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SPICE

Social cohesion, Participation, and Inclusion through Cultural Engagement

D2.4 REVISED METHODS FOR REFLECTION

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5	OU	THE OPEN UNIVERSITY	United Kingdom
6	IMMA	IRISH MUSEUM OF MODERN ART COMPANY	Ireland
7	GVAM	GVAM GUIAS INTERACTIVAS SL	Spain
8	PG	PADAONE GAMES SL	Spain
9	UCM	UNIVERSIDAD COMPLUTENSE DE MADRID	Spain
10	UNITO	UNIVERSITA DEGLI STUDI DI TORINO	Italy
11	FTM	FONDAZIONE TORINO MUSEI	Italy
12	CELI	MAIZE SRL	Italy
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14	CNR	CONSIGLIO NAZIONALE DELLE RICERCHE	Italy

Executive summary

After D2.3, in this deliverable we complete the second part of the IRL model. We start by framing our previous considerations on Social Cohesion (D2.2) in specific relation to the cultural heritage domain. Furthermore, we involved the SPICE case studies in a methodical reflection on how are the different social cohesion dimensions regarded in their specific user-journeys.

We then undertake an examination of the user-attributes and cultural markers, which are currently under consideration for characterizing and analysing user-contributions in SPICE (i.e., Emotions and Sentiments, Values, and Themes and Interests). We analyse their theoretical groundings, as well as elaborate on their relevance and usage in SPICE.

Thereafter, we describe our proposal for an analytical framework for the data generated by the user-journeys, within the context of the Interpretation-Reflection loop (IRL). The framework builds upon the heterarchical approach introduced in D2.2 to support a more dynamic approach to citizens' input in SPICE, which aims to contribute to create richer representations and visualizations of the emerging relational networks and narrative identities in the processes of citizen curation.

Additionally, we outline the rationale, the initial objectives and goals for the upcoming workshops (5 and 6) which WP2 will facilitate in the third year of SPICE. The primary focus of these workshops is to apply co-design principles to develop a variety of methods for applying the suggested analysis framework to the collected data from each of the 5 cases studies user-journeys. Based on the methods and frameworks introduced in deliverables D2.1 - D2.4, the next steps would be 'completing the loop', by exploring, co-designing and developing potential representation and visualization modalities for supporting citizens reflection within and across groups, as well as serving as analytical tools for researchers and museum workers.

Document History

Version	Release date	Summary of changes	Author(s) -Institution
V0.1	25/01/2022	First draft	AAU
V0.2	14/04/2022	Draft released for internal review	OU, IMMA, HECHT, DMH, MNCN, FTM, UNITO, UNIBO, UCM
V0.3	22/04/2022	Revisions and integration added throughout	OU, AAU
V0.4	27/04/2022	Final draft ready for UNIBO	AAU
V1.0	29/04/2022	Final version submitted to REA	UNIBO

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1.0 Introduction

Building on the work presented in D2.3 and continuing our investigation into interpretation and reflection processes as intrinsically interlinked, this deliverable focuses on the development of the Interpretation-Reflection loop (IRL) in terms of the analysis, the interpretation and representation of the data generated by the user-journeys of the case studies. More specifically, we examine and propose how the SPICE platform can analyse, elaborate, and manage citizen' contributions and input, in order to generate representations and visualizations that promote reflection and suggest further participation, thus completing the IRL.
In D2.4, we follow a retrospective approach in which we start out with a focus on the end-goal of social cohesion and its implications with respect to cultural heritage and the five SPICE case studies. Thereafter, we examine the different user-attributes and cultural markers currently considered in SPICE to characterize and analyse citizen's contributions, their relevance and usage in the five case studies, and how they aim to support the underlying goals of SPICE. As a key arrival point of this deliverable, we describe our progress on the analysis framework to advance in the direction of the heterarchical approach introduced in D2.2, with the aim of integrating and representing the aforementioned attributes in a way that can further encourage the convergence towards social cohesion and its dimensions. The aim of this framework is to support a dynamic approach to citizens' input in SPICE that avoids misleading and stereotyped categorizations, and that could eventually contribute to a more dynamic representation and visualization of emerging relational networks and narrative identities. Lastly, we introduce the objectives and goals of Workshop 5, which intends to co-design with the case studies, methods to apply the suggested framework to their user-journeys and the data collected in Workshop 4.

More precisely, the objectives that have guided this deliverable D2.4 "Revised Methods for Reflection" are as follows:

- To continue the development of the Interpretation-Reflection loop model for supporting reflection processes driven by the different dimensions of Social Cohesion
- To describe and explore Social Cohesion in terms of cultural heritage and the five SPICE case studies
- To investigate, describe, and evaluate the different available user-attributes in relation to cultural heritage, and specifically the SPICE platform
- To investigate the IRL as a tool for the representation of emerging dynamic heterarchical clusters in the cultural processes instantiated in SPICE
- To develop a framework for analysis that can contribute to a more dynamic representation of citizens and citizen groups, and their emerging narrative identities, in order to illustrate and support the overarching goal of social cohesion
- To develop the objectives and goals for Workshop 5, in order to support the participatory development and implementation of the case studies pilots' application of the IRL analysis framework, to promote reflection in their specific contexts.

2.0 Social Cohesion as the Converging Point of the IRL

In D2.2 we elaborated on the definition and role of social cohesion, viewing it as a complex multidimensional phenomenon. We also discussed the general definitional ambiguity surrounding the concept as it is closely tied to its contextual socio-cultural framing and to the grounding objectives for analysis, largely contingent on the field of departure.
In this section, we build upon our initial findings and create a more specific link between social cohesion and cultural heritage. Firstly, we provide an overview of how social cohesion has been explored in respect to culture and cultural heritage. Secondly, we present an adapted approach to the previously presented social cohesion dimensions (D2.2), focusing particularly on the potential implications in the cultural heritage domain. Lastly, with respect to further advancing and defining the concept in SPICE, we will

demonstrate how each of the five SPICE case studies approaches the aforementioned social cohesion dimensions in the frames of their respective pilots.

2.1 Social Cohesion through Cultural Heritage

It is broadly recognized that culture, and cultural heritage have a central role in driving cohesive societies (Meissner, 2021), by blending past, present and future, which in its essence imply a shared sense of belonging and purpose. Cultural heritage can also help foster a shared sense of responsibility, which in return, can potentially help reinforce community cohesion, trust and empathy. It has been suggested (OECD, 2021) that the building of cultural capabilities and the promotion of cultural participation should be seen as a precondition for achieving social cohesion, as it can:

(1) support reducing factors that lead to social and economic marginalisation,
(2) help increase human resilience and delivering of social value through creativity,
(3) improve learning and develop freedom of expression
(4) support mental wellbeing and health

Nevertheless, there still exists a fair amount of ambiguity with respect to understanding the effects and advantages of citizen's active participation in cultural heritage on social capital and social cohesion, and little is known about the underlying reciprocal dynamics and processes that could conceivably support it.

All cultural heritage rests on a complex interlinked system of meaning, expression of values, attitudes, beliefs, knowledge, skills and traditions that continue to transform and evolve in time (Lotman, 1990). Therefore, when discussing it in the frames of socio-economic development and social cohesion, it is useful to bring forth the distinction between tangible and intangible cultural heritage.
Tangible cultural heritage refers to physical artefacts, "produced, maintained and transmitted intergenerationally in a society" such as monuments, buildings and physical artworks, while the concept of intangible cultural heritage represents our 'living' heritage, "made up of all immaterial manifestations of culture", social practices, oral traditions, festive events and other practices that involve knowledge and skills transmitted from one generation to the next (UNESCO, n.d.; Lenzerini, 2011). Intangible cultural heritage is at this time recognized as an essential factor for preserving cultural diversity, as "[a]n understanding of the intangible cultural heritage of different communities helps with intercultural dialogue, and encourages mutual respect for other ways of life" (UNESCO, n.d.). However, until the 1980's the primary focus of UNESCO's work was almost exclusively protecting tangible cultural or natural assets (Meissner, 2021).
As both tangible and intangible cultural heritage have been demonstrated to have myriad of impacts on social capital (Murzyn-Kupisz & Działek, 2013), it is crucial that the work in the field would continue investigating the processes as interlinked and thereby, integral to achieving social cohesion. In SPICE, tangible and intangible cultural heritage are brought together using methods and tools to drive a participatory process, i.e., citizen curation, through which individuals, groups and communities can document and share their knowledge, stories and personal narratives associated with artefacts, locations and artworks, and are encouraged to explore others' contributions.

With further regard to approaching social cohesion through active citizen participation in cultural heritage, The Council of Europe Framework Convention on the Value of Cultural Heritage for Society, signed a treaty in 2005 to "protect cultural heritage and the rights of citizens to access and participate in that heritage", aka "The Faro Convention" (COE, 2005). Faro's focus surpasses the compartmentalization of tangible and intangible heritage, and in contrast to adopting a static definition of cultural heritage, The Convention aims to promote a wider encompassing understanding, i.e., its relation to democracy, human rights, communities and society as a whole. The Convention emphasises that cultural heritage should be seen as dynamic and independent of ownership, promoting a framework based on common interest rather than something "limited or bound by nationality, religion, or language." (Argyros, 2018). The convention is also active in promoting sustainability, access, and the use of digital technology in the context of cultural

heritage, and as of December 2020, the treaty has been ratified by 20 states.
Additionally, it is important to reflect on the role of the institutions in mediating and assisting citizens in participating in such cultural processes. Thus, when art and cultural heritage can be viewed as the centre around which new experiences, relationships and knowledge is built, heritage institutions hold the responsibility for effectively facilitating this process. Murzyn-Kupisz and Dziazek (2013) propose that heritage institutions function as 'community hubs', defined as "spaces where trust is built and social networks are created". They suggest that this role emerges from the heritage institutions' development of local identity and providing a sense of cohesion, but also for providing opportunities for intra- and intergenerational interaction and links. This naturally presupposes that heritage institutions are perceived as safe places for expressing one's identity, and for experiencing and sharing experiences.

More recently, the role of cultural heritage in social cohesion was discussed during an OECD virtual seminar, "Cultural heritage and social cohesion", which took place on the 26th of May, 2021 (OECD, 2021). The event was part of a larger OECD project "Culture, tourism and local development: New strategies for Italian heritage cities in the post-pandemic scenario" and introduced a number of important perspectives and insights. The discussions following the presentations and case studies highlighted the unparalleled role of cultural heritage institutions in driving social cohesion through community engagement, innovation and giving a voice to marginalised groups. A particular focus was given to culture as innovation and how the very function of art is to bring and keep people together, thus the approach should rather focus on "with" rather than "for". To ensure culture as a platform for sociability, for reinforcing belonging and identity, cultural heritage and institutions around it should be acknowledged as a key enabler for promoting trust, mutual tolerance and empathy.

2.2 Social Cohesion Dimensions in SPICE

Departing from the dimensions of social cohesion as described in D2.2, we adapted three essential dimensions (Schiefer & van der Noll, 2017; Nowack & Schoderer, 2020) to better fit the context of cultural heritage and the SPICE case studies: (1) Social relations (and its four sub-dimensions) (2) Sense of belonging (identification) and (3) Orientation towards the common good.

(1) Social relations focus on establishing and maintaining positive interpersonal ties that are based on reciprocity, trust, empathy and tolerance. Its sub-dimensions are:

a. *Social Networks:* emphasizes the quality and quantity of social interactions with family, friends, and acquaintances. In this sense, the museum plays a role in supporting, maintaining, establishing and enriching social networks.
b. *Participation:* focuses on mutual cooperation for reaching common goals. Here we look at the role of the museum in encouraging cultural participation of diverse communities, groups and individuals whilst ensuring accessibility and inclusion for all.
c. *Trust:* is led by sincere and transparent intentions. The museum is seen as a safe place that can be trusted and which promotes trust between users/visitors.
d. *Mutual tolerance*: relies on the notion that a cohesive society requires mutual tolerance and inclusivity within and across different groups. The role of the museum is about creating tolerance, building respect and mutual understanding between diverse visitor groups, communities and individuals.

(2) Sense of belonging, with its implicit emotional connectedness, highlights the importance of community/society membership. This can for example mean identifying with a group, a region or a trans-national entity (e.g., EU). While a "strong conceptual overlap" has been noted between this and the social relations dimension, Schiefer & van der Noll (2017) argue that "attachment and identification with a social unit is", according to the authors, "qualitatively different from relations between individuals of that group". Museums play an important role in facilitating a sense of belonging by introducing "a safe space for unsafe ideas," (Bruni, et al., 2020), especially for marginalized groups, and for exploring traditional and emerging

narrative identities.

(3) Orientation towards the common good brings into attention that society and communities are more than just the sum of its individual members. Being oriented towards the common good implies responsibility for, and the negotiation of social rules and norms which consider cultural differences. A closely related term could be "solidarity", which refers to caring for the other, regardless of whether one knows the person or shares their values. As previously noted, museums have the potential to help foster a shared sense of responsibility.

2.3 Social Cohesion Dimensions and the SPICE Case Studies

In the frame of SPICE's co-design approach, it was essential to involve the five SPICE case studies as much as possible in defining their perspectives on social cohesion dimensions. We were interested in how these dimensions (as described above, and in D2.2) are interpreted and approached by the individual case studies, i.e., how do they fit with the case studies' needs, requirements, and planned interpretation and reflection activities.
For this purpose, in the frame of Workshop 3 (see also D2.3), WP2 developed a guide and a worksheet, which contained descriptions of the adapted dimensions of Social Cohesion, as well as various tasks for the case studies to complete. The tasks involved the case studies elaborating and interpreting on the presented dimensions from the perspective of their own case using an online template (e.g., see Fig. 1).

2.3.1 DMH

With respect to the three primary social cohesion dimensions described above, DMH mapped out essential considerations in relation to each, based on their user-journey (see D2.3). Due to the characteristics of their user-journey, particular focus was given to Social Relations and its sub-dimensions (see Fig. 1).

With respect to the ***participation*** subdimension of social relations, DMH distinguishes between participation of primary end-users and mediators. In the case of one of the primary end-user groups, senior citizens, participation occurs via (1) experience, i.e., interacting with artefacts, listening, and reading others' contributions, as well as (2) sharing and contributing, i.e., interpreting artefacts, sharing of one's own memories and stories. On the other hand, mediator's participation occurs through three activities: (1) assisting, (2) collecting data, and (3) categorizing and curating the data.

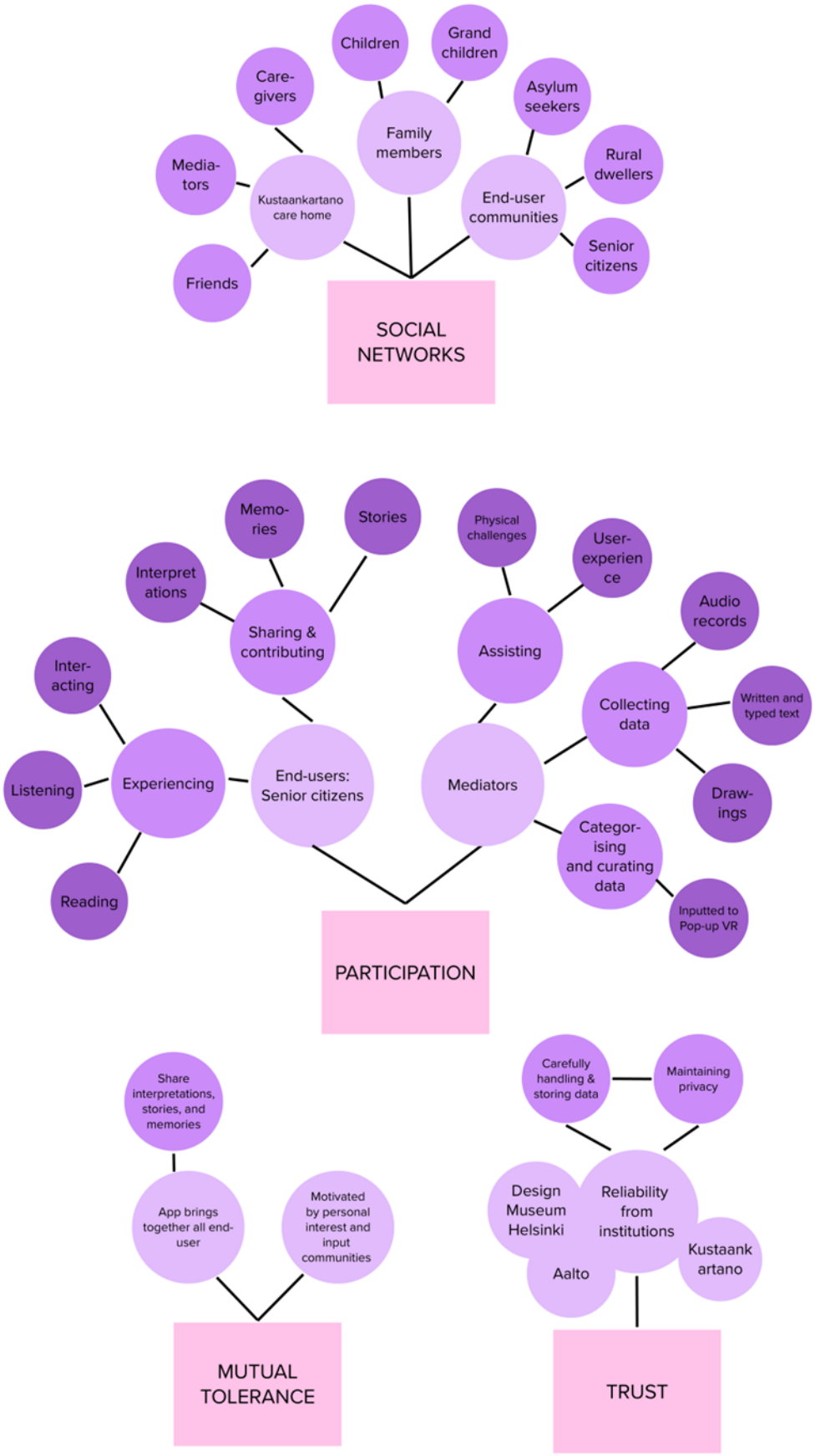

Fig. 1: Social Relations dimension according to DMH related to the activities of the DMH user-journey

The aim of increasing **mutual tolerance** (as a sub-dimension of social relations) is reflected in DMH's case by the fact that their application aims to bring together diverse end-user communities (e.g., senior citizens, asylum seekers), which is in its core motivated by the users' personal interests and individual inputs (user-contributions). **Trust** is linked directly to the reliability from the institutions that have to maintain privacy, and carefully handle and store the users' data.

DMH visualized their interpretation of the **social networks** sub-dimension through mapping out three groups across which the pilot aims to elicit the development of connections and relations.

The dimension of **sense of belonging**, is approached by DMH through accessibility and inclusion, listening and sharing stories, empathy, and design of every day (see Fig. 2).

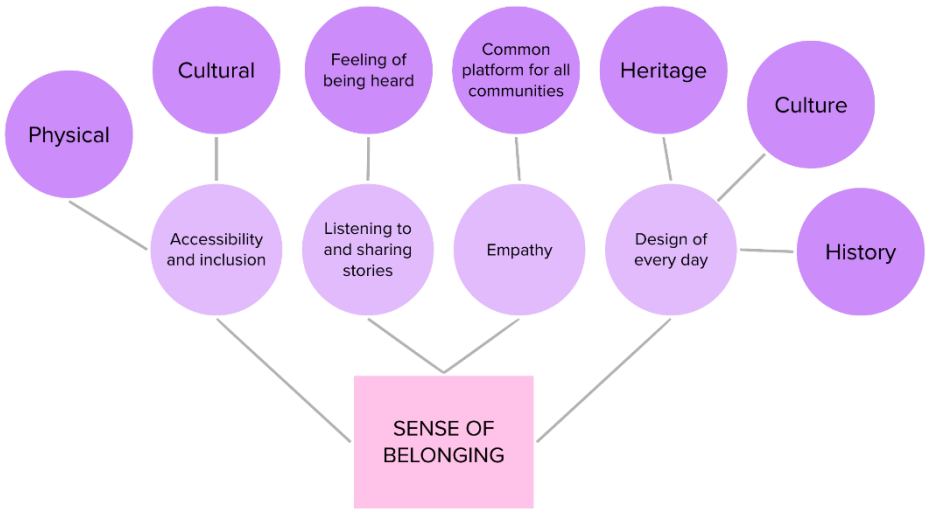

Fig. 2: Sense of belonging according to DMH

Orientation towards the common good is directly linked to the underlying goal of empathy. This is primarily targeted through the listening and sharing of personal memories and stories which related to positive values for design. This process aims to elicit an understanding of others' backgrounds and perspectives (see Fig. 3).

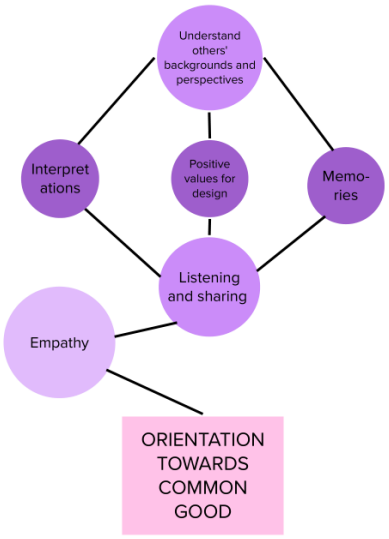

Fig. 3: Orientation towards common good according to DMH

2.3.2 HECHT

As the HECHT case study is directly aiming to establish grounds for positive and robust relations between students from different communities and backgrounds, it was particularly the social relations dimension and its derivatives (social networks, trust, participation and tolerance) that came into focus (see Fig. 4). Nevertheless, as the overarching goal was to promote general openness and tolerance, it naturally also overlaps with the remaining two dimensions: *sense of belonging* and *orientation towards the common good.*

Social Relations
Social networks are established already at the start of the journey, as the students will arrive to the museum with their classes, each class can be considered a separate social group. ***Participation*** is focused primarily on the participating students. ***Mutual tolerance*** is seen as a larger goal for the journey, as it is hoped that reflecting on others' opinions can increase mutual tolerance. ***Trust*** is seen as the very basis for the whole user-journey.

Orientation towards the common good and Sense of Belonging
The key focus of ***orientation towards the common good*** is on promoting openness and tolerance through the various user-journey activities, while ***sense of belonging*** is directly approached by the fact that the participating students belong to a specific ethnical and social group.

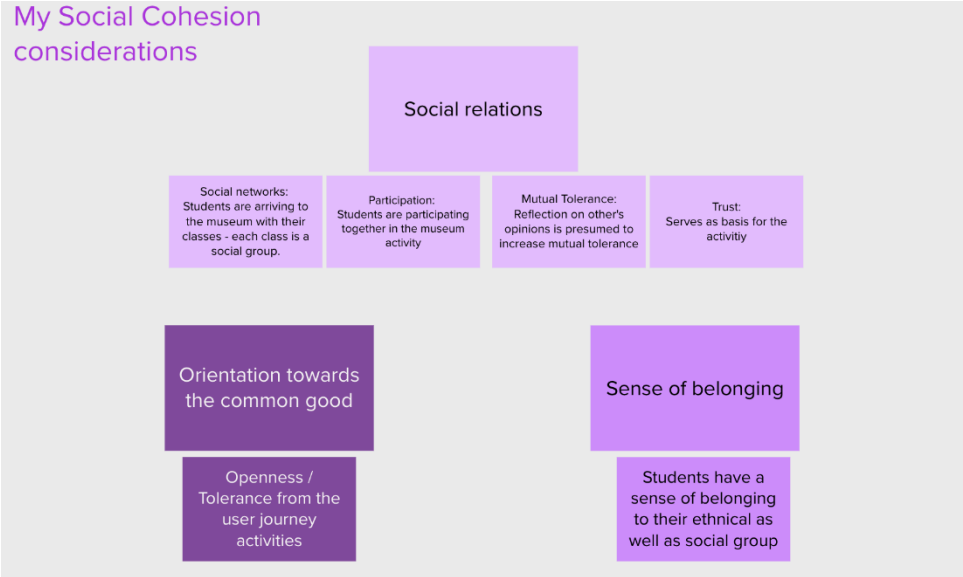

Fig. 4: Dimensions of social cohesion according to HECHT

2.3.3 GAM

GAM's Social Cohesion considerations were discussed on two levels, (1) on a system level (the GAM web app) as well as (2) on a larger encompassing museum level.

Social Relations
On the system level, social relations and its sub-dimensions were found as most applicable to the web app. Discussing ***social networks,*** it was pointed out by GAM that beyond just focusing on strengthening interpersonal relations with family and friends, the app also aims to help establish relations and sharing of perspectives between different communities and individuals. Regarding ***participation,*** it is envisaged that users taking part in the activities will also solicit active participation to the museum/artwork narrative,

which can hopefully increase the sense of belonging to the museum. ***Trust*** was also seen as central to the developed solution, for the app to be successful, it should be perceived as safe. This is particularly of importance in GAM's case, as their app features elements that some of their users might recognize from existing social media platforms, e.g., adapting the story format from Instagram, and which can be associated with trust issues around those platforms. As the fourth sub-dimension, ***mutual tolerance*****,** was also recognized as a key-point in terms of the developed solution. The web-app should not be seen as something targeting a specific community, which could introduce unintended segregation, but rather as an app for the general public that provides accessibility and promotes inclusivity.

Sense of Belonging
Sense of belonging was addressed in relation to the participants' emotional responses to the artworks. It was suggested that an emotional response can help foster a sense of belonging outside of explicit community or society membership (see also 3.2.1).

Orientation Towards the Common Good:
Lastly, orientation towards the common good was seen as most difficult to relate directly to the system. On the other hand, this dimension gave rise to ideas on the museum's role in the orientation towards the common good.
An additional dimension that emerged in GAM's case, was a ***sense of responsibility.*** It was brought up that through story-elicitation tasks from the previous workshops, participants had expressed responsibility towards the institution and felt gratification from being included. This could be seen as another dimension helping to bridge the relationship between the participants/users with the museum.

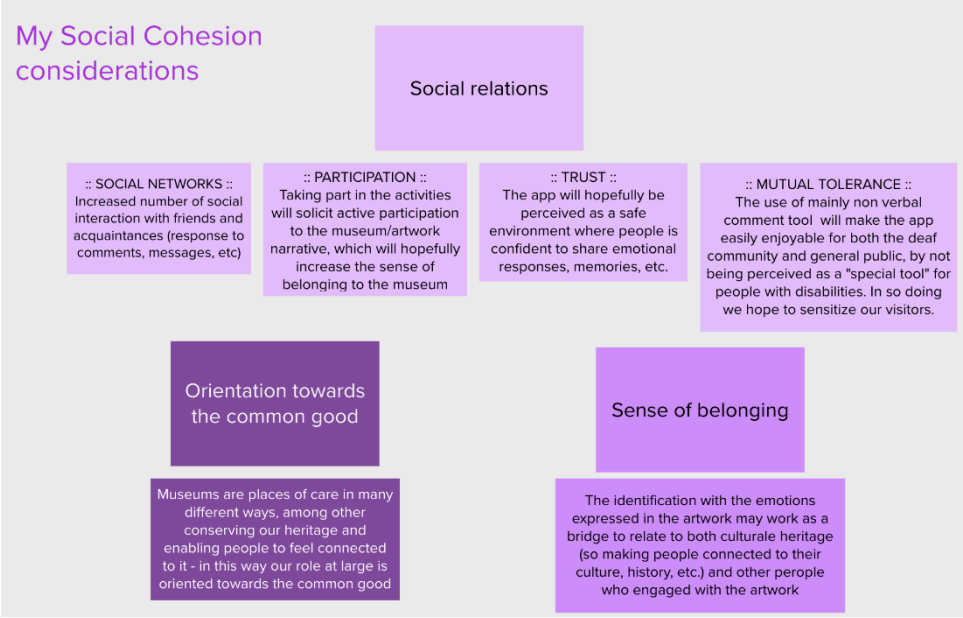

Fig. 5: Dimensions of Social Cohesion according to GAM

2.3.4 MNCN

Through eliciting reflection on the long-term implications of everyday actions in respect to climate change and biodiversity, MNCN's goals directly target one of the dimensions of social cohesion, namely *the* ***orientation towards the common good*****.** However, the ***social relations*** and ***sense of belonging*** dimensions can also be considered as very relevant and much tied to the ***orientation towards the common good***.

Orientation Towards the Common Good and Sense of Belonging
The dimension of ***orientation towards the common good*** was brought up during the meetings as one of the key-dimensions for the MNCN case study. However, the challenge was in this case to also raise awareness and incorporate the goal of social cohesion beyond its edutainment-related goals. This implies also facilitating an understanding of both, one's individual as well as shared role in the 'bigger picture' ***(sense of belonging).***

Social relations
Social networks can be stimulated through cross-generational conversations, as different generations can have different ideas on the topic. Similarly, *mutual tolerance* can be created through inter- and cross-generational discussion. ***Participation*** of children is elicited through providing engaging means to learn and reflect while ***trust*** should be reflected in the museum being a safe place for learning and sharing of one's opinions.

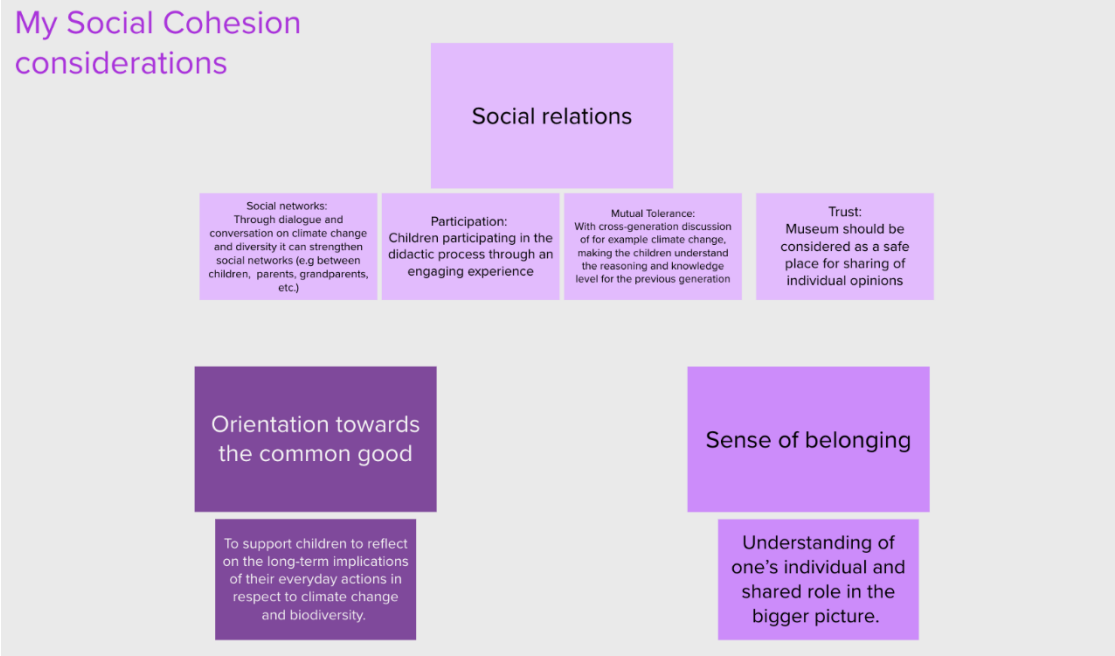

Fig. 6: Dimensions of Social Cohesion according to MNCN

2.3.5 IMMA

IMMA approached social cohesion and its dimensions from the point of their Deep Viewpoints slow looking tool, as by participating and mediating slow-looking activities, communities share their interpretations and perspectives on artworks and reflect on the interpretation of others.

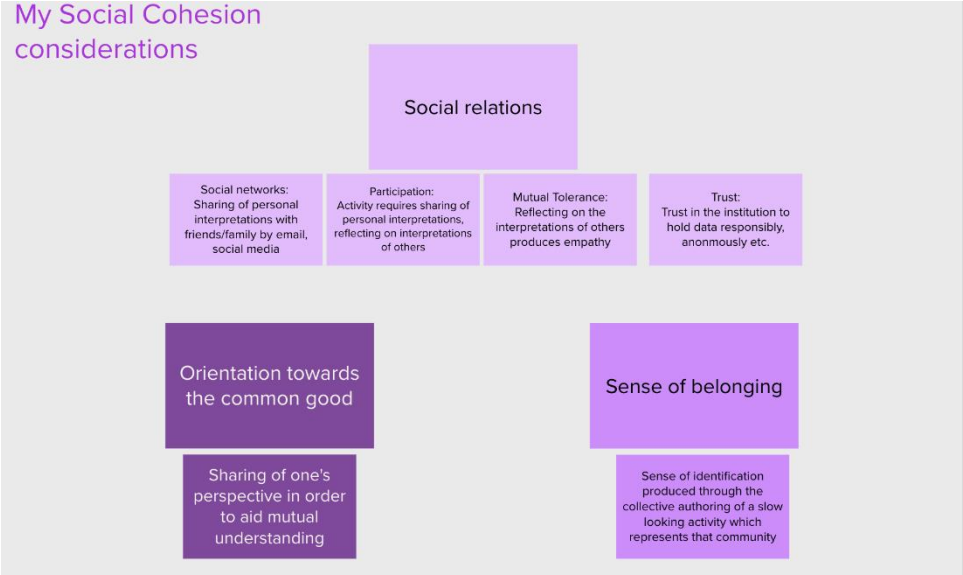

Fig. 7: Dimensions of Social Cohesion according to IMMA

Social Relations
The dimension of social relations and its derivatives could, in IMMA's case, be tied to the different functionalities of the system. In terms of ***social networks, participation*** **and** ***mutual tolerance,*** the software allows sharing of personal interpretations within communities via Deep Viewpoints.

Sense of belonging and Orientation Towards the Common Good
The other two dimensions are also implicitly addressed in the system. ***Sense of belonging*** is reflected in the Deep Viewpoints as it allows wider sharing of interpretations across communities.
The dimension of ***common good*** can also be viewed as implicit in the Interpretation-Reflection Loop as the system represents a point of view that the whole is larger than its individual participating users.

3.0 Cultural modelling and analysis in the IRL

In D2.1 and D2.2, we described and defined the Interpretation-Reflection loop (IRL). By viewing interpretation and reflection as interlinked cognitive and semiotic processes, we explored them in complementarity. We proposed that while on one level, the IRL would be "embedded in the different citizen curatorial activities afforded by the SPICE platform", on another, it is expected to "inspire logics for how the semantic intelligence of the system analyses, elaborates and manages citizens-input in order to re-propose new activities, visualizations and representations of meanings".
The central principle of the IRL is to support the goal of converging towards social cohesion and its dimensions in the form of an "inclusive participatory loop". However, while from a design point of view, "the IRL can be seen as the canvas in which we conceive, try and experiment with different permutations and combinations of the methods and activities being considered to be distributed throughout the platform of the project and its temporal processual trajectory," we also consider the IRL as an encompassing tool for modelling the dynamic cultural space and processes in which these interpretative and reflective processes occur - to eventually be able to analyse the dynamics that emerge in such cultural reflective space.

We consequently suggested an initial working definition of the IRL:

> *"The interpretation-reflection loop illustrates the iterative process in SPICE for generating unique citizen curation activities by combining interpretation and reflection methods. These activities are used to encourage citizen contributions prompting*

> *interpretation, reflection, and sharing of different perspectives, in order to enhance social cohesion and promote inclusive participation of different citizen groups. The contributions obtained through the activities can also be used, through the SPICE platform, as a foundation for generating new types of activities for new contributions, hence defining the iterative loop" (D2.1)*

Building on this early formulation, during the second year, we focused on the practical application of our previously introduced theoretical underpinnings. This was done by defining, co-designing and testing of individual case study user journeys (D2.3), aimed at initiating the IRL through the application of interpretation methods and related activities, to generate data based on user-contributions and user-interactions in the system (*see (a) and (b) in the figure below)*. In this section, we will illustrate how the IRL progresses once the data has been generated from these user-journeys. The goal is to highlight how citizens' representations of themselves, generated through "interpretations and associated community vocabularies" can support "reflection within and across groups", which in turn can stimulate the convergence towards the goal of reflecting on social cohesion.

In this section, we thereby continue our investigation from the user-journeys and case-specific IRL's presented in D2.3, to provide further insights into how to potentially cluster, relate and represent the inputs and the data collected, so that the system could provide suitable representations for reflection. This in terms of both individual and collective narratives, and in relation to relevant social cohesion dimensions, within the specific cultural space (i.e., the semiosphere) of the heritage institution.

In this line of thought, we first summarize our approach to narrative identity in the context of SPICE, to then present how the different citizen inputs, data and attributes considered by the SPICE technical platform (semantic reasoners, user and community models, ontologies, recommender systems, and linked database) may contribute to building representations of narrative identities. As the following step, we suggest an analytical framework which allows a dynamic representation of the emerging narrative identities as a system of overlapping "heterarchical belongings". The aim for this is to avoid stereotyped and static categories that may instead introduce a rigid portrayal of the on-going cultural process, as opposed to the emerging cultural dynamics that better reflect important aspects of social cohesion.

To proceed with the participatory co-design and testing process with the case studies, in the next sections we conclude by presenting the rationale of our next participatory workshop (Workshop 5 – see also section 5.1 below). This Workshop involves applying the proposed framework, as a continuation of the case studies' pilot user-journeys, in order to analyse and represent the data and the input obtained so far. The final step of the IRL, to be implemented by the case studies (after the analysis phase), will be the building of suitable and engaging visualizations to be made available to general audiences, museum workers and researchers.

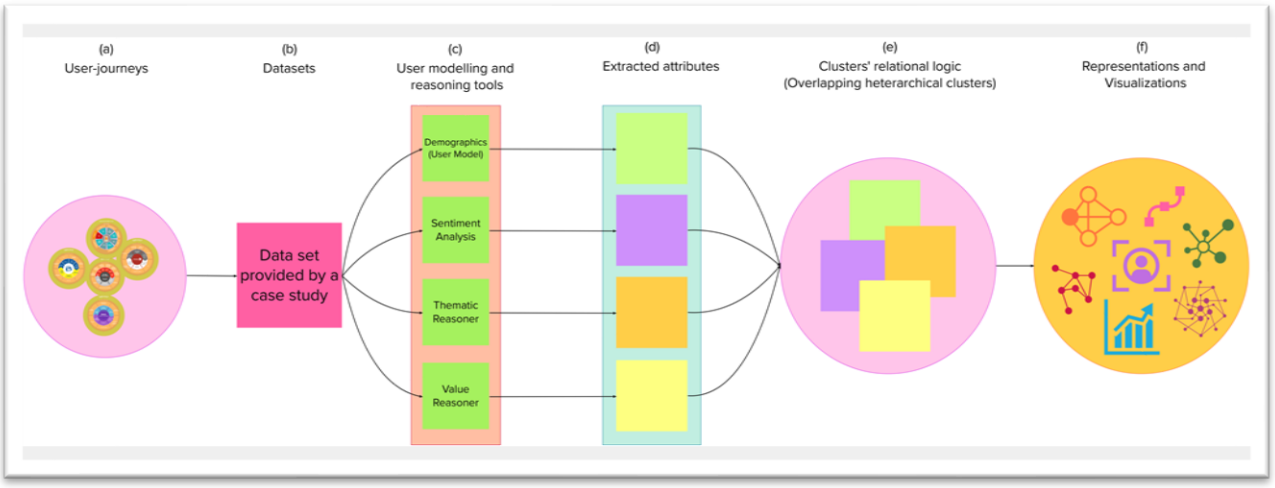

Fig. 8: Visualization of the data "pipeline" in the IRL

3.1 Narrative Identity

In D2.2, we discussed the concept of narrative identity as a dynamic reflective first-person approach to identity, addressing it as a multifaceted and complex phenomenon involving constantly evolving temporal, thematic and causal aspects. However, instead of viewing the concept as uniquely applicable to the individual, we proposed that narrative identity could be similarly used to describe communities, since "a person's life story says as much about the culture wherein a person's life finds its constituent meanings as it does about the person's life itself" (D2.2). Drawing on the work of Bruni (2021), Somers (1992; 1994), and Ricoeur (1991), we subsequently highlighted the notion of "cultural narrative identity". Cultural narrative identity allows us to explore the concept of narrative identity from a cultural perspective, as a "dynamic, relational, multidimensional and processual phenomenon, which rely on two distinct, yet simultaneous aspects: a dynamic aspect, which yields development and transformation, and affords agency to those that "belong" to the culture or community in question, and a static aspect, which lays in its foundation and origins, or the heritage that defines a culture or a community "*a priori*" (D2.2) (see also the useful distinction being made in D3.3, D3.5 and D6.5 between implicit and explicit communities).

Considering this type of cultural perspective on narrative identity, in which the focus is not merely on the individual but just as much on the surrounding cultural context, in D2.2 we presented our initial ideas on how these notions could be implemented in the context of SPICE. We went on to discuss how the various interpretation and reflection processes in SPICE could potentially benefit from the notion of cultural narrative identity. Besides describing the more direct implications relating to interpretation activities i.e., storytelling, we incipiently described how these concepts could be applied in the development of an analysis framework that could conceptually integrate the different ontologies and semantic reasoners that cluster the attributes of participating citizens into more didactic and dynamic representations of citizens and communities (WP6), and in turn informing the development of the user- and community models that feedback to the recommender system (WP3).

Thereby, based on this theoretical groundwork presented in D2.2, in this deliverable, we suggest how in the SPICE Interpretation-Reflection Loop (IRL), narrative identities of citizens and communities emerge as a compilation of all the 'mined' attributes (e.g., values, emotions, themes) and inputs (e.g., demographics and platform metrics) collected through the various interactions throughout each given user-journey.

Thus, when characterizing an individual user, a user group, or a whole community with all these aggregated attributes, a story on the trajectory of those people may emerge, simultaneously giving rise to a sort of individual or collective narrative identity. Moreover, in unexpected ways in which perhaps the individual user herself or himself is not fully aware, these emerging stories may be transformed or morphed in the cultural space. It is exactly this type of awareness that the SPICE platform aims at facilitating by enabling citizens to explore self-representation, which can in turn, be related to different social cohesion

dimensions. In this direction, we suggest that the emerging narrative identities of citizens and citizen groups need to be considered in terms of their heterarchical relations (see below), as they do not reflect stereotyped static categories but rather a dynamic and emerging cultural process.

Building on Ricoeur's work on narrative identity (D2.2), we can view identity as "sameness" (i.e., similarity) and identity as "self", relating to agency and subjectivity. However, it is particularly the latter that can contribute to build representations of the *self*. We argue that there is a difference between the third person ascription of identity to "things" by an observer (i.e., a categorization or taxonomic endeavour, implicit and explicit communities), and the kind of first person reflective, recursive, and processual formation of identities, which include personal (individual), or collective/cultural identity. Adopting this type of a first-person (singular or plural) reflective approach to the analysis framework of SPICE, "similarity rules" and constructs like implicit or explicit communities would not function in a vacuum but could become fully contextualized and integrated in the SPICE IRL, thus converging to the reflection on social cohesion. This distinction has to do with "who" is the observer of the classified clusters, i.e., it brings the first-person perspective into the picture. What we are interested in is not only the similarities between objects (or objectified users), but the similarities of different subjective standpoints on those objects. Narrative identity adds the dimension of agency to the subject that recognizes herself or himself in an emerging dynamic category such as an implicit community, which is inferable by the interactions (the subject's agency) in the cultural process.

3.2 Attributes for narrative identities in SPICE

Following the above considerations on the notions of individual and cultural narrative identity, this section examines the three aspects supported by the technical reasoning tools developed for SPICE (see also D3.2, D3.4, D6.3, and D6.5). These cover: Emotions/Sentiments, Values, and Themes/Interests. In this section we will discuss these aspects' practical applicability in relation to the case-studies, as well as in relation to social cohesion and the aims of SPICE. Each subsection gives a brief overview of the theoretical foundation of the concepts in question and describes how they are currently being applied by the case-studies, or how they might support them. Finally, the concepts are considered in terms of their potential relation to social cohesion.
We consider these aspects collectively as attributes for emerging narrative identities. Concluding the section, we propose possible avenues to pursue in the coming year, for further exploring, integrating and utilizing the possibilities of the reasoning tools.

3.2.1 Emotions and Sentiments

The following section considers the role of emotions and sentiments in the engagement with cultural heritage, and its potential application as an attribute of narrative identity in the context of SPICE. First, the section delineates some fundamental conceptualizations of emotions that have been applied and incorporated into some of the sensemaking tools developed in WP3 and WP6 (see D3.2, D3.4 and D6.3). From these considerations, the section continues by examining the current use of emotions in SPICE, its potential as an attribute for narrative identity, and the analysis and clustering of users and artefacts.

Basic and compound emotions

Emotions are considered rudimentary to human consciousness, and thus to human experience, as it has been suggested that "[b]y virtue of being born, the person has the ability to experience pleasant feelings, or positive affect, and unpleasant feelings, or negative affect" (Maddi, 1996, p. 189). However, albeit being such a fundamental aspect of human nature, the domain of affective psychology demonstrates a long history of prevailing discussions on the definition of emotions and affect, as well as on the relationship between cognition, emotions and motivations (Plutchik, 1962; 1985; Lazarus, 1999). A strongly influential conceptualization of emotions was introduced and developed by Paul Ekman (Ekman, 1992; 1993; 1994; 1999), who divided the spectrum of human emotions into six basic emotions: *Anger*, *Fear*, *Disgust*, *Sadness*,

Happiness, and *Surprise*. Although, some have objected against the validity of its universalism (Russell, 1994), this taxonomy has been widely recognized and accepted.

Ekman also considered the possibility of compound emotions derived from combinations of the six basic emotions, yet it was Plutchik (1962; 1982) who first developed this idea as he considered the notion of complex emotions by building on his own conceptualization of eight basic emotions: joy, trust, fear, surprise, sadness, disgust, anger, anticipation. Plutchik conceptualized these eight basic emotions, and their compound derivatives, as adjacent and opposing emotions and organized them in the "Plutchik Wheel of Emotions" (1982) which also took into account varying intensities of each basic emotion (see Fig. 9 and D6.3).

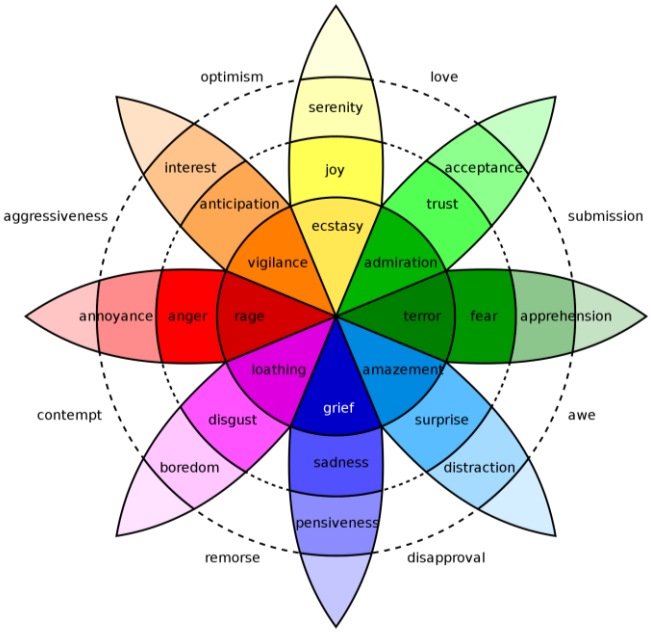

Fig. 9: Plutchik's Wheel of Emotions
Retrieved from Wikimedia
(https://commons.wikimedia.org/wiki/File:Plutchik-wheel.svg)

Emotions/Sentiments in SPICE

In SPICE, a combination of the basic emotions of Ekman, and the Plutchik Wheel of Emotions are the models of choice for the current generation of emotion-based sensemaking tools in SPICE. Especially Plutchik's model is often used for computational approaches to emotions and most emotive lexica material (i.e., lists of words or sentences mapped to specific emotions) is based on this model (see also D6.2 and D6.3). Additionally, Plutchik's model encompasses a wide range of different emotions, with both the basic emotions and the compound emotions. More specifically, the model is applied by the Spice Semantic Annotator (SSA) service developed by WP3, when applying natural language processing (NLP) to detect emotions in text-based input, e.g., user-contributions and catalogue descriptions of artefacts (see D3.2 and D3.4). The Semantic Annotator applies the custom-built multilingual lexicon developed for SPICE (SPICE Emotion Lexicon), to link the text-based input with emotions. This lexicon was initially limited to the detection of 12 emotions defined by Plutchik: Anger, Anticipation, Calmness (Serenity), Disgust, Disapproval, Fear, Joy, Interest, Love, Sadness, Surprise, Trust. Following this initial instantiation of the Semantic Annotator, additional work has been carried out to improve the SPICE Emotion Lexicon, both by increasing the sources and improving the individual lexicons contained herein, as well as optimizing and expanding on its emotion recognition capabilities by adding more entries to the list of recognizable emotions. In line with this work, the Semantic Annotator has been coupled with DEGARI, developed in WP6 (see D6.3). DEGARI (Dynamic Emotion Generator And Reclassifier) also adopts Plutchik's wheel of emotions, and likewise, reasons about the emotions from text-based input by utilizing NLP and different lexical

sources, much like the Spice Semantic Annotator. However, a key difference, is that DEGARI computes the *compound emotions*, whereas SSA primarily considers the *basic emotions*, but from a greater lexical base. As such, the combination of the Semantic Annotator and DEGARI shows great potential for generating quite complex models of the emotions attributed to both users and artefacts.

After this initial exploration of emotions and their integration into different sensemaking tools for the SPICE platform, we will examine how the attribute of emotions is relevant in relation to social cohesion, and also how it is currently being addressed by the case studies.

As previously described, emotions are considered to permeate all human experience, and similarly emotions have been considered as an integral part of any aesthetic experience (Lieto, Pozzato, Zoia, Patti, & Damiano, 2021). Likewise, emotions can be argued to be closely tied to engagement with culture and cultural heritage, as cultural objects and historical events often suggest an emotional bond. Within SPICE, we rely on this relationship, as it can potentially result in citizens becoming more inclined to contribute "rich" narratives. I.e., while not considering the specific emotions involved, the intensity of the emotions, attributed to the artefact by the users, is expected to be reflected in the richness of their user-contributions. E.g., in the case of DMH, personal memories related to the artefact under examination showcase such a personal bond, and it is hereby suggested that such a connection between the user and the artefact will result in "rich" narratives from the personal accounts. In this sense, cultural heritage can revive potentially dormant emotions, and serve as an incentive for personal storytelling.

The GAM case study specifically considers emotions as a principal point of interest and has actively employed emotions in their pilot implementation, in the form of emojis as direct emotional responses to artworks. While the rest of the case studies do explore the opinions or perspectives of the users, they have not directly integrated the available services into their user-journey. Hence, specific integration of the SPICE Semantic Annotation service, and the DEGARI reasoner in the pilot implementations are yet to be realized.

In closing, we can summarize that "emotions" are univocally related to all experience and hereunder also deeply tied to the user-experiences envisioned in SPICE. A focus on the emotional aspects of the user-journey, together with active use of emotions as an attribute for analysis, and hereby for recommendation and clustering, is expected to hold great potential for supporting the aims of SPICE, even if this support can be considered as more indirect in nature.

3.2.2 Values

In this section, the notion of values will be explored as another attribute for narrative identity. Values are likewise being investigated in the context of the reasoning tools (see D6.3). To begin our exploration of the concept, both Bem (1970) and Rokeach (1973) advocated for a conceptual division of *values*, *beliefs* and *attitudes*, as "any conception of the nature of human values [..] should clearly distinguish the value concept from other concepts with which it might be confused – such concepts as attitude, social norm, and need – and yet it should be systematically related to such concepts" (Rokeach, 1973, p. 3). Hence, the section begins with a general discussion of values, with a specific focus on individual values. This involves both consideration on what have been described as basic human values (Schwartz, 1992; 2012), and moral values (Haidt, 2012; Curry, 2005; 2016). Following this outlining of the general concept of values, we explore its connection to its close relatives of beliefs, attitudes and needs/motives, as suggested by Rokeach (1973). Finally, the section concludes with considerations on values in SPICE, both in the form of current applications of the attribute in the case studies, as well as its potential in relation to the reasoning tools and the overarching goal of Social Cohesion.

Individual values

Across different disciplines and fields, the idea of values is widely considered a prominent feature of people's personality or identity (Spranger, 1928; Linton, 1947; Kluckhohn, 1951; McClelland, 1951;

Rokeach, 1973; 1979; Maddi, 1996; Schwartz, 1992; 2012; Inglehart & Welzel, 2005; 2010; Curry, 2005; 2016; Haidt, 2012). While, emotions (or affect), as previously described (see 3.2.1 above), is regarded as an inherent core characteristic of the individual, i.e., a genetic, inborn ability of human conception (Maddi, 1996), the fundamental conceptualization of values considers values as social constructs. Thus, “values, and social roles are usually determined by the nature of the culture in which the person exists" and are “instilled in you by society (Maddi, 1996, pp. 197,210; McAdams, Power, intimacy, and the life story: Personological inquiries into identity, 1985). Across theorists and domains, values are suggested to “be desirable and trans-situational end states and behaviours” (Nowack & Schoderer, 2020, p. 32), and are viewed as “demands one places upon oneself, as part of one’s self-identity" (Bilsky & Schwartz, 1994, p. 178). In this sense, values are a component in the “general frame of reference for living" (Maddi, 1996, p. 198), and guide our behaviour and life choices by delimiting our conscious knowledge of what we “should” and what we “desire” (Kluckhohn, 1951; Rokeach, 1973; McAdams, 1985; Schwartz, 1992; 2012; Nowack & Schoderer, 2020). However, with this, it is also clear that values are not an infallible and complete representation of what we “do”, or how we act, albeit our choices and behaviours are very much affected by our values (Rokeach, 1973; Bilsky & Schwartz, 1994).

In SPICE, and more specifically in D6.5, multiple theories of values have been explored and sought to be connected, such as the World Value Survey (Inglehart & Welzel, 2005; Welzel & Inglehart, 2010), the Moral Foundations Theory (Haidt, 2012; Curry, 2005; 2016), and the Basic Human Values (Schwartz, 1992; 2012). This work has been carried out with the intention of developing a tool for reasoning about the complex notion of human values. I.e., the system of SPICE desires the ability to reason about values implicitly attributed to different artefacts by the citizens, along with the values of the citizen’s self.

Basic human values and moral values

The theory of Basic Human Values, developed by Schwartz (1992; 2012), is specifically concerned with values on the individual level, as “an aspect of the personality system of individuals” (2011, p. 477). Schwartz synthesizes writings of theorists such as Allport (1955), Kluckhohn (1951), Rokeach (1973), and Feather (1975), as he builds his concept around six features that he argues are to be found in all values: (1) Values are beliefs linked inextricably to affect, (2) Values refer to desirable goals that motivate action, (3) Values transcend specific actions and situations, (4) Values serve as standards or criteria, (5) Values are ordered by importance relative to one another, and (6) The relative importance of multiple values guides action.

Schwartz' model considers values as universal to all humans, and as such, applicable across cultures and nations. Schwartz models the basic human values as a circular structure, visualizing their dynamic relationship, in which antagonistic values are placed as opposites on the circle, and related values are placed adjacent to each other. Originally, the model encompassed 10 values (Schwartz, 1992), and this model is still often employed, but as depicted in Fig. 10, the model has since been further defined to include a total of 19 values (Schwartz, et al., 2012). The theory of basic human values has been rigorously tested on a vast number of subjects across 82 countries. However, a criticism raised to Schwartz’ theory of basic human values is its deductive approach, by which the list of values is developed a priori, and then validated through subsequent experimentation. This approach has been criticized, because “it might miss values that exist, but were not conceptually deduced beforehand” (Nowack & Schoderer, 2020, p. 9).

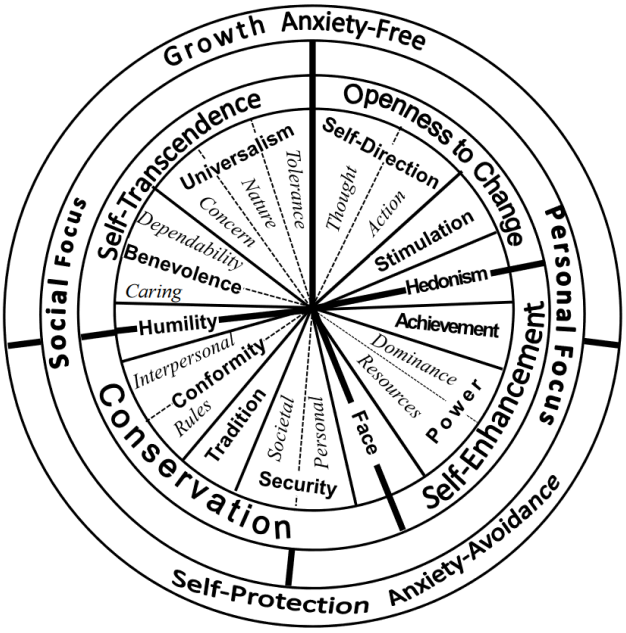

Fig. 10: Proposed circular structure of Schwartz' 19 basic human values (Schwartz, et al., 2012)

Another influential approach to basic human values is the World Value Survey (WVS), represented by an especially large body of empirical data collected (Inglehart & Welzel, 2005; Welzel & Inglehart, 2010). The WVS also considers individual human values as universal but are more intent on mapping the development of value priorities across countries and cultures, as it focuses on the two value dimensions of: (1) self-expression vs. survival, and (2) secular-rational vs. traditional. With this approach, the WVS aggregates the attitudes expressed through their questionnaires into these two dimensions of values. E.g., "tolerance is a self-expression value, while security is a survival value" (Nowack & Schoderer, 2020). This approach has been criticized for potentially creating attitudinal indices rather than measuring values (Nowack & Schoderer, 2020). Considering the argument that values and attitudes are not uniformly connected, this criticism can be regarded as warranted. However, it can be argued that certain attitudes are significantly more related to certain values over others, which in turn warrants the approach of the WVS (Rokeach, 1973; Inglehart & Welzel, 2005; Welzel & Inglehart, 2010).

Progressing from these influential conceptualizations of basic human values, we also consider the concept of moral values, as another, albeit more specialized, conceptualization of values (Haidt, 2012; Curry, 2005; 2016). This concept is related to the work currently being conducted in SPICE and is likewise another relevant aspect to consider when discussing individual values and their relation to society and its members.

As argued by Rokeach (1973) in his seminal work on the nature of human values, "[t]he concept of moral values is considerably narrower than the general concept of values" (p. 8). Rokeach theorized that the general concept of values was concerned with both behavior and desirable end-states of existence (i.e., socially accepted behavior and personal or social goals such as: inner peace or world peace), but the moral values were considered to "have an interpersonal focus which, when violated, arouse pangs of conscience or feelings of guilt for wrongdoing" (p. 8). As such, moral values can be said to relate to "social motivations beyond direct self-interest" (Haidt, 2007, p. 998). Expanding on a previous general emphasis on *harm* and *fairness* as singular key aspects of the interpersonal treatment that is the focus of moral psychology (Haidt, 2007; 2012), the Moral Foundations Theory (Haidt, 2012; Graham, Haidt, Koleva, & Matt Motyl, 2013), expanded upon this initial emphasis, and endorsed the position that *multiple* virtues or values underlie morality. Graham, Haidt and colleagues (2013) argue that the total count of moral foundations is yet to be

determined, but the basic model of the MFT initially suggested five foundations for morality represented as: (1) Care/Harm, (2) Fairness/Cheating, (3) Loyalty/Betrayal, (4) Authority/Subversion, and (5) Sanctity/Degradation.

With MFT, Haidt additionally disassociated from an otherwise common focus on moral *reasoning* as being the primary driver for *moral judgment.* Instead, he highlighted *moral intuitions* (or moral emotions) as the driving factor for *moral judgment*, with *moral reasoning* only occurring as an ex post facto response. In other words, "[o]ne sees or hears about a social event and one instantly feels approval or disapproval" (Haidt, 2001). As such, the idea is that moral judgments occur quickly, based on *moral intuitions* reflecting moral emotions as conscious, but sudden, responses in the form of affective valence serving moral judgment *before* moral reasoning is employed to provide the rational arguments for the sensations felt (Haidt, 2012; Graham, Haidt, Koleva, & Matt Motyl, 2013).

The Moral Foundations Theory has been embraced and applied throughout a variety of domains and is linked to multiple other psychological constructs, such as attitudes and emotion (Graham, Haidt, Koleva, & Matt Motyl, 2013). One point of criticism that can be raised against MFT, is that it somewhat neglects the interpersonal focus, otherwise suggested as a characteristic for moral values (Rokeach, 1973). With this, it can be argued that MFT does not sufficiently include the relational factors in its conceptualization (Rai & Fiske, 2011).

Distinguishing between Values, Beliefs, Attitudes, and Motives

Despite seemingly relative consensus regarding the disposition of values, its operationalization is far less agreed upon (Nowack & Schoderer, 2020). Hence, its close relationship to (and often bidirectional effect on) concepts like beliefs/ideas, attitudes, and motives, has tended to inadvertently complicate the discussion and the measuring of the concept (Nowack & Schoderer, 2020). In the following, we therefore examine some of values' closely related siblings from psychology, to determine their conceptual differences, and to further frame the target to which a future iteration of a value reasoner should aspire.

Values and *beliefs* (or *ideas*/*ideologies*) are seen as closely related concepts and have been addressed together, or at a similar level within the fields of psychology and personality, as "[a] value is a belief" (Rokeach, 1973, p. 6). More specifically, we can consider values as (in)formed by our beliefs, as a "value is a belief upon which a man acts by preference" (Allport, 1961, p. 454). Following this, *beliefs* have been considered as "nonevaluative propositions about what is", while values are regarded as "evaluative and concern what should be" (McAdams, 1985, p. 235). In other words, beliefs are more rigid by definition, while values are more dynamic and subject to change through (re)evaluation, albeit still regarded as "relatively stable individual preferences" (Bilsky & Schwartz, 1994, p. 164).

Attitudes is another principal component at the same structural level in identity and personality as *values* and *beliefs*. As previously described, taking attitudes into account can be regarded as necessary for any conceptualization of values, and from this, we suggest it as similar imperative for the operationalization of values. Attitudes differ from values due to their specificity. Where values are considered trans-situational (Linton, 1947; Schwartz & Bilsky, 1987; Schwartz, 1992; 2012; Nowack & Schoderer, 2020), attitudes are considered as directional, in the sense that they are directed toward an object (Fishbein, 1963; Rokeach, 1973; Ajzen, 2001; Schwartz, 2012; Nowack & Schoderer, 2020). I.e., they are "relatively specific likes and dislikes directed at certain classes of objects" (McAdams, 1985, p. 235). While values were suggested to be formed by our beliefs, *attitudes* are considered as derived from one or more values (McAdams, 1985; Schwartz, 2012). However, it has been argued that a uniform relation between attitudes and a corresponding value is not applicable, since "[a] given attitude held by different persons need not be in the service of the same value or the same subset of values" (Rokeach, 1973, p. 96). Hence, different values can act as a driver for the same attitude, i.e., the underlying reasoning or justification of a specific attitude towards a given object or subject, can be based on the satisfaction of different values from person to person (Schwartz, 2012).

> *"Conceiving values as organized in a circular motivational structure [..] implies that the whole set of ten values relates to any other variable (behavior, attitude, age, etc.) in an integrated manner" (Schwartz, 2012).*

An example of the arrangement of beliefs, values and attitudes can be seen as: a belief that all people are equal in the eyes of a (chosen) deity, might encourage a value such as universalism, which in turn can promote a positive attitude towards charity organization. But a positive attitude towards charity organizations can be promoted by a value such as power/resources, due to charity's effect on the individual's tax conditions, and thus encouraged by more individualistic beliefs, such as economic wealth fosters personal happiness.

Finally, the concept of *motives* will be explored in the context of values. Motives have been regarded as another major element of personality; notably by Murray (2008 [1938]), McClelland (1951), and McAdams (1985; 2011). Motives are closely tied to *needs*, as the motives can be considered as different approaches to satisfy a need. McClelland's approach to motives has been a key source of inspiration for McAdams' concept of narrative identity (see 3.1, and D2.2), with McClelland defining a motive as "a strong affective association, characterized by an anticipatory goal reaction and based on past association of certain cues with pleasure or pain" (McClelland, 1951, p. 466). Consequently, motives reflect personal goals, based on past experience of the individual, and does not, as directly, reflect "culturally shared intentions" (Maddi, 1996, p. 198). McClelland hereby support the idea that *values* are socially informed, and according to his theory, values will therefore not serve as an appropriate mirror of the motivations of the person: the individual goals (Murray, 2008 [1938]; McClelland, 1951; Maddi, 1996).

Values in SPICE

Following the above outline of different conceptualizations of values and related concepts, this section examines the current and potential future application of values in SPICE.

Within SPICE, different approaches to value-analysis are being explored (see also D3.4, D6.3, D6.5). Initial steps have been taken, with the case study of HECHT supplying a testbed for the first iteration of a value reasoner in SPICE. This initial practical application focuses on Haidt's (2012) conceptualization of moral values (see also D6.3). The tool builds on the DEGARI system (Lieto, Pozzato, Zoia, Patti, & Damiano, 2021) that was developed for reasoning about emotions (see also D6.3). As a value reasoner, the tool combines the logic from the original DEGARI system regarding emotions, with the Moral Values Theory (Haidt, 2012). As such, by employing a lexical approach, the tool can extract emotional- and value-features from text-based input (e.g., user-contributions and museum catalogue entries). Based on these features, a subsequent process, computes and produces hybrid moral values, represented as combinations of the extracted emotional- and value-features (Lieto, et al., submitted).

Another sensemaking tool to reason about values, as defined by Schwartz' model of basic human values, is also under development in the context of WP3 and WP6 (see D6.3). Hence, in the "User and Community Knowledge Area" (see D6.2 and D6.5), WP6 have developed and integrated multiple ontologies for the conceptualizations of values, hereunder the World Value Survey (Inglehart & Welzel, 2005; Welzel & Inglehart, 2010), the Schwartz' (1992; 2012) Theory of Basic Human Values, as well as the Moral Foundation Theory by Haidt and colleagues (Haidt, 2012).

Except for the testing conducted with the moral values, value-analysis within SPICE is yet to be applied directly by the case studies in their pilot implementations. However, the addition of a reasoning tool that provides possibilities for inferring data about *values* adds another attribute for the user- and community-model to be used for clustering of the users (see D3.3 and D3.5) and for deriving the narrative identities of the users (see 3.1 above).

3.2.3 Themes and Interests

Aside from the previous considerations on emotions and values, another reasoning tool being developed by WP6, is the Thematic reasoner (see D6.3 – also for more in-depth description of the approach of the software service). This reasoning service is intended to derive topics, or themes related to a collection of cultural objects, e.g., the cultural objects that the users engage with. As such, the current aim of the Thematic reasoner is to reason about the interests of the user through the cultural objects engaged with, rather than focusing on specific user-contributions. The service assigns a theme to the individual cultural objects, by the objects' association with a linked entry in an online database. In its current implementation, the database used is DBpedia, and the theme(s) of the objects are directly derived from the entry's relation to different Wikipedia Categories (see D6.3). When a link is not directly present, the semantic annotator of WP3 infers such a link, by use of its "entities detection" capabilities (see D3.4), and associates the cultural objects to a DBpedia entry, by analysing the museum catalogue descriptions uploaded into the Linked Data Hub (see D3.4, D4.2 and D6.3). In its initial prototypic implementation, the service was tested on a virtual exhibition to deduce themes of exhibits and specific rooms at a museum, based on the cultural objects located within these spaces. More specifically, the Thematic reasoner tool, derives the themes of the cultural objects, then based on these, it calculates a common theme for each collection of objects, and then finally, infers an overarching common theme for the collection of collections of objects.

Although the initial prototype applied cultural artefacts, with assumed established links to relevant DBpedia entries, the underlying ontology supports the association of a theme to any object (and collection hereof), be that user-contributions or artefact entities. Along with the potential capabilities of the semantic annotator to automatically assign related DBpedia entries to any textual input, this opens the possibility for deriving themes of a set of user-contributions, either from a single user or from multiple users. Hence, it could be possible to assign a theme to a user's visit, both through the entities engaged with, as well as the contributions related hereto.

As such, the Thematic reasoner service offers another possibility to reason about the interests of the user(s), which in turn can be used for both the community-modelling, as well as the recommendations offered (see D3.5, D3.6, and D6.5). Specifically, the Thematic reasoner allows for a broader perspective of the interests of the user, focusing on topic(s) or theme(s) shared by the artefacts. Additionally, a combination of the Thematic and Emotion reasoner is expected to prove a powerful tool to provide insight into the interests of the user, on both the macro-level (theme/community) and micro-level (object/user).

Due to the open nature of the underlying ontology, and the features of the semantic annotator, it is possible to be creative with how, and to what, we wish to assign and explore themes and as such the interests of the user(s).

Themes and Interests in SPICE

In its initial form, the application of different 'themes' has primarily been used by IMMA. The user-journey for the IMMA Deep Viewpoints pilot implementation (see also D2.3), relies on specification of a theme for the script, along with the selection of artefacts chosen for inclusion in the script. In this context, multiple levels and dimensions of themes can be determined (see Fig. 11). First, the level of the mediator (the user creating the script), in the form of the theme described for the script (e.g., family, or activism, etc.); second, the level of the individual objects as related to catalogue descriptions; third, the level of the individual objects as derived from user-contributions (if any); fourth, the common theme for the collection in the script, as derived by the themes of the individual objects' catalogue themes; fifth, the common theme for the collection in the script, as derived by the themes of the individual objects' user themes.

In the case of MNCN, a 'theme' has also been applied much like the 'mediator theme' in the IMMA pilot, as an overarching theme for the user-journey. In this case, the theme frames the entire user-journey, and the 'collection theme' does currently contain other influences, albeit the 'catalogue collection theme' could potentially provide to be insightful as well.

Other case studies have not applied the use of themes yet.

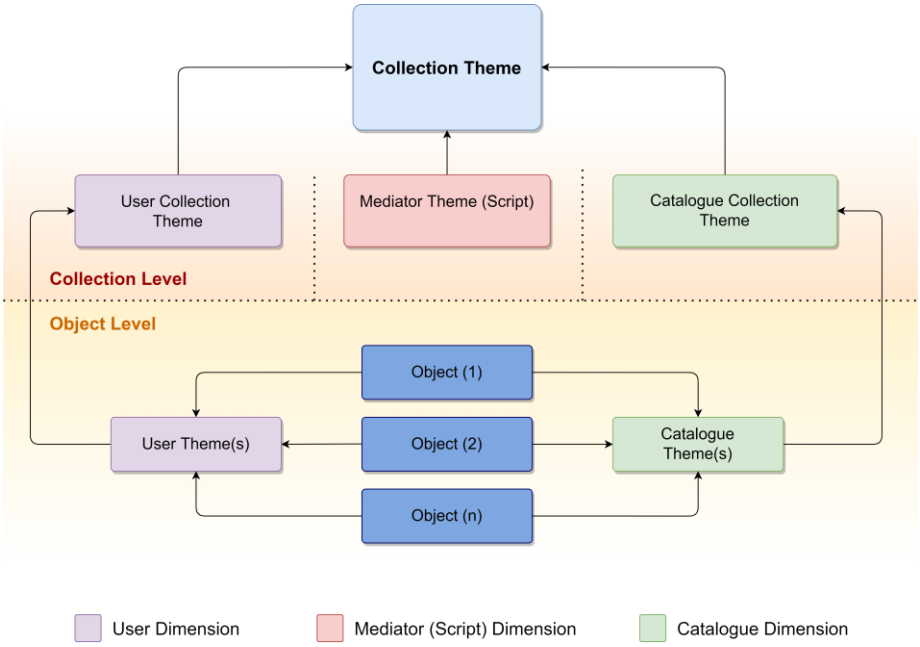

Fig. 11: (Possible) Thematic Levels and Dimensions

3.3 Attributes of Narrative Identity and Social Cohesion

In this section, we conclude on our previously described considerations on the attributes of narrative identity in SPICE. We discuss the relevance and relation between the different dimensions of social cohesion, and the different attributes of narrative identities in SPICE. This aims to serve as a preliminary analysis for guiding the future work for fine-tuning the clustering algorithms, and for further developing the representation of the users based on their narrative identities.

Instantiating this discussion, we can regard the social cohesion dimension of *social relations.* Here we can determine a connection between emotions, through its sub-dimension, namely *participation*, as we have argued that a citizen's emotional bond to an artefact might incentivize active participation.

Additionally, we can consider the sub-component, *mutual tolerance*, as reflecting a focus on "the constructive coexistence of individuals who differ in their values" (Schiefer & van der Noll, 2017, p. 590). However, from our previous considerations on values, we argue that a singular focus on 'diversity in values' does not independently satiate mutual tolerance. With the aim of SPICE for "embracing individuality, all the while focusing on group unification through the acceptance of the idiosyncrasies of the individual, the groups and the society" (Wecker, Kuflik, Mulholland, Diaz-Agudo, & Pedersen, 2021, p. 1), we suggest that creating awareness about differences in values *within groups*, while simultaneously highlighting *value similarities across groups*, holds the potential as a path for generating such mutual tolerance. This is further substantiated, as it may be argued that 'trust' is influenced positively by 'shared values'.

Considering *sense of belonging,* as another dimension of social cohesion, we can regard how emotions have been directly related hereto, when considering this dimension as the 'emotional connectedness' between the members of a group. This connectedness can also be linked to empathy, as the "ability to identify and understand emotions of others" (Ratka, 2018, p. 1140). As such, it can be said that the approach in SPICE is intended to heighten *empathic emotions* toward another individual (preferably as a member of another group).
Generally, the dimension of 'orientation towards the common good', is regarded as group-oriented (Schiefer & van der Noll, 2017) and can be argued to focus on solidarity, or feelings of responsibility for the common good and the adherence to, as well as negotiation of, social rules and norms. However, it has been

suggested that emotions are directly related to the goals and motivations of the *individual* (Lazarus, 1999), from which it can be argued that people will only act for the common good, "when and only when it is in their personal interest to do so" (Batson, et al., 1995, p. 619). As such, this perspective of individuals as working in isolation from an ego-centered perspective is seemingly incompatible with this dimension of social cohesion. However, if we consider the individual from the perspective of always identifying with a group (Jenkins, 2008), then orientation towards the common good can be regarded as a "natural and direct expression of self-interest" (Batson, et al., 1995, p. 620). From this perspective the individual and the group are linked, and positive emotions experienced in relation to fulfilling the goals of the individual, is mirrored in the goals and needs of the group. I.e., the self is defined "collectively rather than personally" (Batson, et al., 1995, p. 620). In concordance with this, the Moral Values Theory of Haidt, which has a clear reflection of socially acceptable behaviour, can be considered as relating to this dimension, when it argues how "[h]umans attain their extreme group solidarity by forming moral communities within which selfishness is punished and virtue rewarded" (Haidt, 2007, p. 1001). Schwartz' theory of basic human values, can likewise be argued for relating (certain) values to the orientation towards the common good, with its separation of values into the two groups of 'personal focus', and 'social focus'. This would then mean that values with a 'social focus' should be promoted to enhance this dimension of social cohesion. This would seem to be a middle-ground between the goals of 'shared values' and 'diversity in values', since it would argue for diversity to be desired, but only by the sharing of values from one half of the circle (i.e., only diversity in values with a social focus).

As we have highlighted in this section, the relation between the considered attributes for the narrative identities of SPICE, and the dimensions of social cohesion, is multi-faceted. So, for future examination, we suggest a selective approach, in which each case study considers the attributes of narrative identity that are found most relevant to their specific case, together with the dimensions of social cohesion similarly found to be most relevant. As described for Workshop 5 and 6 (see 5.1 below and 5.2 below), it is the intention to further explore and experiment with these attributes and such relations in the coming year of SPICE, in order to fine-tune the clustering algorithms and customize the representations and visualizations of the users and the artefacts through their connected data.

4.0 Framework for modelling cultural processes in SPICE

At this stage of the SPICE development, all five heritage institutions have produced and tested case-specific versions of the first part of the Interpretation-Reflection-Loop (see also section 4 in D2.3). Through the testing of these user-journeys, the cases have been able to implement citizen curation activities that generate and collect user input, which can now be used to model the on-going cultural process. This can enable citizens to generate and visualize representations of their *belongings* to emerging narrative identities. Therefore, modelling, representing and visualizing such processes constitute our next and final steps for the IRL model (which theoretically, from that arrival point, could be open again to the possibility of initiating a new loop in the system's process).

In order to analyze and cluster the data for these purposes, we are proposing a framework to aggregate the different kinds of citizen data and inputs by applying some of the properties inherent to what we are calling *dynamic heterarchical clusters* (see also section 4.3.6.1 in D2.2). The question is how to use the available semantic tools in the SPICE platform in order to facilitate a representation of the emerging narrative identities in a heterarchical perspective, which we are building based on our recent work on the entanglement of heterarchical value-systems in cultural dynamics (Bruni, 2021).

4.1 Dynamic heterarchical clusters

According to Somers (1994), almost three decades ago there was in the social theories of "identity-politics" a shift from explanations for action based on "interests" and "norms", to explanations based on "identities" and solidarities". This shift was assuming that people act on the grounds of common or shared cultural

attributes rather than on rational interest or a set of fixed learned values. In retrospect, some of her observations have proven to be very pertinent. She warned that new identity-categories could end up working as new "totalizing fictions" in which a single category of experience would dominate over a set of cross-cutting simultaneous differences (for example, gender and sexual identity overruling class, ethnicity, race, age, religion, etc.). In her perspective, "the new identity-theories reify anew what is in fact a multiplicity of historically varying form of what are less often unified and singular and more often 'fractured identities'''. In light of this, she recommended the adoption of new conceptual tools that can enable us to plot the narrative identities, which dynamically shape social action and cohesion. In Bruni (2021) we presented a heterarchical perspective that may contribute to advance in this direction by showing how "solidarities" can overlap in seemingly contradictory non-transitive permutations of shared attributes in the dynamics of a given cultural space: "Social and cultural action can be better understood if we can recognize the various culturally constructed stories in which people are *emplotted,* and which according to Somers … [are] composed of (breakable) rules, (variable) practices, binding (and unbinding) institutions, and the multiple plots of family, nation, economic life, etc. – all of which conforms, in our perspective, a heterarchical entanglement of values, traits, attributes and interests in such narrative identities" (Bruni, 2021).

As already elaborated in D2.2 (section 4.3.6.1 "Heterarchical value systems", p. 32), our notion of heterarchy (McCulloch, 1945) is not in opposition to a hierarchy, but rather in a relation of complementarity. As an organizational principle, heterarchies are to be found exclusively in the living world, where subjective, semiotic and communication processes take place (Bruni and Giorgi, 2015). This means that while hierarchies may be static and rigid (like for example categorical clusters that can be organized hierarchically), heterarchies are by definition processual and dynamic. Therefore, it is perhaps more accurate to speak about heterarchical processuality (Bruni & Giorgi, 2015), something that, as we will see, poses some challenges to the possibilities of representing and visualizing such processes.

Following McCulloch's (1945) logic, in processes where some degree of subjectivity is manifested, it is not always possible for the agential system to rank (hierarchically) its values with respect to the available choices or categories (Bruni and Giorgi, 2015). This becomes evident at the level of human subjective values. In any process in which the individual has choices – based on assessments of the context – there is the possibility of a value anomaly between the options of the repertoire. This means that the options are not necessarily ranked hierarchically, and therefore the transitivity law is not valid. As mentioned in D2.2, in a hierarchical value system (or scale) the transitivity law would take the form: "if A is preferred to B and B to C that means that A is preferred to C", for example, if A is taller than B, and B is taller than C, A will *always* result to be taller than C. Therefore, the three values can be ranked hierarchically from taller to lowest in a categorical inclusion hierarchy. However, when there is a system expressing subjective values, the values or preferences cannot always be ranked in this way. If a person prefers Monalisa to the Venus de Milo, and the Venus de Milo to the Lady of Shallot, that does not necessarily mean that the person prefers Monalisa to the Lady of Shallot: the values are, in this sense, intransitive.

This situation would require a network-like (in our terms heterarchical) model able to exclude certain types of transitive dependencies in order to navigate and represent the referential system coherently. Otherwise, there could emerge "value anomalies", which would jeopardize the referential integrity of the given database. In the SPICE IRL, referential integrity corresponds to a coherent narrative identity, i.e., a cohesive and meaningful sense of belonging to the emerging representation of narrative identities.

4.2 Heterarchical clusters in the SPICE IRL model

In the context of the SPICE-IRL model, heterarchical processuality is interesting precisely due to its inherent characteristic of allowing us to organize subjective values, emotions or opinions (expressed from a particular standpoint), which by being subjective do not conform to the laws of transitivity, i.e., are not amenable to be ranked hierarchically (von Goldammer, Joachim, & Newbury, 2003; Bruni & Giorgi, 2015).

As previously mentioned in D2.2, a paradox of conflicting values may involve problems with self-referentiality (e.g., cognitive dissonance, double binds, sense of exclusion, semantic incongruence, etc.), and therefore with identity, which can be dealt with by identifying a meta-narrative that allows inclusion into a larger or overlapping gestalt (outside of the paradoxical situation) in which the subject can alternate between seemingly different standpoints and find meaning in it (Bruni, 2021).

To summarize, the heterarchical approach proposed here, should:

- Be able to map dynamic systems of heterarchical belongings
- Avoid misleading and stereotyped categorical conceptions of identity
- Find "solidarities" that can overlap in seemingly contradictory non-transitive permutations of shared attributes in the cultural dynamics of the platform's, the museum's or the city's semiosphere (i.e., the cultural space)
- Recognize the various culturally constructed stories in which citizens are emplotted (i.e., narrative identities)
- Map the heterarchical entanglement of (demographic) traits, emotional profiles, values and interests (or themes) in such narrative identities
- Organize subjective reactions (emotions), values and interests (themes) expressed from a particular (subjective) standpoint
- Create a dynamic linkage between identity (sense of belonging) and agency (social cohesion dimensions)
- Contribute to the representation and visualization of such relational networks

As stated in D2.2: "… an analytical approach adopting a heterarchical organization can promote a multi-layered processual and relational dynamics where the emerging cultural narrative identities can overlap to give place to complex *heterarchical systems of belonging* that may relate to the different domains that define "social cohesion". In this direction, we would like to encourage individual users and cultural collectives to identify themselves and adhere to emerging narratives that may inform their actions while they attempt to conciliate, understand and process cultural contradictions and dissonances."

These representations emerge from the combination of the four semantic reasoning tools being developed in SPICE (WP3 and WP6, see section 3.2 above), and which potentially enables the possibility of identifying the overlap of heterarchical clusters. Each reasoner by itself, with its respective defined set of minable attributes, could potentially create a picture of heterarchical clusters based on themes, interest, emotions, values, attitudes, demographics, etc. (see Fig. 8: (c), (d) and (e)).

We suggest the metaphor of a "kaleidoscope" as a functionality for fine-tuning the observer's perspective in order to visualize how the communities can be characterized modularly depending on which angle one takes, for example by choosing one reasoner tool and then changing to another, or by combining several at the same time. The idea is to develop logical ways for "kaleidoscopically" cluster attributes by: cultural artifact or asset, (explicit) community, demographics, values, emotions, and themes, at two levels:

1) Clusters at each attribute level
2) Clusters (or combinations) of clusters from combinations or all attributes (user model, emotions, themes, values) (see Figure 8. (d), (e))

This will allow us to enrich our relational logic by adding the possibility of representing non-transitive relations when searching for differences within group and similarities across groups, hopefully yielding a representation that accounts for nuance in the relations of narrative identities expressed by groups and clusters.

In accordance with the work advanced in WP2, WP3, WP6 and WP7 in the SPICE platform and the case studies, we are able to work with the following kinds of data:

1) Demographics and personal data --> Information provided by the citizen or inferred from the community (see "explicit community" in D3.5 and D6.5).

2) Artifact attributes --> epoch, artist, style, description, use, etc. (depending on ontologies and lexicons in the Linked Data Hub)
3) Interaction attributes (based on contributions) (see “implicit community” in D3.5 and D6.5):
    a. Thematic/topics
    b. Emotions/sentiment
    c. Values

In Fig. 12, we propose how the clusters could be organized heterarchically

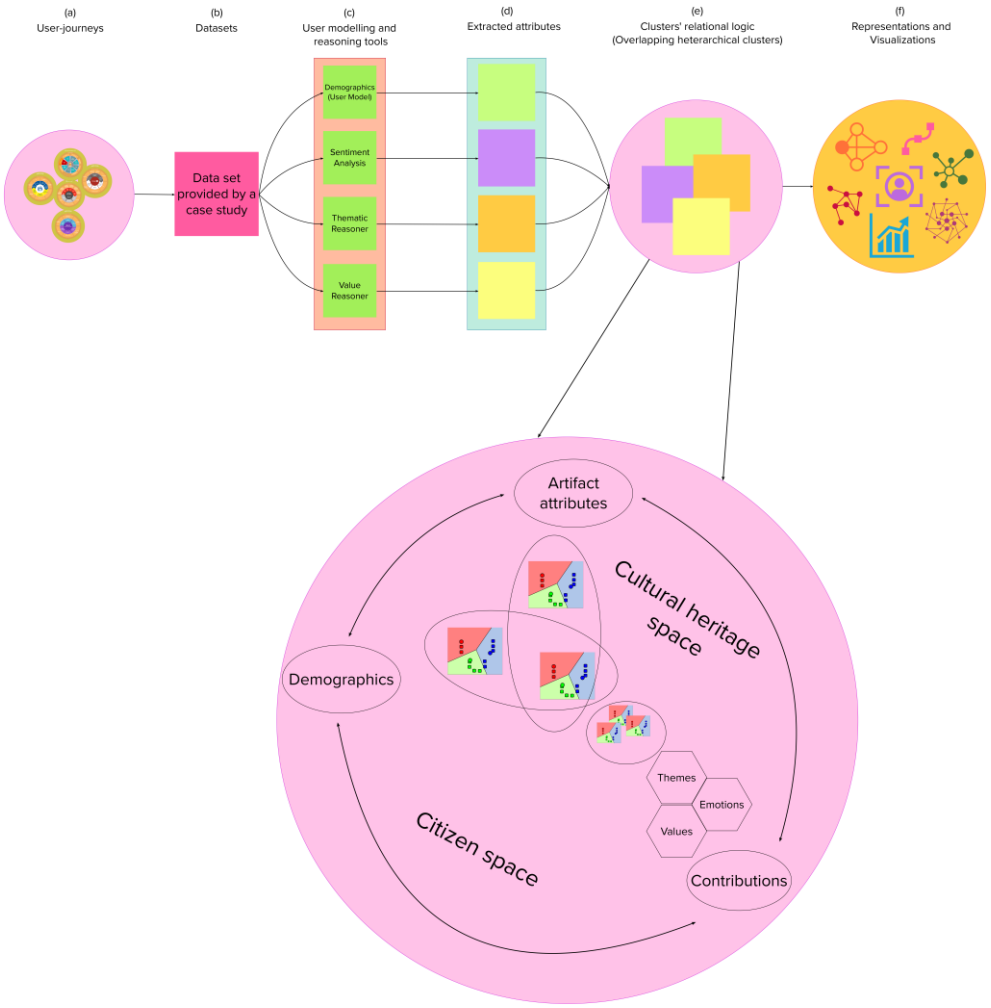

Fig. 12: Heterarchical clustering between citizen space and cultural heritage space.
Visualized as mutually constraining but disjunct feature spaces, with citizen curation bringing both spaces together.

This clustering scheme considers key many-to-many relationships which express the “intertwining” of two different kinds of citizen information (demographics and user-contributions) and cultural artifact information (from the linked database). This allows information from the artifact clustering, on the one hand, and the two-kinds of citizen clustering subproblems (demographics and contributions), on the other, to interact and mutually constrain one another. Note that the "contributions" subproblem is in turn branching into three clustering sub-subproblems (emotions, themes and values). The scheme puts into relation two different domains, *the citizen space* and *the cultural heritage space*, in which the “disjunct features” are citizens’ and artifacts’ features, from which the relationships throughout the user-journey in the IRL model are inferred, giving rise to the emerging narrative identities. This way of bridging the two spaces is at the heart of SPICE’s citizen curation philosophy (see Fig. 12).

When one chooses a particular "kaleidoscopic" perspective, it freezes the process into a static picture. One may start with a static slice of one set of values, for example, by grouping a given number of individuals by an *a priori* criteria of belonging – defined or decided at the point of entrance to the system (e.g., demographics, pre-determined target group, etc.). This is what in D3.5 and D6.5 is defined as explicit communities. Then, one may characterize the same group of individuals by applying the rest of the dynamic (and therefore potentially heterarchic) attributes based on their activities and contributions in the system. At this point, by kaleidoscopically fine-tuning, and playing with, the different attributes (including also choices of assets and artifacts as attributes) one may obtain the emergence of unpredictable *ad hoc* implicit communities representing a particular narrative identity. Hypothetically, when one fine-tunes the kaleidoscopic perspective, the individual that was belonging to one group may be seem belonging to a different group, in which not all members are from the previous group and not all members from the previous group appear in the new cluster (and so on with any other pursued perspectives). Each static picture can hardly account for the heterarchical belongings of the individual. As previously mentioned, the challenge is how to represent this process dynamically, given that temporally we have only access to a series of static pictures. One of the implications of heterarchical processuality is that our options are usually presented simultaneously, and our choices between two or more potential acts are very often mutually exclusive. This presents us often with dilemmas and paradoxical or incompatible choices (Bruni 2021, Bruni and Giorgi 2015). By choosing options provided by the affordances of the system, and by contributing productively with their own meanings, the participants are processually delineating a trajectory that places them in those overlapping narrative identities. While they act (i.e., choose or contribute content) they are defining their values and criteria for belonging – by acting in accordance with them – and by doing so, the subjects are also continuously actualizing their values. There is a circular cognitive/volitive process here: when we "choose" our values, we are implicitly acting in accordance to them, and by doing so, we are continuously actualizing our values. Such heterarchies of values can be highly context-dependent and dynamically vary from one situation to the other, which is not possible to represent in rigid hierarchies or categorizations.

Heterarchical clustering would be a way for challenging the system's initial characterization of the participant at the user-journey's point of departure, based on static *a priori* categories. The idea is to avoid "categorical rigidities by emphasizing the embeddedness of identity in overlapping networks of relations that shift over time and space" (Somers, 1994). The emerging communities and their narrative identities, are not in his sense pre-determined (although the initial predetermined categorical community is necessary to kick-start the process). By mining the attributes in the user's journey one can use the platform to kaleidoscopically inspect, (through the different parameters), what communities and narrative identities emerge. If one considers "P" parameters the community looks like "X", but if one considers "Q" parameters the community will look like "Y", but there can be noticeable overlaps between "X" and "Y", and so on for other "tunable parameters". This makes explicit different layers of complexity of different emerging communities. Subsequently, one can aggregate these characterizations into a heterarchical representation of all the different overlaps. One could kaleidoscopically finetune the attributes that determine a dynamic community, in relation to an artifact, a context, a theme, a value, an emotion or any other minable attribute that one may wish to put into the center of the perspective.

One would need to use at least two or three parameters in order to define an emerging community, e.g., who has spoken about Monalisa in relation to a particular emotion. This per se does not define a community but it puts in relation several putative communities with overlapping identification relations, those that were afraid of Monalisa, those that felt in love with Monalisa, etc. Of course, being in love or being afraid of Monalisa does not define a narrative identity, but the more parameters are included in generating the clusters, the more the aggregation of attributes will resemble some sort of narrative identity. When we add values into the picture, one could discover for example that some individuals of the emerging communities that were loving Monalisa coincide in the value of honesty with some of the individuals that were in the emerging community that was afraid of Monalisa, constituting a new potential sense of belonging. The more refined and the richer the aggregated clusters, the more they will resemble a narrative identity.

The next layer of complexity is how we can relate and represent these overlapping narrative identities, and in turn, express their relations to the different dimensions of social cohesion explored in SPICE. This will be undertaken with the case studies in the context of Workshop 5 and 6, as part of the road-map developed for the case-studies in WP7.

5.0 Upcoming Workshops

5.1 Workshop 5 – From User-journey data to IRL analysis

The intention of workshop 5 is to iterate our general deductive IRL model with the 5 case-studies to complement it with an inductive, bottom-up, participatory approach. By building on the case-specific IRL's, developed during Workshop 3 and 4 (see D2.3), the workshop will seek to co-design possibilities for case-specific analysis that could effectively support reflection. The workshop will involve exploring each case study's collected data from their user-journey(s) to examine the affordances and possibilities of the different forms of user-contributions, as well as other inputs collected in the interactions (e.g., demographics, platform metrics, etc.) for rich representations and visualizations.

Hence, the workshop will give the case studies the opportunity to systematically deal with the following questions:

- How can we characterize a subject's narrative identity from the available information?
- How can we cluster subjects, and/or put them in relations of, for example, agreement, antagonism, belonging, solidarity, etc.?
- Will these mappings support identifying possible paradoxes (e.g., dissonances, double binds), possible conflicts (of interest), possible agreements and disagreements, (un)expectancies, surprises, and other possible relations that can emerge?
- How can the emerging narrative identities be related and mapped in the context of the museum's narrative identity and their shared semiotic space?

The answers to these questions will aim to retrospectively inform the design of the user-journey activities "upstream" in the IRL, to produce richer and more diverse input data; data that can produce more elaborate narrative identities, which could be in turn, tuned and analyzed like a "kaleidoscope", producing greater diversity of overlapping clusters by complex aggregations of attributes (see 4.0 above).

Workshop 5 Objectives

Based on this, the following objectives can be listed (for each individual case):

1. To explore the narrative identity of the museum, and the specific semiotic space that the case is instantiating
2. To characterize and structure each case study's collected user-journey-data in terms of the intended Interpretation-Reflection Loop (IRL)
3. To hypothesize possible narrative identities that could subsequently be derived from this data
4. To hypothesize possible (heterarchical) relations from the emerging clusters of narrative identities, through the use of different clustering schemes.

Firstly, regarding the first objective, the narrative identities of the museums will be explored using narrative methods (see also D2.1). More specifically, we will be asking (see Fig. 13) each case study to provide a short and compelling story of the history and vision of the museum, along with characterizations of their typical audiences, the core values and the mission of the museum. The idea is to consider the "life story" of the museum, as part of the "relational, processual and heterarchical notion of cultural narrative identity", with respect to the argumentation that "narrative identity is formed in the individual, in "cooperation" with the

community which that same identity is a part of (see D2.2).

The semiotic space of each museum will be derived based on the considerations of each case study's user-journey and their target audiences. The guiding questions could include among others:

- What degrees of freedom are provided to the participants?
- What degrees of creativity are provided to the participants?
- What constraints are placed on the participants?
- What kind of values are already implicit in the activities of the user-journey
- What kind of values are implicitly forbidden in the activities of the user-journey

Defining the semiotic space of the museums can support the delimitation of the semiotic space in which the individual and collective narrative identities of the target groups will be emerging and interacting, following Lotman's notion of the Semiosphere (Lotman, 1990).

First, we will guide the case studies to delineate hypothetical narrative identities, which can be expected from the characteristics and constraints of the user-journey and target audiences, prior to analysing their inputs. These hypothetical narrative identities (both, individual and collective) will serve as initial blueprints for the subsequent clustering and representation based on the incoming data.

From these expected narrative identities, the available data, in the form of both personal- and interaction-attributes (see D3.5 and D6.5), will be considered together with the case studies. Specifically, this part will seek to further map the possibilities of each of the reasoning tools (D3.2, D3.4, and D6.3) as well as the demographic data of the users, and the possibilities of combining these. This part of the process is expected to involve studying the exemplary data provided by each case study and seeking to determine more precisely, the possibilities of mining these different attributes in each case study.

An additional consideration for Workshop 5 concerns the ethical aspects of the aggregation, analysis and identity forming from the data supplied in the case studies, in order to assure meeting the ethical standards set in SPICE.

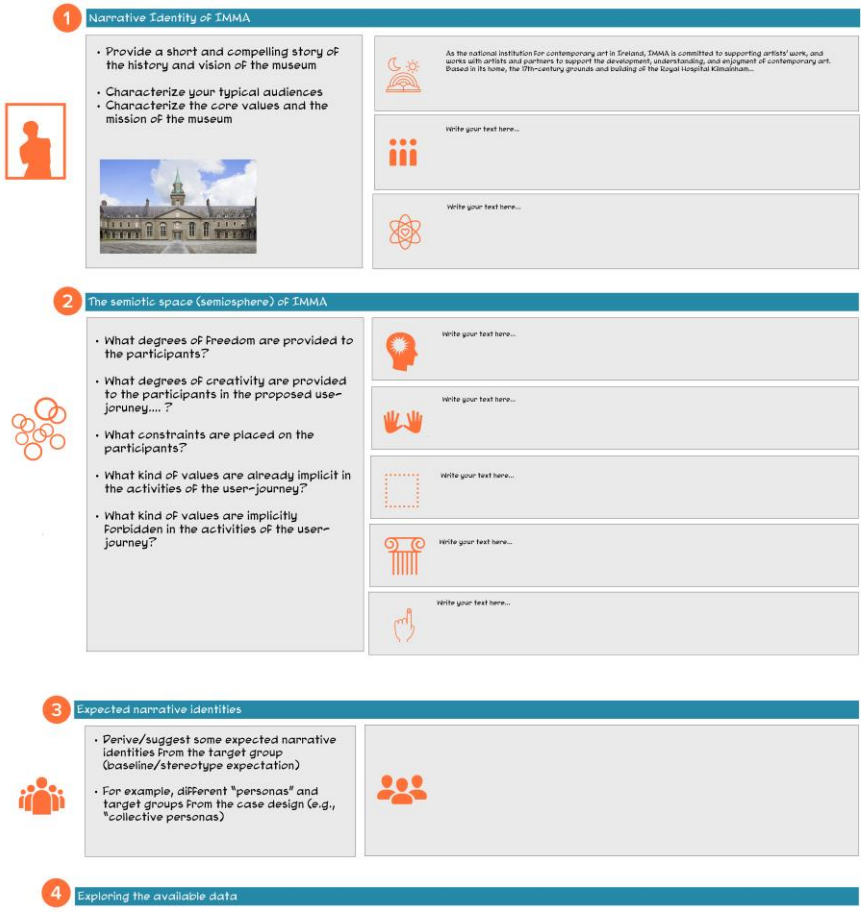

Fig. 13: Draft of Workshop 5 worksheet template

5.2 Workshop 6

To follow Workshop 5, we are concurrently developing a framework for Workshop 6, which is intended to serve as a natural progression from the previous output, in order to complete the IRL (see Fig. 14). Thus, by building on the narrative identities characterized in Workshop 5, the idea for Workshop 6 is to delve into the possibilities for representing and didactically visualizing the heterarchical relations of these narrative identities in the museums' semiosphere. This should lead to representations that make explicit the relations to social cohesion dimensions, which may be emerging in the citizen-curation cultural process.

The representation/visualization generates the user's "story world" through a kaleidoscopic perspectivization tool that puts the users' data, and their inferred narrative identities, in relation to the aggregated data and collective narrative identities of many others', and as such visualizes the users' relational and heterarchical placing in the cultural semiotic space of the museum. Therefore, the key focus for Workshop 6, will be exploring different modes of representation and visualization, in order to storify the emerging narratives in the context of social cohesion. The aim is to show how these emerging narrative identities mingle in complex cultural processes, providing a wider sense of belonging to audiences that have been, or have felt, excluded from the cultural debate, and how those identities might not be as stereotypically, rigidly or categorically characterized as one would expect by clustering more traditional and canonical cultural markers (e.g., language, nationality, age, religion, gender, etc.).

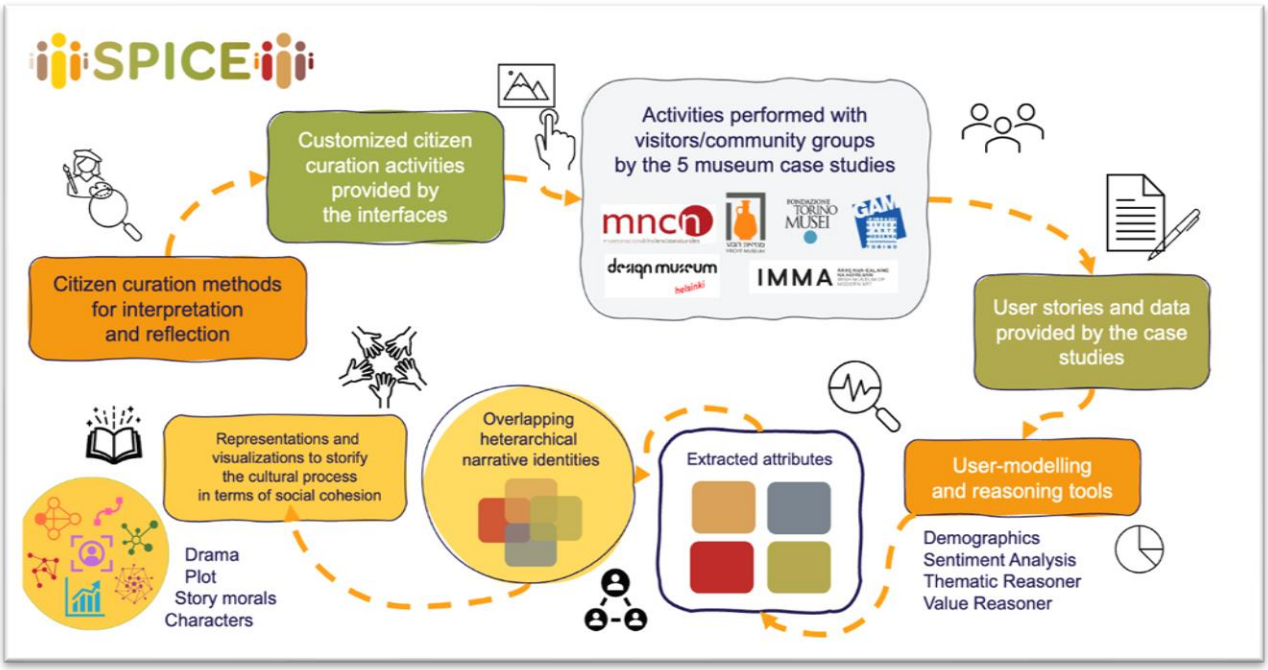

Fig. 14: Visualization of the IRL in SPICE

6.0 Conclusions

During the first year of SPICE, we developed a conceptual framework that aimed to be a common thread for integrating the work of the case studies with the advancements of the technical work packages, resulting in the "Interpretation-Reflection Loop" (IRL) model. By applying participatory and co-design principles, we investigated citizen curation methods for supporting interpretation and reflection processes, which were subsequently envisaged to be embedded in the case studies' pilot user-journeys, thus, constituting the initial phase of the IRL (D.2.1, D2.2).
In year two, we continued our work with the case studies. During this period, we guided and supported the development of the case studies' citizen curation scripts, which materialized in the form of customized user-journeys. These user-journey scripts were eventually implemented and tested with the case studies' end-users and specific target audiences in their respective museums (D2.3).

In this deliverable, we started by putting into focus the end-goal of social cohesion and its implications to cultural heritage, and specifically, to the five SPICE case-studies. The primary goal in D2.4 was to progress in the final phase of the IRL model. By including our theoretical takes on narrative identity (D2.2) in our analysis framework, we further investigated the IRL as a tool for representing the emerging dynamic *heterarchical clusters in the cultural processes* instantiated in SPICE. The main idea is to introduce a more dynamic representation of citizens, citizen groups, and their emerging narrative identities, which in turn can contribute to avoiding misleading or stereotyped categorizations within and across groups. We suggested that this type of a dynamic approach can support attaining a better understanding and representation of the relations between citizens' curatorial activities, interpretive-reflective processes, and the different social cohesion dimensions.

In this direction, we have been collaborating with WP3 and WP6 to propose an analysis framework for the SPICE platform that could effectively organize, reason and translate citizens' contributions (and other collected data), in ways that could support the intended IRL processes in SPICE. Therefore, we examined the different user-attributes and cultural markers currently available in SPICE, to characterize and analyse citizens' contributions, so they can be integrated in a model for analysing and clustering the user-journey data that will lead to heterarchical representations. Lastly, we introduced the objectives and goals of

Workshop 5, which intends to co-design, with the case studies, methods to apply the suggested framework to their user-journeys and the data collected in Workshop 4. We also envisioned the rationale of workshop 6, in which the focus will be on co-designing modes of visualizing and storifying the representations obtained in workshop 5.

The next steps in the development of the Interpretation-Reflection Loop in WP2 (to be undertaken in year 3) include:

- Developing the rationale for relating the emerging narrative identities to the different social cohesion dimensions
- Conducting Workshop 5 – investigating systems of heterarchical belonging in the five case studies.
- Workshop 6 - Representing, visualizing and storifying the cultural process (from citizen curation to social cohesion)
- Representing the semiosphere relations in the IRL (i.e., layers of meaning in the cultural semiotic space) - meaning for citizens and meaning for cultural heritage workers.

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