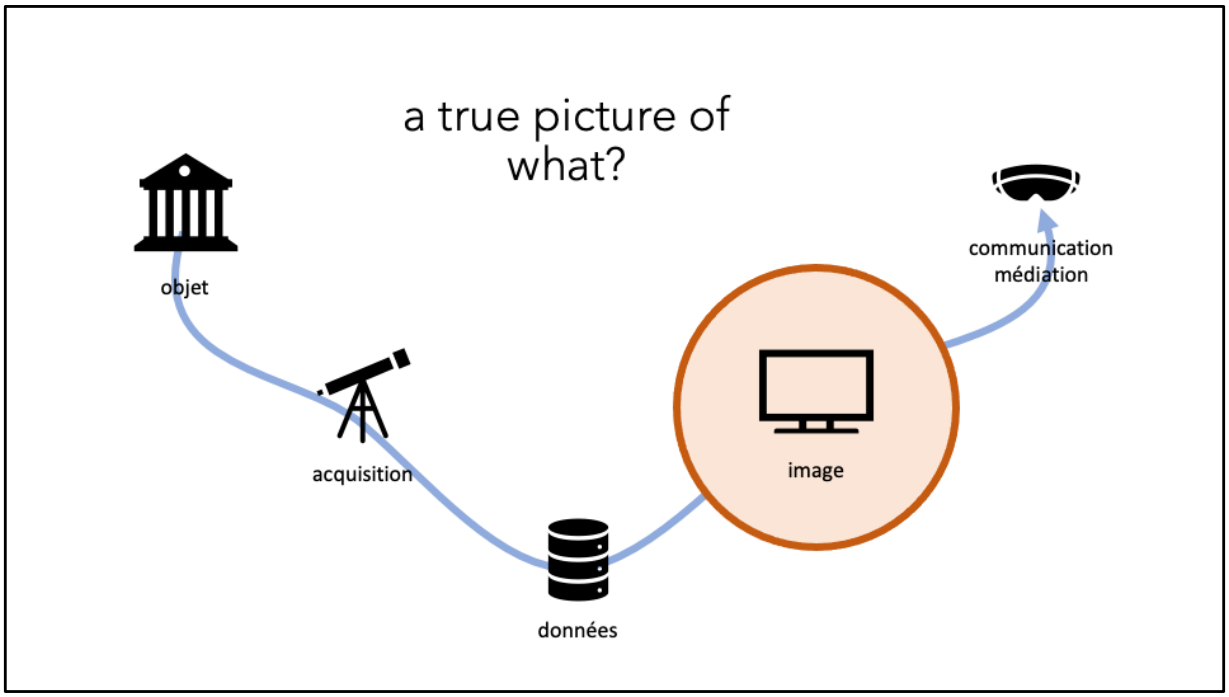
The various quality measures are already applied in digital heritage documentation.



However, the notions of completeness or omissions are less present.

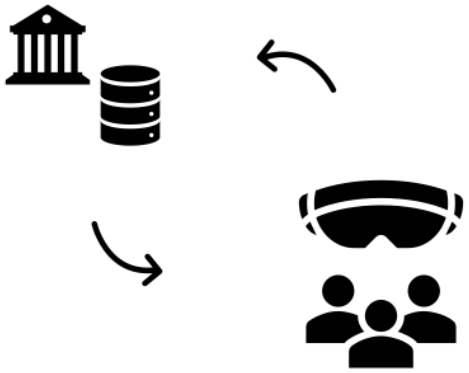


Similarly, temporal quality is often neglected .

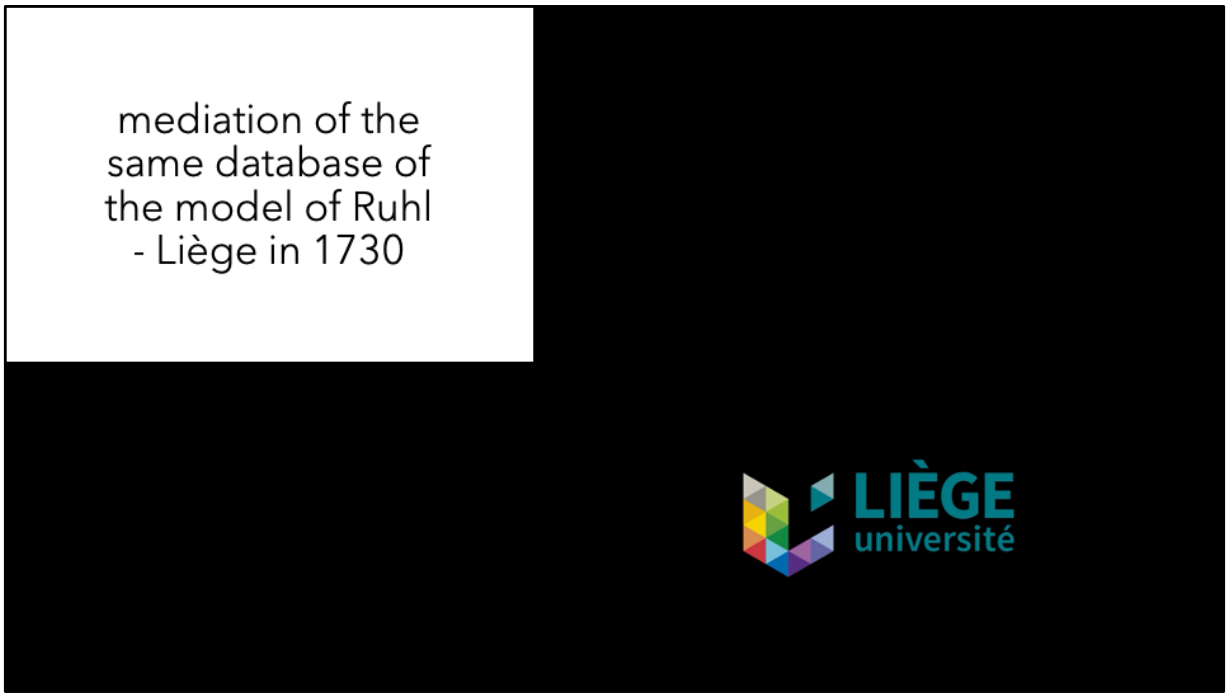


When the data is acquired in an authentic manner, it must still be returned in an honest manner in relation to the site.

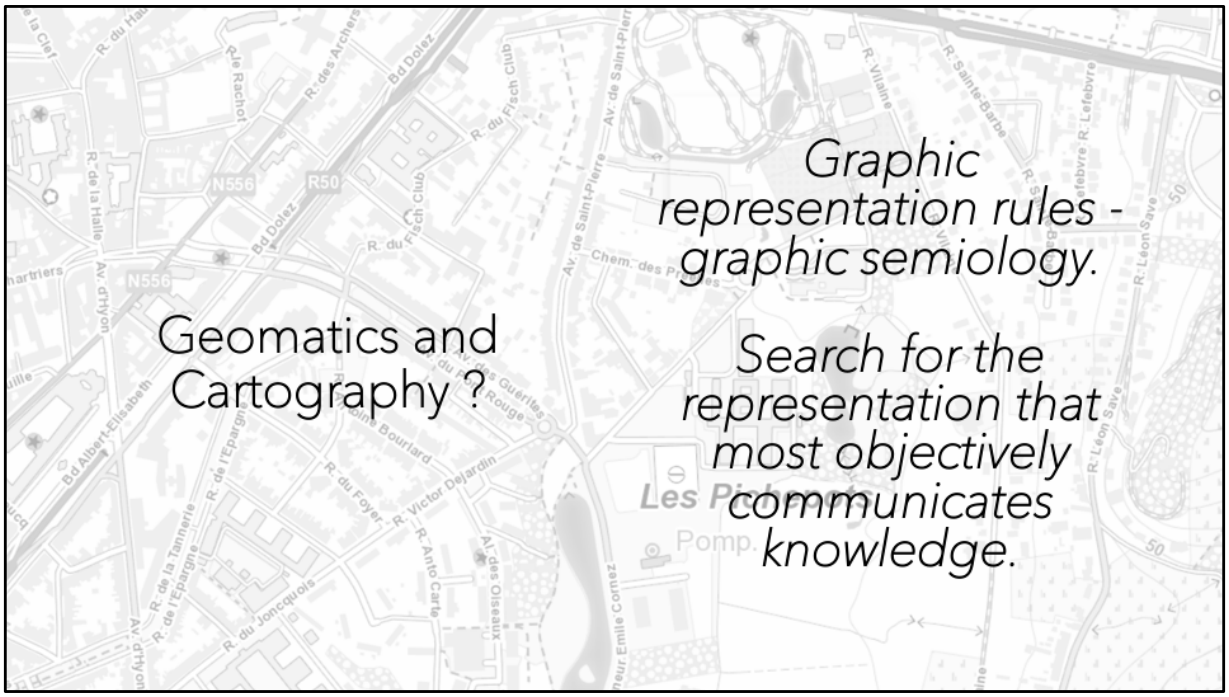
Generation of an image of mediation in relation to a device and an audience



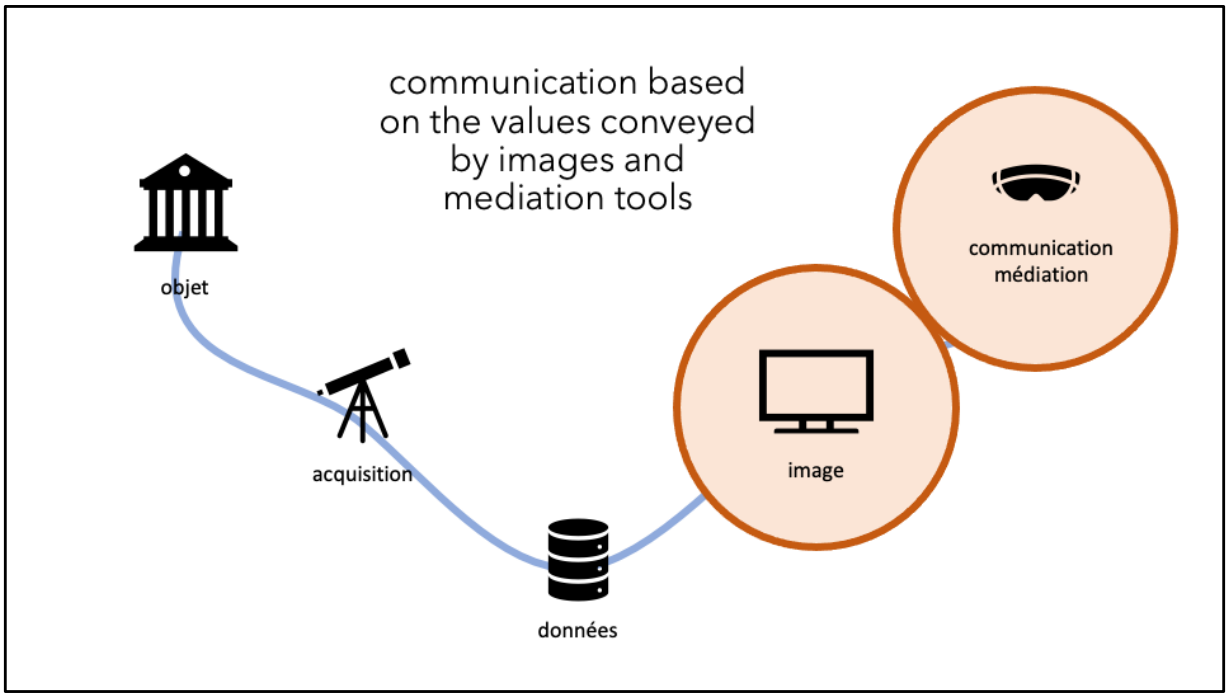
The image of mediation is often linked to an application and a hearing. This can lead to completely different visions.



For example, here are three mediation outcomes from the same dataset.
It is clear that mediation conveys a completely different (sometimes even false) source depending on the outcome.



Once again, geomatics worked on the subject, thinking about how to transmit spatial information in the most objective way possible using the principles of graphic semiology. This approach has yet to be carried out for heritage information.



The conduct of the VP-NUM project therefore leads us to believe that the communication of digital heritage information must be thought through the potential values that the images produced from digital data can carry.


Projet
VP-Num
Study of the
values carried
by digital
representations
of heritage

Quantified values through the NARA grid

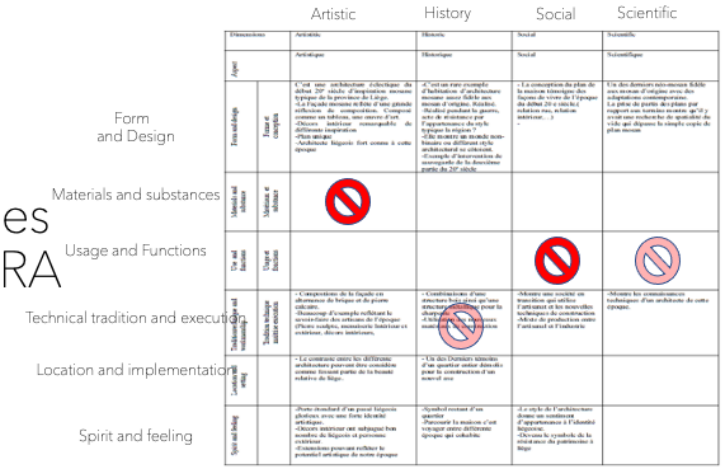
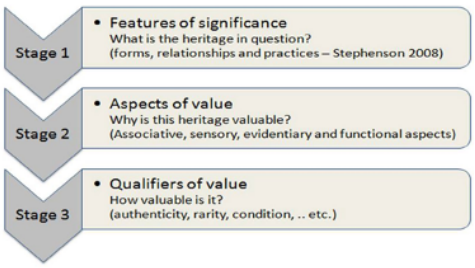


Table Dimensions/Aspects

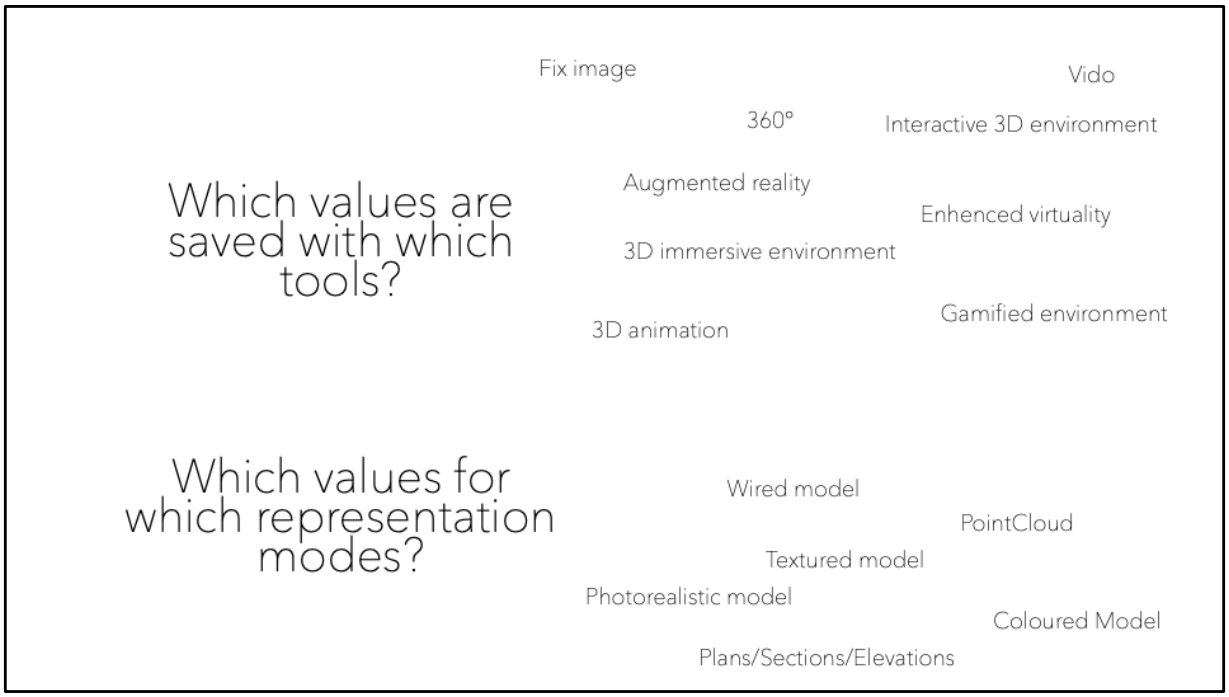
In what way can a heritage image replace the value of a destroyed object in whole or in part?
It is obvious that most values disappear with physical destruction. But some may remain, even slightly.
The same is true in the process of reconversion, where certain development choices lead to the destruction of valuable elements.

Classification according to Fredheim & Khalaf



Fredheim, L. H., & Khalaf, M. (2016). The significance of values: heritage value typologies re-examined. International Journal of Heritage Studies, 22(6), 466-481.

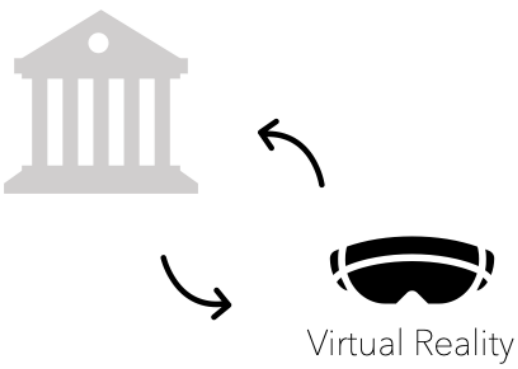
The project is currently studying, through several modes of classification, the way in which mediation tools can carry which values.



We defined two elements:

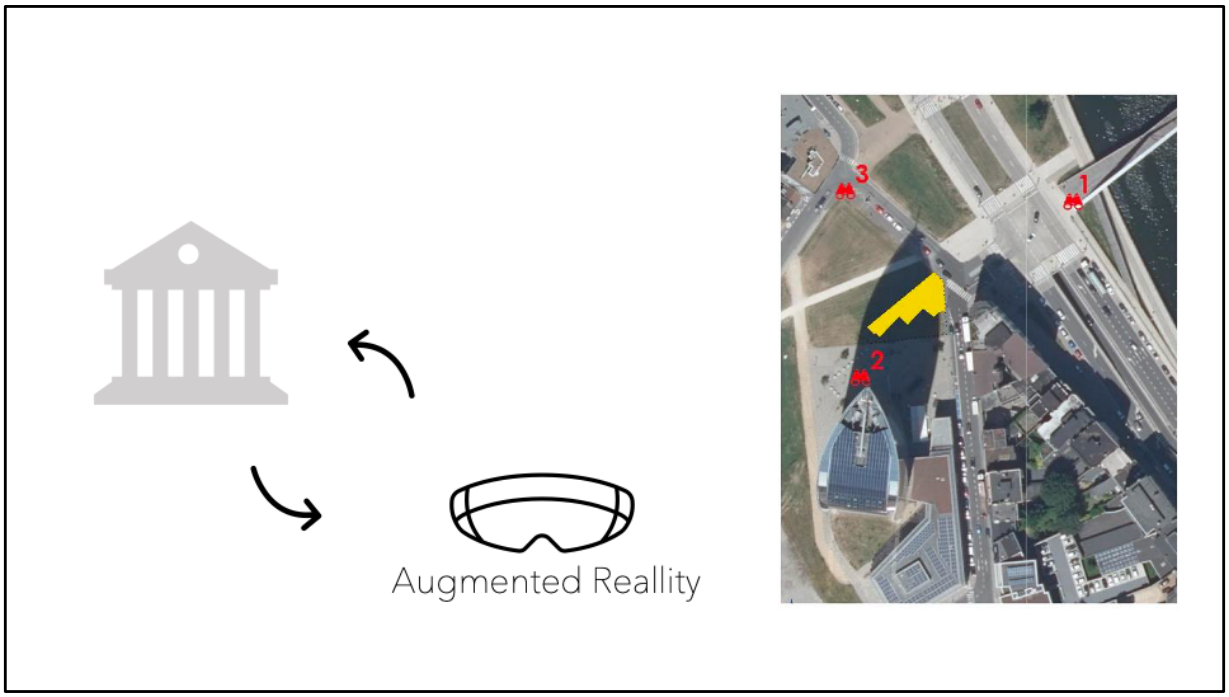
Which values are saved with which tools?

Which values for which representation modes?



VP-NUM - Maison Rigo, 2017

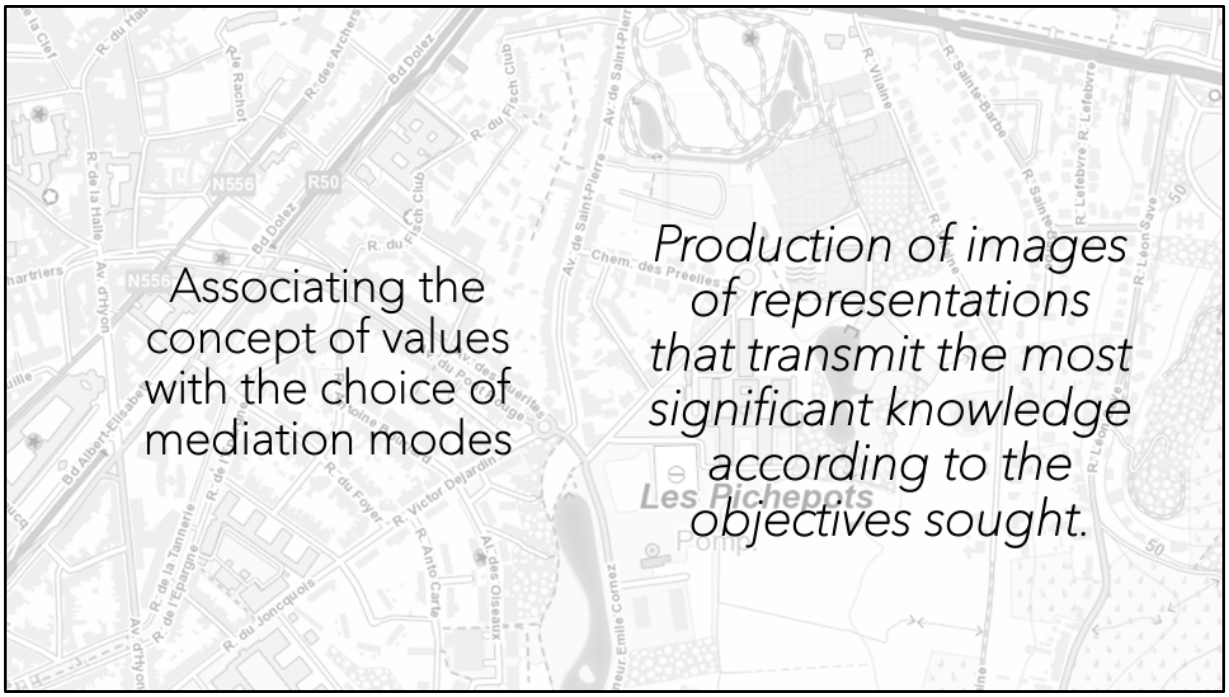
Some applications are not geolocalised but are easily accessible to the general public.



Others, such as augmented reality, require geolocation, which implies an additional appreciation of value potential, particularly in relation to the environment.

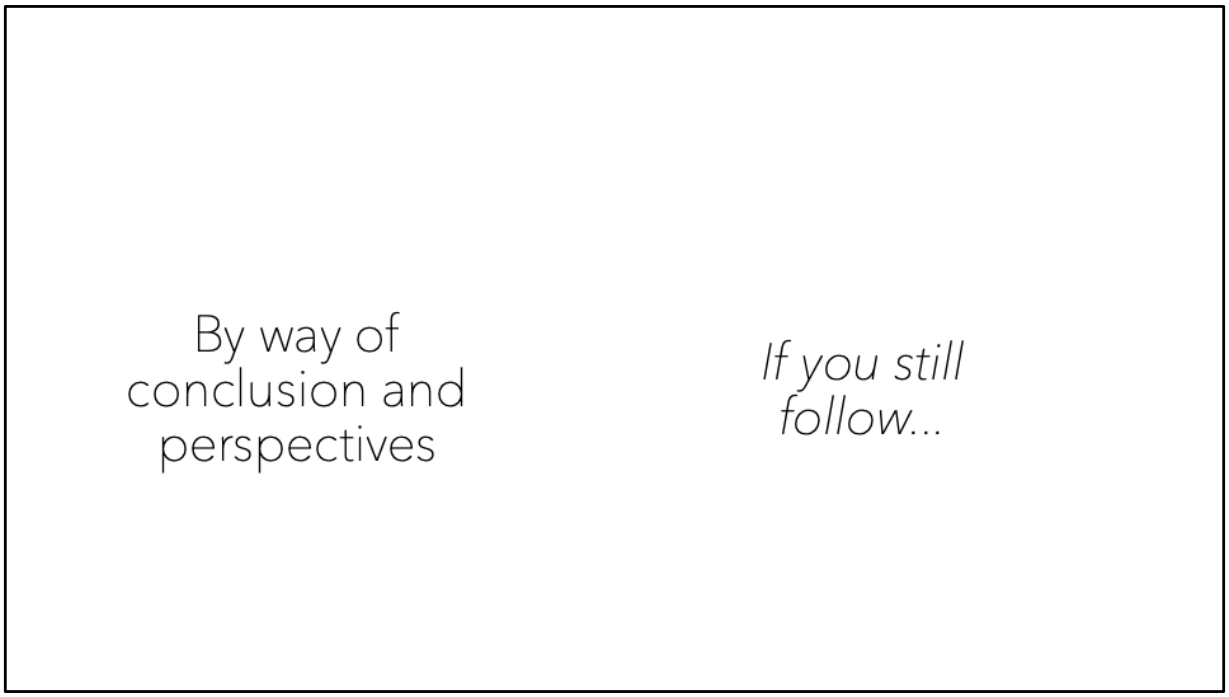
With here some models of the potential of augmented reality.

And another one where the inside of the building is visible.



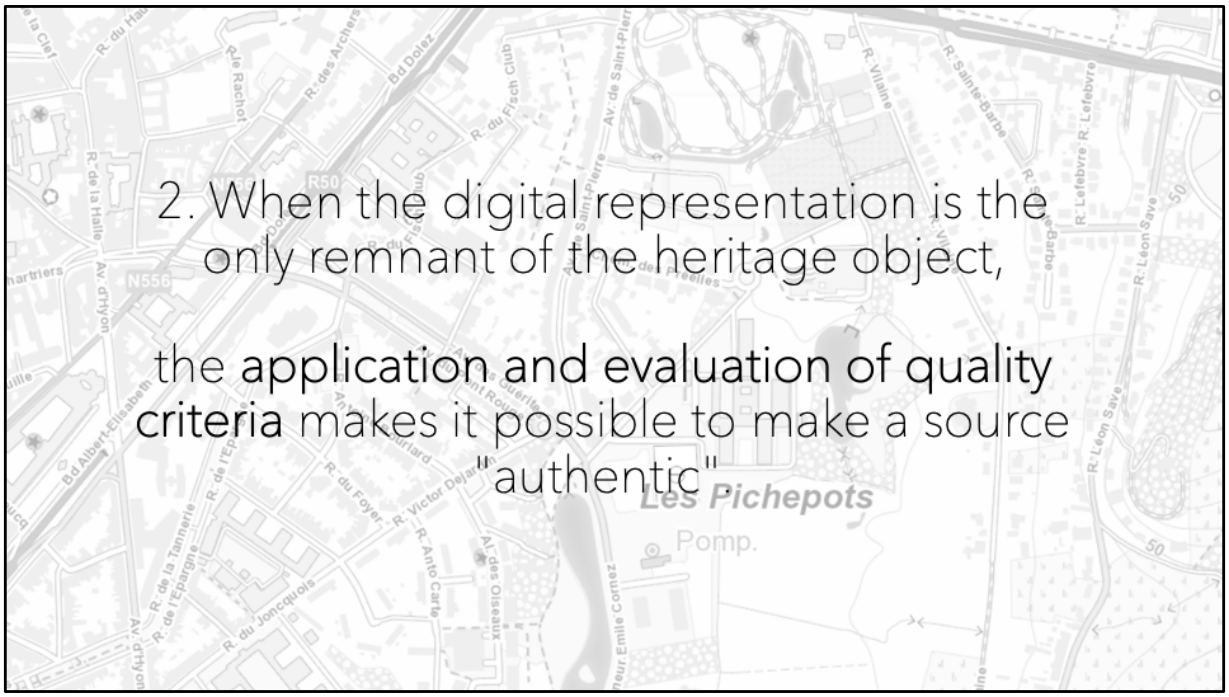
Our goal is to associate the concept of values with the choice of mediation modes
To

Product an images of representations that transmit the most significant knowledge according to the objectives sought.



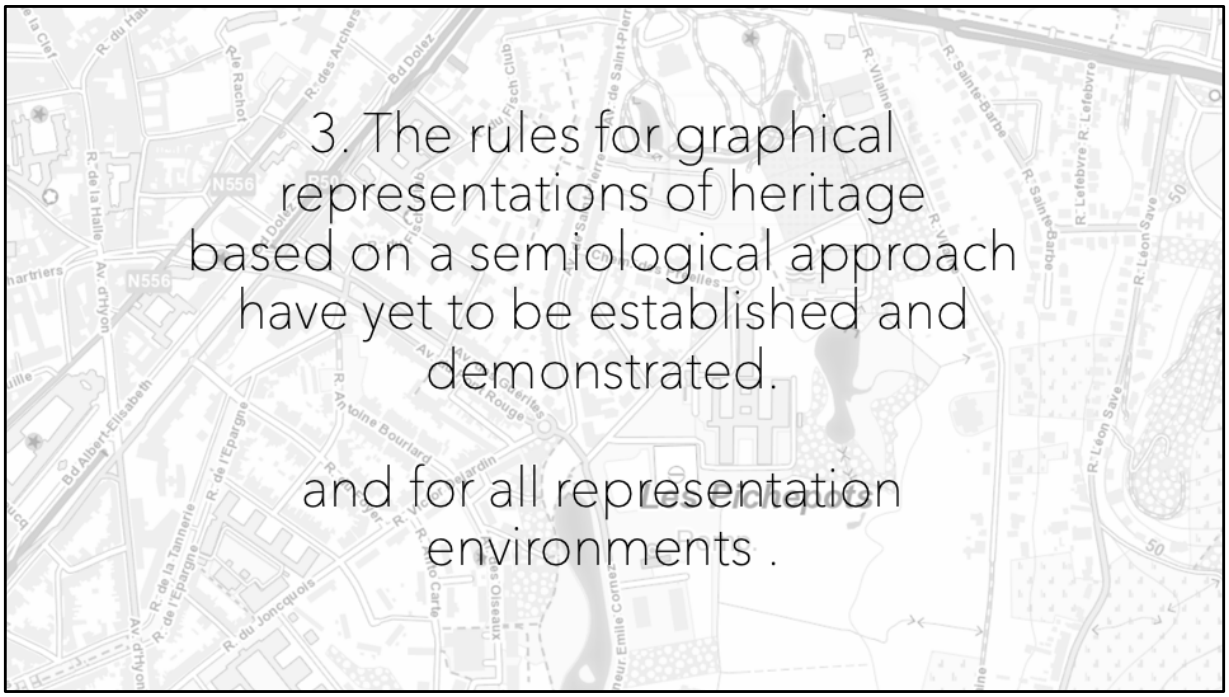
By way of conclusion and perspectives

1. The application and evaluation
of quality criteria
makes
a source reliable and credible.



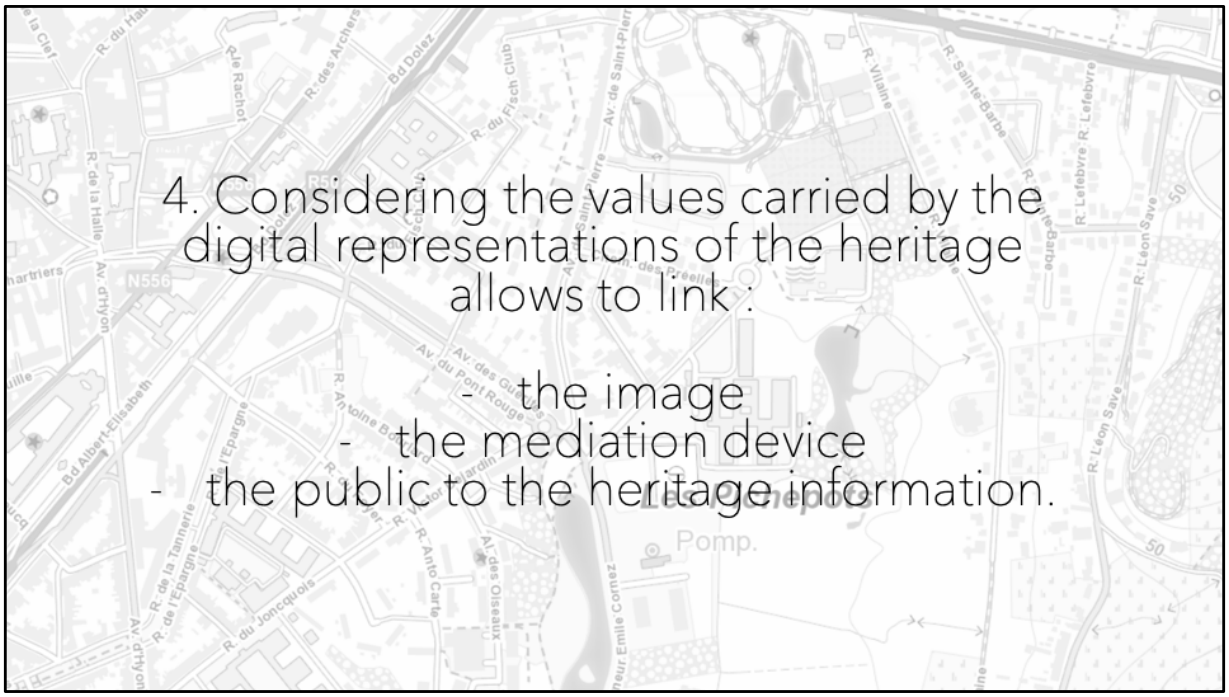
2. When the digital representation is the only remnant of the heritage object,

the application and evaluation of quality criteria makes it possible to make a source "authentic".



3. The rules for graphical representations of heritage
based on a semiological approach
have yet to be established and demonstrated.

and for all representation environments .



4. Considering the values carried by the digital representations of the heritage allows to link :

- the image
- the mediation device
- the public to the heritage information.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