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## The Sprawling Exhibition:

A Format for Expanding Space Digitally in Museums and Public Space



Tuomas A. Laitinen, *Tentacle Tongue*, 2019. AR installation. Stavanger, *Torget*, Screen City Biennial, 2019. Foto: Oddbjørn Erland Aarstad. <https://www.artrepublic.no/screencitybiennial2019/ru29a9flvufho6crs2y35f20tmmxz8>.

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## Abstract

This master thesis investigates how new technologies used in exhibitions in public space and museums can engage visitors in new ways, with digital forms of immersion, interactivity, navigation, and spatial understanding. The thesis poses questions regarding how the Screen City Biennial 2019, as its case study, engages visitors with artworks, in the form of virtual reality, augmented reality, and audio-visual installations, and how these artworks relate to their surrounding spaces in innovative ways. Theories employed in the thesis are based on literature within digital cultural heritage, frameworks for exhibition analysis within the field of museology and cultural heritage, philosophical theories on space, and Actor-Network Theory. The qualitative research methods applied are participant observation through fieldwork at the biennial and semi-structured interviews with the biennial's producers and visitors. Three exhibitions are analysed in terms of their spatial exhibition layouts and forms of interaction and immersion. The first exhibition analysed showed the audio-visual installation *Tidal Pulse II*, the second presented the AR installation *Tentacle Tongue*, and the third exhibited the VR installation *The Bone*. The thesis presents how attention to curation and mediation of virtual, hybrid and 'expanded' spaces created by VR, AR, and AV installations, can facilitate tension between installations and their surrounding spaces. These installations can offer immersive experiences that make exhibition spaces engaging in new ways, which encourage visitors' unique and self-directed experiences. The analyses in this thesis exemplify the range of interactions that become possible in exhibitions with VR, AR, and AV installations.

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## List of Abbreviations

<b>ANT</b>	Actor Network Theory
<b>AR</b>	Augmented Reality
<b>AV</b>	Audio-Visual
<b>HD</b>	High Definition
<b>IVE</b>	Immersive Virtual Experience
<b>PC</b>	Personal Computer
<b>SCB</b>	Screen City Biennial
<b>VR</b>	Virtual Reality

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## Introduction

It has been approximately thirty years since the Internet started becoming integrated in people's everyday lives. The expansion of websites, social media platforms, and apps for smartphones has led people to become accustomed to directing their attention to online and offline spaces interchangeably. Most museums strive to reflect society and seek out new ways of using technology to reach out to young audiences.<sup>1</sup> How can new technologies be employed to extend the evolving media sphere into museums and exhibitions in public space?<sup>2</sup>

Ten years ago, museologist Andrea Witcomb, stated that multimedia being used as art objects and installations is “one of the most powerful means of making explicit the nature of the contemporary museological revolution.”<sup>3</sup> Now we see that multimedia is indeed gaining presence in museums, however not primarily as art objects, but in the form of interpretive aids, such as interactive screens, websites and social media accounts. The last five years, there has been a rise in interest for immersive virtual experiences for museums, especially in the form of augmented reality and virtual reality installations. However, the discourse on how these installations interact with spaces, and how visitors interact with them, is still in an early stage.

Barry Lord states that to understand the ubiquitous positive response to museums from people around the world, “we particularly need to examine the specific instrument of communication that is unique to the museum – the exhibition.”<sup>4</sup> The unique role of exhibitions in museums and the need to continuously evolve exhibitions, to remain one of the main modes of public communication, creates the opportunity to think outside the box – or indeed the museum. This thesis has chosen exactly this strategy, and therefore investigates what new forms of media can be used by museums inside or outside galleries to make exhibitions engaging. More concretely, this thesis concerns itself with the topic of immersive multimedia/new media

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<sup>1</sup> Andrea Witcomb, “Materiality of Virtual Technologies: A New Approach to Thinking about the Impact of Multimedia in Museums,” in *Theorizing Digital Cultural Heritage: A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Cambridge, MA: MIT Press, 2010), 35.

<sup>2</sup> Witcomb, “Materiality,” 35.

<sup>3</sup> *Ibid.*, 37.

<sup>4</sup> Barry Lord, “The Purpose of Museum Exhibitions,” in *Manual of Museum Exhibitions*, 2nd ed, ed. Barry Lord and Maria Piacente (Lanham and Plymouth: Rowman & Littlefield, 2014), 8.

installations. It investigates how they can engage visitors in new ways, and how they can be integrated with more traditional forms of display types both inside the museum and in public space.

Contemporary art biennials might seem far removed from the museum world in many aspects, apart from the central element of museums – the exhibition. Moreover, Witcomb’s description of multimedia, in the form of art objects and installations, presenting opportunities for museological innovation, makes art an attractive source for investigating how multimedia installations can offer new ways of engaging visitors. Therefore, this thesis has chosen three exhibitions shown at the Screen City Biennial 2019, in Stavanger, as its vantage point to examine two immersive virtual experiences – a VR and an AR installation - and an immersive form of the already well-established audio-visual (AV) installation. These multimedia installations introduce relatively new forms of spaces into exhibitions through technological means. How visitors interact with these spaces form the basis of the inquiry. Space thus emerges as the primary theme of the thesis, along with the quest of understanding how spaces themselves can engage visitors in exhibitions.

The first chapter historicises space in relation to museum history and philosophical discourses on space. Further, it presents a dichotomy between interpretive aids and interpretive experiences. The second chapter looks more specifically at the genealogy of new media in the form of art and installations in exhibitions, in order to present a historical lineage that sets the stage for understanding the history of new media as an art form and as interpretive aids and experiences in museums. The third chapter formally introduces the Screen City Biennial as a case study in terms of its forms of mediation, artworks, and layout. In chapter four the three immersive experiences and their ‘created’ spaces are analysed according to a three-part analytical framework, in which the SCB’s producers’ and visitors’ descriptions of visitor experiences, mediation, and curation are included. Chapter five employs museum-specific evaluation criteria to produce an implication analysis of the SCB, and the three exhibitions used as case studies.

In contrast to most museum exhibitions, the SCB’s exhibitions take place in public or semi-public spaces. However, the three exhibitions chosen for analysis might offer implications for museums nonetheless, with regards to how technologically ‘created’ forms of space - virtual,

hybrid, and ‘expanded’ real space - can engage visitors and interact with their surrounding exhibition space. The biennial’s mediation program is also discussed, as it provides examples of how multimedia can be exhibited in a range of spaces, both semi-public, such as; boats, hotels, cathedrals, and museums, and public; city squares, harbours, and ferry terminals, all while presenting a cohesive mediation program using digital and material forms of mediation. Hence, the meeting point and tension between space, technology, art, and museums arises as the epicentre of discussions throughout the thesis. In the following, I analyse the spatial innovations presented through the curation and mediation of artworks at the Screen City Biennial, asking how new technologies allow for new modes of interacting with exhibitions and mapping their implications for the field of museology and cultural heritage.

## Chapter 1

# On Creating Engaging Spaces

Space is not something objective and real, nor a substance, nor an accident, nor a relation; instead, it is subjective and ideal, and originates from the mind's nature in accord with a stable law as a scheme, as it were, for coordinating everything sensed externally.<sup>1</sup>

Immanuel Kant

As the quote above illustrates, space is not a container nor an incident, but something that is always being negotiated between the internal and external. A space can originate in the mind and be located or manipulated in one's surroundings, furthermore it can be created and curated. What spaces in museums, stores, films, paintings, and computer games all have in common is that they seek to sustain the attention and interest of people, more concretely they are made to be engaging. What makes a space engaging? In museums a space is not engaging by default. It requires complex strategies employed by museum professionals to create and connect exhibits. Now that immersive virtual experiences - in the form of virtual reality and augmented reality installations - are entering museums, the task of creating engaging spaces where exhibits are connected to each other physically and thematically has become more complex. This is partly due to how these types of exhibits 'create' new spaces – virtual and hybrid space – which demand examination to understand how these new types of multimedia installations function within exhibitions. VR and AR technologies can engage visitors with new forms of immersion, interactivity, learning, navigation, spatial perception, and transformative experiences. Thus, before starting to enquire into some of these various forms of engagement, it is important to trace the genealogy of space as a concept, with a few examples from museum history. Section 1.3 presents a dichotomy between multimedia installations used as interpretive aids and interpretive experiences. The chapter ends with a presentation of the methodological approach of the thesis.

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<sup>1</sup> Andrew Janiak, "Kant's Views on Space and Time," in *The Stanford Encyclopedia of Philosophy* (Spring 2020 Edition), Edward N. Zalta, ed., <https://plato.stanford.edu/archives/spr2020/entries/kant-spacetime>, para 4.

## 1.1 A Brief Genealogy of Space

Michel Foucault describes how space is not a neutral term, as it has its own continuous history where different perceptions of space intercept with time.<sup>2</sup> The general perception of space in the Western experience has been greatly influenced by Western cosmology, where space is uninhabited and static,<sup>3</sup> a view echoed by Newton who saw space as “pure vacuum, absolute and unmoved.”<sup>4</sup> Bernadette Flynn sees the English word for space to be part of the problem, as it conjures an image of a background containing objects or the distance between two points.<sup>5</sup> This image seems in line with the composition of Renaissance art where mathematical perspective was key to creating an illusion of space,<sup>6</sup> and this method of creating space has no doubt influenced the Western perception of space.

Today the word space conjures up more images than static containers of emptiness or objects. Most people no longer see space as the “totality of geometric relations possible” as Plato put it, “the generalised sum and place of all places” such as Aristotle saw it, or as light, spirit and God which was common in the Medieval period.<sup>7</sup> When thinking about the different spaces VR, AR and immersive audio-visual (AV) installations can create, and how visitors experience these spaces, the historical Western perception of space becomes limiting.<sup>8</sup> After the emergence of postmodern theories, the discussions on space have surpassed a simply aesthetic and visual conception with philosophers such as Henri Lefebvre who saw space as an ideological and political product filled with ideologies.<sup>9</sup> Michael Benedict notes how we find it natural to talk about mental space, perceptual or virtual space in movies and computers, and that space seems “both physical and psychological to us, intimately tied up with knowing and perceiving and the idea of freedom.” Benedict sums up a common perception of space many people have today, which gives context to what people mean by the common phrases: “personal space” and “feeling

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<sup>2</sup> Michel Foucault, “Different Spaces,” in *The Essential Works of Michel Foucault: Aesthetics, 1954-1984*, ed. James D. Faubion, vol. 2 (London: Penguin Books, 2000), 175.

<sup>3</sup> Bernadette Flynn, “The Morphology of Space in Virtual Heritage” in *Theorizing Digital Cultural Heritage: A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Cambridge, MA: MIT Press, 2010), 352.

<sup>4</sup> Michael Benedikt, “The Information in Space is the Space in Information,” in *Billeder Fra Det Fjerne = Images from Afar: Videnskabelig Visualisering: En Antologi*, ed. Anders Michelsen and Frederik Stjernfelt (København: Kulturby 96, 1996), 162.

<sup>5</sup> Flynn, “The Morphology,” 352.

<sup>6</sup> Ibid, 351.

<sup>7</sup> Benedikt, “The Information,” 161, 162.

<sup>8</sup> Flynn, “The Morphology,” 352.

<sup>9</sup> Benedikt, “The Information,” 163.

spaced out.” These phrases make it evident that people perceive, and therefore refer to, the idea of space in numerous physical and psychological ways.

Before the Second World War many theorists were concerned with how space affected individuals, but after the war, space was often described as being uninhabitable.<sup>10</sup> In their reading of the philosopher Gilles Deleuze, two scholars ask how individuals can affect space.<sup>11</sup> They note that the philosophers Lefebvre and Martin Heidegger were influencing this shift as they argued that individuals are “essential to the constitution of place, what we now call ‘lived space’”<sup>12</sup> In many ways this thesis asks how technology affects space, however we must not take the individuals that are entering these simulated spaces out of the equation. Hence, this thesis asks what role individuals play in relation to technologically created spaces and their surrounding physical or ‘real’ spaces. This conception of space presents semiotics as an important part of how exhibitions will be analysed in this thesis, though the approach to semiotics will be less structured than the classic application of semiotic theory with signs: phonic, written and visual indicators, and signifieds: concepts and meanings.<sup>13</sup> The exhibitions analyses in this thesis apply semiotics in an approach influenced by Donna Haraway’s linking of object and subject into actants in ‘material-semiotic practices’, which is useful when discussing interactions between machines and people.<sup>14</sup>

It has become common to move, think, and feel in spaces, which presents the complexity of how space is perceived today. By taking advantage of people’s ability to perceive space in a layered manner - as something psychological and physical – museums can utilise technology to create new layers of space, while being attentive to the mental spaces the visitors enter into as well. In this thesis these mental spaces are conceptualised as a pre-exhibit space, in which visitors use their senses and reflect on the exhibit they are about to look at or enter into. Followed by a mid-exhibit space, in which immersion and interaction might take place. And ending with an after-exhibit space, in which a transformative experience might crystallise, and new perspectives or feelings might arise.

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<sup>10</sup> Ian Buchanan and Gregg Lambert, “Introduction: Deleuze and Space,” in *Deleuze and Space*, ed. Ian Buchanan and Gregg Lambert (Edinburgh: Edinburgh Univ. Press, 2005), 3.

<sup>11</sup> Buchanan and Lambert, “Introduction,” 3.

<sup>12</sup> Ibid.

<sup>13</sup> Rhiannon Mason, “Cultural Theory and Museum Studies,” in *A Companion to Museum Studies*, ed. Sharon Macdonald (Chichester, West Sussex, U.K.: Wiley-Blackwell, 2010), 18, 19.

<sup>14</sup> Laura Chernaik, “Transnationalism, Technoscience and Difference: The Analysis of Material-Semiotic Practices,” in *Virtual Geographies: Bodies, Space and Relations*, eds. Mike Crang, Phil Crang, and Jon May (London: Routledge, 2013), 87.

Deleuze invested great faith in the virtual properties of art, though with this he presumably referred to spaces perceived within paintings, however he described art's most explosive potential being actualised when extended to the actual.<sup>15</sup> VR installations bring visitors 'into' simulated spaces, where the virtual becomes the visitor's 'reality', and AR installations extend through screens into physical space, which presents the tension between the actual, virtual, and the individual as a new territory within curatorial practices.

## 1.2 Simulated Space in the Context of Museum History

Simulated spaces created with physical materials can be observed in many forms in the history of museums. However, simulated formats for exhibiting objects were more prevalent in collections that were precursors to the 18<sup>th</sup> century style museum, when individual museums started specialising into different genres of art, science, history, and ethnographic museums. One of the precursors to museum exhibitions, as we know them today, was the Renaissance studiolo of Federico da Montefeltro in Urbino, made towards the end of the 15<sup>th</sup> century. (Ill. 28) Through the use of a wood in-lay technique called 'intarsia', the walls around the room made for study and reflection are decorated to realistically illustrate open cupboards and the contents within.<sup>16</sup> Even though the simulated spaces created 'within' the cupboards are optical illusions and do not offer much textual interpretation of the cupboards' contents, the artistry lends itself to make the visitor reflect upon the overall themes of the studiolo, being the art of collecting and the gathering of the muses. VR and AR experiences could potentially serve a similar purpose.

Around a hundred years later, the emperor of the Holy Roman Empire, Rudolf II of Habsburg, amassed a very large collection of art, natural specimens, and other objects viewed as wonders.<sup>17</sup> Several wings of the Prague castle were allocated to display his collection, the rooms hosting the objects were called 'kunst und wunderkammeren' or chamber of curiosities.<sup>18</sup> Rudolf's collection functioned as a microcosm, which was a sort of simulation of the known

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<sup>15</sup> Buchanan and Lambert, "Introduction," 4.

<sup>16</sup> Luciano Cheles, "The Studiolo of Urbino: An Iconographic Investigation," *Kunsthistorisches Institut in Florenz, Max-Planck-Institut* 65, no. 3 (1988): pp. 1-46), 1-3.

<sup>17</sup> Thomas Dacosta Kaufmann, "Remarks on the Collections of Rudolf II: The *Kunstchamber* as a Form of Representatio," *Art Journal* 38, no. 1 (1978): pp. 22-28), 22-24.

<sup>18</sup> D. Kaufmann, "Remarks," 22, 23.



world, the macrocosm.<sup>19</sup> In the 16<sup>th</sup> century it must have felt rather enchanting to see such wonders of the world in the space of a day: exotic animals, Renaissance paintings, narwhal horns believed to be unicorn horns, and crystals.<sup>20</sup> Today such objects are placed in a range of different types of museums, and the mystery, and enchantment of simulated spaces can be said to have taken the backseat to detailed text panels. The recent development of tools used for creating simulated spaces might have spurred a revival of the tradition of simulation. Perhaps new technologies can bring back some of the elements of the studiolo and chambers of curiosities that made them so enchanting and novel.

### 1.3 From Interpretive Aids to Interpretive Experiences

Digital technologies are integrated in many museums today, though these mostly appear as various forms of interpretive aids, such as interactive screens, videos, digital photos, and computer-generated 3D models. These elements enhance spaces, perhaps engages them in useful ways, but they do not create immersive spaces to the same degree as VR and AR. Bernadette Flynn states that interpretation is increasingly replacing experience of cultural objects in their physical form, through simulations such as 3D models on interactive screens and accurate data maps.<sup>21</sup> However, VR and AR encourages interpretation of simulated cultural objects through interaction, and even though this does not equate to an experience of physical objects, it becomes a form of interpretive experience. Thus, VR and AR used as interpretive experiences can add an interactive level of engagement in museums and public space. The following dichotomy contrasting interpretive aids to interpretive experiences is based on Flynn's writing on the possible enchantment of virtual heritage. The function of interpretive aids can be defined by their ability to spur reflection on objects, that are often present in the exhibition, through 3D models or interaction, often with interactive screens. Interpretive experiences, on the other hand, seem to offer interpretation through immersion and interaction, and encourage embodied responses through intimate virtual encounters with cultural objects or themes, and to stimulate new perspectives and feelings.

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<sup>19</sup> Ibid, 22-24.

<sup>20</sup> Ibid.

<sup>21</sup> Bernadette Flynn, "A quest for enchantment in virtual heritage," in *Theorizing Digital Cultural Heritage: A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Cambridge, MA: MIT Press, 2010), 349, 350.

The following are examples of interpretive aids: The Norwegian Museum of Science and Technology in Oslo has an interactive screen where you can select highly realistic 3D models of different animals and insects, choose the outer or skeleton layer, and move your finger back and forth to see the difference between the layers. At the Jorvik Viking Centre in York, England, there is an interactive screen showing various objects from the exhibition, such as spears or shoes. After selecting an object, you can select different tools to excavate objects with your fingers and conserve them.

Examples of interpretive experiences include: In 2016, the Viking Museum in Oslo, developed an animated film that was screened on three walls and the ceiling, surrounding a newly excavated Viking ship. Even though the film was not AR, the film was immersive and facilitated contemplation of the overarching themes within the whole museum. In 2019, the National Museum of Architecture in Oslo showed an exhibition on the topic of degrowth, where they used AR to animate imagery flowing across an iPad screen for the visitor to interact with. In 2017, the Yorkshire Museum used an VR experience called *Viking VR* to transport visitors back in time to the Viking age in York. These last two examples will be discussed further in comparative analyses in section 4.2 and 4.3.

#### 1.4 Methodological Approach

The aim of this thesis is to analyse the spatial innovations presented through the curation and mediation of artworks at the Screen City Biennial. The various analyses ask how virtual and immersive audio-visual experiences allow for new modes of interacting in exhibitions. This art biennial is an attractive case study for investigating immersive experiences, due to how several artists presented contemporary art which showed progressive developments in uses of VR, AR and AV experiences as multimedia installations, and the curators displayed innovative ways of curating these experiences. Three exhibitions at the SCB are chosen for analysis; the *Rødne Fjord Cruise* exhibition presenting the sound performance *Tidal Pulse II* is chosen as it ‘expands’ real space, the *Torget* exhibition with the AR installation *Tentacle Tongue* is chosen as it creates hybrid space which fuses digital and physical/real space, and the *Fiskepiren* exhibition with the VR installation *The Bone* is chosen as it creates an enclosed virtual space. The order of the exhibitions progress from the most subtle application of technologies to the most invasive use of virtual technologies. The ‘created’ spaces - virtual, hybrid and ‘expanded’ real space - are

chosen as objects of study due to how they operate in immersive, interactive, and differing ways, which helps to illuminate their individual characteristics.

Each exhibition presents only one artwork, which allows the case studies to be isolated and to include few variables. Furthermore, this makes it possible to analyse the immersive experiences systematically, as it makes it easier to extract more precise knowledge on what interactions visitors carry out and how the exhibitions are curated. The exhibitions are set in public and semi-public spaces. This makes it possible to analyse curatorial strategies for exhibiting in indoor spaces, providing a format similar to museum exhibitions, as well as outdoor spaces, which offers scope for imagining new ways of mediating cultural heritage in public space.

The methodological approach employs qualitative research methods such as participant observation, as a part of fieldwork at the biennial, and semi-structured interviews conducted through video and phone calls. Being imbedded as a participant-observer permitted on-site observation, to gain first hand impressions of the exhibitions, mediation program, and visitors, which provided context for analysing the exhibitions and conducting interviews.<sup>22</sup> The data from the fieldwork was gathered through writing detailed field observation notes while on-site, carrying out photo documentation of the exhibitions, and collecting and downloading all textual and digital materials that were available.

The sampling of the interviewees was purposeful, as it was interesting to have two types of sources; producers and visitors, and to have informed participants who could give rich accounts of how they experienced the highly technical and complex exhibitions. Eight people were asked to contribute, and five people agreed to participate. Providing the producer perspective was the director and lead curator of the SCB, Daniela Arriado, co-curator Vanina Saracino, and the app-designer and artist Davide Luciani, who was involved in producing the mediation program. This created the opportunity to have an insider-perspective with a deep understanding of the technologies at work, who could also be interviewed as a visitor to the exhibitions. Providing the visitor perspective was thus Davide Luciani (visitor A), the artist Saara Ekström (visitor B), who performed her work *Beacon* at the SCB, and Nuno Sacramento (visitor C), curator and director

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<sup>22</sup> Barbara Soren and Jackie Armstrong, “Qualitative and Quantitative Audience Research,” in *Manual of Museum Exhibitions*, 2nd ed, ed. Barry Lord and Maria Piacente (Lanham and Plymouth: Rowman & Littlefield, 2014), 47.

of the Peacock Gallery in Aberdeen, Scotland. Saara Ekström provided a different type of insider-perspective, as she participated in the SCB as an artist. Extensive excerpts from the interviews are included in the appendices and ordered according to the producers' answers, regarding curation and mediation, and the visitors' answers, concerning the mediation program and experience of each exhibition. For ease of access to the complete and selected interview answers in the appendices, an index with the visitor's initials, the question number, and page number, is added in brackets in footnotes referencing the visitors' and producers' comments.

Qualitative approaches to research are chosen as semi-structured interviews and participant observation provide rich details on visitor experience and motivations behind curatorial choices, something quantitative research methods would not provide to the same degree as it would focus mainly on statistical patterns, short surveys and predetermined response categories.<sup>23</sup>

The data analysis was conducted through researching the characteristics of sound, AR, and VR used in artworks and multimedia installations in museums, and through examining field observation notes and transcriptions of interviews. Chapter four employs the following three-part framework for analysing each exhibition, which was created to extract the exhibitions' potential implications for the field of museology and cultural heritage, and includes:

1. A description of the media's characteristics. Here AV, AR, and VR installations are explained in terms of interaction and immersion. This allows the reader to become familiar with the technologies used in the various installations.
2. A participant-observation account of the exhibition. This section narrates the experience of the exhibition from the point of view of the implemented participant-observer.
3. A comparative analysis in which the exhibition is compared with a museum exhibition displaying a multimedia installation, in the form of an immersive experience. The spaces implemented in the exhibition are modelled using Venn-diagrams, which show what exhibition elements are applied in the various spaces, as well as the visitor's movement and mental stages of interpretation. The diagrams visualise the relationship between the surrounding exhibition space, the installation, and the visitor. Visitors' answers regarding their experience of the exhibitions are discussed in accordance with the various spaces modelled in the Venn diagrams, along with brief descriptions of visitors' behaviour on-

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<sup>23</sup> Soren and Armstrong, "Qualitative," 42.

site. The museum exhibitions, that are compared to the SCB exhibitions, were all observed on-site.

Section 4.4 concludes chapter four by developing the analysis of the VR installation *The Bone* further. An Actor-Network Theory diagram maps a network showing a hypothetical visitor's and the VR experience's interactions with each other, as well as with the surrounding space. In this thesis ANT is used as a supplementary methodological tool, not as a framework, to gain insights into the complex relationship between spaces and interactions in exhibitions displaying immersive experiences. Chapter five concludes the thesis by presenting an implication analysis of the SCB's mediation program and the three case study exhibitions, where a museological format for evaluating museum exhibitions is applied to a final analysis of the findings that have surfaced in the thesis.

## Chapter 2

### New Media's Exhibition History

The new media artworks at the Screen City Biennial occupying virtual, hybrid and auditive layers in public and semi-public spaces might seem a part of a recent phenomenon, but they are only the latest expressions of a new media art tradition that goes back decades; when 'virtual' meant 'possible' and keyboards were associated with pianos. This chapter will give a brief overview of the exhibition history of new media art, followed by an account of new media art in public space, and the various uses of different forms of new media or multimedia in non-art museums. Presenting the history of 'new media' in this way shows the range of venues that have applied new media art or objects in their exhibitions, and sheds light on the creative possibilities offered by technologies.

#### 2.1 New Media Art in Galleries and Museums

As stated earlier, digital technologies have become a ubiquitous factor in our daily lives. Nowadays, our work, study and leisure spaces have become partly virtual due to the pervasiveness of the Internet. However, this digital revolution did not develop after the emergence of personal computers in the nineties, but has been in the making since World War II, for at least six decades.<sup>1</sup> Artists and theorists responded to new technologies, especially digital computing, already after the war and discourses, such as information theory and cybernetics, were flourishing at the time.<sup>2</sup> In 1952, the composer John Cage made his "*silent piece*", a form of interactive piano concert with multimedia, which in turn inspired artists who explored kineticism and cybernetics through their art such as: Jean Tinguely, Nicolas Schoffer and Otto Piene.<sup>3</sup> In this context, it is rather strange that new media art using emerging technologies is often described, even by some art historians, as a recent phenomenon, when the history of new media art has been in the making since the fifties.

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<sup>1</sup> Charlie Gere, "New Media Art and the Gallery in the Digital Age," in *New Media in the White Cube and Beyond Curatorial Models for Digital Art*, ed. Christiane Paul (University of California Press, 2008), 15.

<sup>2</sup> Gere, "New Media," 15.

<sup>3</sup> Christiane Paul, *Digital Art* (London: Thames & Hudson, 2015), 13, 14.

In the 1960s several theorists were applying cybernetics and information theory to art. Among them was Max Bense, who set up some of the first exhibitions of computer art at the Stuttgart University Gallery in Germany.<sup>4</sup> Throughout the sixties, technologies were developing rapidly and becoming more easily available, which led to the exhibition debut of many predecessors of today's multimedia installations.<sup>5</sup> Video art was let into exhibition spaces with pioneers such as; Nam June Paik and Wolf Vostell, who used television in their work.<sup>6</sup> Around this time large multimedia installations were emerging, reflecting a broadening attitude to the possibilities of using new and various media to create immersive and often interactive art installations. Digital technologies were a natural addition to the media exploration at this time.<sup>7</sup> At the end of the sixties, Experiments in Art and Technology (E.A.T.) played an important role in promoting early new media art.<sup>8</sup> The Museum of Modern Art in New York held its first exhibition called *The Machine as Seen at the End of the Mechanical Age* in 1968, and *Cybernetic Serendipity* was shown at the Institute of Contemporary Arts in London the same year.<sup>9</sup> In 1979 new media art was allocated a new arena with the Ars Electronica festival, which presented itself as a network for art, technology, and society.<sup>10</sup>

In the sixties and early seventies utopian optimism was shared between theorists and artists with regards to the possibilities of technologies for art, however in the seventies, artists and institutions were becoming distanced from new media art.<sup>11</sup> Artists were sceptical of computers and cybernetics because of their history being tied to what Charlie Gere describes as the “military-industrial-academic complex” and because they were used in the Vietnam War.<sup>12</sup> Galleries and museums were struggling to collect, conserve, and commodify such work, thus new media was pushed towards the fringes of the art world and did not properly appear again until the end of the eighties.<sup>13</sup> Between the eighties and the second millennium there were several

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<sup>4</sup> Gere, “New Media,” 16.

<sup>5</sup> Paul, *Digital*, 16-18.

<sup>6</sup> Gere, “New Media,” 17.

<sup>7</sup> Ibid, 17.

<sup>8</sup> Paul, *Digital*, 16.

<sup>9</sup> Gere, “New Media,” 18.

<sup>10</sup> Hannes Leopoldseder, Christine Schöpf, and Gerfried Stocker, “30 Years of Ars Electronic Linz,” in *The Network for Art, Technology and Society: The First 30 Years Ars Electronica, 1979 – 2009*, eds. Hannes Leopoldseder, Christine Schöpf, and Gerfried Stocker (Ostfildern: Hatje Cantz, 2009), 8.

<sup>11</sup> Gere, “New Media,” 19.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

significant exhibitions on new media art. In 1985, the celebrated exhibition *Les Immatériaux*, curated by Jean-Francois, was held at the Centre Pompidou in Paris, and enquired into a curatorial scheme that is still highly relevant today, as it brought together art, information technology, and culture, and sought to investigate how sound, video, faxes, and visual displays were used to “navigate immaterial information flows”.<sup>14</sup> The Guggenheim hosted its *Virtual Reality: an Emerging Medium* exhibition in 1993 followed by *Mediascape*, and in 2001 the San Francisco Museum of Modern Art presented its digital art exhibition *010101*.<sup>15</sup>

During the nineties, personal computers were becoming more affordable and the first user-friendly web browser was released, leading to the emergence of net.art, a term coined by Vuc Cosic, a practitioner of net.art operating in an international network of net artists.<sup>16</sup> Net.art described digital art made by using computers and was meant to be exhibited, shared and viewed on computers.<sup>17</sup> From around 2008 and onwards new media art re-emerged into the mainstream art scene with the development of Post-Internet and Moving Image art, the latter being the genre of most of the artworks presented at the Screen City Biennial.<sup>18</sup>

## 2.2 New Media as Public Art

Cameron Cartiere and Shelly Willis describe art as being lost between the commercial art market and public institutions, despite the field’s continuous evolution and incorporation of media such as: painting, new media, architecture, and performance.<sup>19</sup> We are at interesting stage where people see public art on a daily basis usually in the form of bronze, steel, or stone sculptures. However, this does not represent the range of public art that has developed over the years, especially when it comes to new media art. A part of the problem is that even though there has been made a great deal of new media artworks for public spaces, most of these have been

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<sup>14</sup> Sarah Cook, “Immateriality and Its Discontents: An Overview of Main Models and Issues for Curating New Media,” in *New Media in the White Cube and Beyond Curatorial Models for Digital Art*, ed. Christiane Paul (University of California Press, 2008), 26.

<sup>15</sup> Gere, “New Media,” 21.

<sup>16</sup> Rachel Green, “Web Work: A History of Internet Art,” *Artforum International* 38, no. 9 (2000), 162-165.

<sup>17</sup> Gere, “New Media,” 21, 22.

<sup>18</sup> Domenico Quaranta, “Situating Post Internet,” in *Media Art. Toward a New Definition of Art in the Age of Technology*, ed. Valentino Catricalà (Pistoia, Gli Ori, 2015), 1, 2.

[http://domenicoquaranta.com/public/TEXTS/2015\\_Situating\\_Post\\_Internet.pdf](http://domenicoquaranta.com/public/TEXTS/2015_Situating_Post_Internet.pdf)

<sup>19</sup> Cameron Cartiere and Shelly Willis, “Introduction,” in *The Practice of Public Art*, ed. Cameron Cartiere and Shelly Willis (New York: Routledge, 2008), 1.



temporary and often only present during short festivals, biennials, or triennials. To get a clear picture of how new media art is used in public spaces it is useful to outline a definition of public art and the history of public new media art.

Despite public art's continuous funding through private and public organisations, it lacks critical recognition due to lack of historization and confusion surrounding its definition.<sup>20</sup> Cartiere states that one of the reasons for this confusion stems from the various terms used for describing public art, such as interventions, site-specific works, and community-produced projects.<sup>21</sup> Willis and Cartiere's working definition of public art entails that the work has to be in public, serve public interest, and be publicly funded.<sup>22</sup> Further, they state that extending art beyond museums, opens up new forms of curating, and gives new meanings to spaces.<sup>23</sup>

Christiane Paul argues that new media art calls for a "museum without walls", where transparent and flexible exchange and collaboration can happen.<sup>24</sup> The previously mentioned net artists could technically be said to have achieved this as they exhibited online, nevertheless digital technologies have developed exponentially in the last thirty years and digital art can now exist outside of PCs through VR and AR technology. The following section describes examples of new media art exhibited in public space before AR and VR.

By the seventies, some artworks had already anticipated the mediation of art through the use of new technology. These artworks took place in public space, and were shared instantly with the public, consequently creating "real-time virtual space that collapsed geographic borders".<sup>25</sup> In 1977, Douglas Davis created a work that broadcasted performances to twenty-five countries by Davis himself, and two other artists, through satellite telecast.<sup>26</sup> The same year two artists organised, in conjunction with NASA, "the world's first interactive satellite dance performance", which was filmed in three locations and was broadcasted in real-time.<sup>27</sup>

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<sup>20</sup> Cameron Cartiere, "Coming in from the Cold: A Public Art History," in *The Practice of Public Art*, ed. Cameron Cartiere and Shelly Willis (New York: Routledge, 2008), 8.

<sup>21</sup> Cartiere, "Coming in," 9.

<sup>22</sup> Ibid, 15.

<sup>23</sup> Jane Rendell, "Spaces, Place, and Site in Critical Spatial Arts Practice," in *The Practice of Public Art*, ed. Cameron Cartiere and Shelly Willis (New York: Routledge, 2008), 33.

<sup>24</sup> Christiane Paul, "Challenges for a Ubiquitous Museum," in *New Media in the White Cube and Beyond Curatorial Models for Digital Art*, ed. Christiane Paul (University of California Press, 2008), 53.

<sup>25</sup> Paul, *Digital*, 18-21.

<sup>26</sup> Ibid, 21.

<sup>27</sup> Ibid.

Since then, new media art was exhibited sporadically at museums and galleries mentioned earlier, but most exhibitions of new media art have taken place at art events, festivals, media art centres, and biennials such as: the Ars Electronica festival in Austria, the NTT's Intercommunication Centre in Japan, the Dutch Electronic Arts Festival in the Netherlands, and the Transmediale art festival and the Centre for Culture and Media (ZKM) in Germany.<sup>28</sup> The reasons for the limited presence of new media art in museums and galleries is tied to technical requirements and its interactive, time-based, and real-time quality which makes curating it challenging.<sup>29</sup> However, the curation of new media art has evolved progressively the last thirty years, along with the development of virtual technologies.<sup>30</sup>

### 2.3 New Media in the Non-Art Museum

What separates new media art from other genres, is the widespread implementation of new media, often referred to as multimedia, in museums in general, not only in art museums. Most museums have moved away from only showing physical artefacts and are including photographic, digital, and filmic reproductions such as: 3D models and videos, along with digital forms of mediation such as: interactive screens, virtual tours,<sup>31</sup> sound showers, audio guides, and VR/AR experiences.<sup>32</sup> It should be noted that museums have traditionally been forerunners when it comes to implementation of what was once 'new' media, now seen as traditional media. Photography and film were implemented in museums as early as 1898, with an initial example being the anthropologist Alfred Court Haddon's three hundred photographs from his Torres Strait Expedition, which were exhibited by the University of Cambridge's Museum of Archaeology and Anthropology.<sup>33</sup>

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<sup>28</sup> Gere, "New Media," 21.

<sup>29</sup> Paul, *Digital*, 23.

<sup>30</sup> Patrick Lichty, "Reconfiguring Curation: Noninstitutional New Media Curating and the Politics of Cultural Production," in *New Media in the White Cube and Beyond Curatorial Models for Digital Art*, ed. Christiane Paul (University of California Press, 2008), 184, 185.

<sup>31</sup> Due to the Covid 19 epidemic happening in March 2020, virtual tours have gained widespread popularity as most museums had to close temporarily.

<sup>32</sup> Bernadette Flynn, "The Morphology of Space in Virtual Heritage," in *Theorizing Digital Cultural Heritage A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Cambridge: MIT Press, 2010), 349.

<sup>33</sup> Peter Pavement, "The Museum as Media Producer," in *The Routledge Handbook of Museums, Media and Communication*, eds. Kirsten Drotner et al. (London: Taylor and Francis, 2018), 32.

Some of the more recent examples of multimedia installations in museums were mentioned in the first chapter. Hence, it is useful to get an example of how scholars within museology analyse new media installations in museums. Andrea Witcomb's case study of the installation 'Koori Voices' at the Museum of Melbourne presented how the multimedia installation encouraged empathy towards an indigenous community.<sup>34</sup> The installation had a display of two hundred and eight photographs, along with video interviews with indigenous people, and an encouragement to "listen to these voices".<sup>35</sup> The videos were distributed between photographs with similar frames, which activated when visitors passed by and engaged them in a form of 'dialogue'.<sup>36</sup> Looking away when someone is speaking to you directly is usually something people only do when they are angry, thus the installation interacted with the visitor in a personal manner through an understanding of social customs and the enchantment of moving images. Concluding her analysis, Witcomb stated that multimedia installations can produce a kind of knowledge that embodies shared experiences, empathy, and memory.<sup>37</sup> The analyses in chapter four follow a slightly similar line of enquiry in the way they investigate the affective properties of multimedia in the form of immersive experiences.

By tracing a genealogy of new media art, objects, and installations in exhibitions, the difference between new media as an art form and as interpretive aids and experiences, in museums and public, space should be clear.

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<sup>34</sup> Andrea Witcomb, "The Materiality of Virtual Technologies: A New Approach to Thinking about the Impact of Multimedia in Museums," in *Theorizing Digital Cultural Heritage: A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Cambridge, MA: MIT Press, 2010), 39.

<sup>35</sup> Witcomb, "The Materiality," 39.

<sup>36</sup> Ibid, 40.

<sup>37</sup> Ibid, 37.

## Chapter 3

### Introducing the Case Study: The Screen City Biennial

This chapter introduces the Screen City Biennial 2019 in Stavanger, Norway, as the case study of this thesis. To put the three multimedia installations and immersive experiences that will be analysed in chapter four in the context of the biennial as a whole, a thorough introduction of the SCB is useful. Therefore, this chapter introduces the biennial's mediation program, concept, aims, program, and layout. This is followed by an overview of the new media artworks and their locations.

#### 3.1 Concept and Aims

The 2019 edition of the SCB aimed to present artworks that explored how human action affects various forms of ecologies,<sup>1</sup> employed in the widest sense as various relationships between organisms and their environment.<sup>2</sup> The concept of the biennial investigates how human action affects the ecologies that it occupies.<sup>3</sup> Layering of spaces into virtual, hybrid and material layers is a key curatorial approach in the biennial, and this can be seen on the conceptual level as well. The artworks presented at the biennial investigate 'spiritual, material, and virtual dimensions' of ecologies<sup>4</sup>; referring to various ecosystems, and co-dependent relationships between humans, machines, and animals.<sup>5</sup>

The director and lead curator Daniela Arriado and the co-curator Vanina Saracino focused on urban public space, architecture, and the moving image, as well as how the 'online sphere'

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<sup>1</sup> *Screen City Biennial*, Screen City Biennial 2019 Ecologies – Lost, Found and Continued, Edited by Daniela Arriado (Stavanger: Screen City Biennial, 2019), exhibition catalogue, 12.

<sup>2</sup> ECOLOGY: Meaning in the Cambridge English Dictionary, (n.d.), accessed June 02, 2020, <https://dictionary.cambridge.org/dictionary/english/ecology?q=ecologies>.

<sup>3</sup> Ibid, 21.

<sup>4</sup> The SCB's use of the term 'ecologies' is influenced by Donna Haraway's book *Staying with the Trouble: Making Kin in the Chtulucene*, 2016. In this book, Haraway describes the epoch we live in as one where human and nonhuman agents are linked in 'tentacular' practices and reflects on living in a damaged world. The SCB examines 'ecologies' in three dimensions: spiritual (ecologies of knowledge), material (ecologies of physical landscapes), and virtual (ecologies of the technological layers in our everyday lives). Visit the SCB 2019 online catalogue to read more about its concept (p. 23). [http://2019.screencitybiennial.org/press/SCB19\\_Catalogue\\_Digital.pdf](http://2019.screencitybiennial.org/press/SCB19_Catalogue_Digital.pdf).

<sup>5</sup> *Screen City*, Screen, 23.

can offer ‘expanded’ cinematic experiences.<sup>6</sup> In a wider context the curators aimed to facilitate new synergies between art, technology, and public space to create a new platform for curating.<sup>7</sup> The moving image refers to visual shapes in movement, and can appear in the form of ‘videos’, captured by a film camera or the human eye, and VR, AR installations, however this type of art will be referred to as new media art, being the overarching category of this type of artworks.

### 3.2 Mediation program

Today the most important tool for biennials, and other temporary art events, to mediate information and reach out to audiences is the Internet. Unlike museums and galleries, the curators behind these temporary art events do not have physical and permanent venues for letting people know about them. To reach people ‘where they are’ it is now crucial, also for museums and galleries, to be visible on social media platforms and online in general, however material sources of information for visitors remain important. The information resources of the SCB include a website, an app called Son.AR, a catalogue, an online journal, text panels, labels, posters, and banners. The aim of the curators with the strategy applied to their mediation program was to create meaningful visitor experiences.<sup>8</sup> The lead curator stated “bridging” as being important, because “the experience is happening, before you start experiencing the artworks,” which made them focus on connecting as many layers as possible.<sup>9</sup>

The SCB 2019 website<sup>10</sup> was designed with the same appearance as the general design of the biennial seen in all the other information platforms, as the designers of the Son.AR app were also in charge of visual design and communication.<sup>11</sup> (Ill. 3) The website introduces all the artists represented, their statements, and the program of the biennial. For the lead curator it was important to create a connection between all the information resources, therefore a cohesive visual design was used to create a dynamic relationship between the app, their social media presence, the website, and the catalogue.<sup>12</sup>

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<sup>6</sup> *Screen City*, Screen, 13.

<sup>7</sup> *Ibid*, 14.

<sup>8</sup> Vanina Saracino, interviewed by Silje Anette Teigen, videocall, May 15, 2020, 8. (V. S.Q. 2., 103)

<sup>9</sup> Daniela Arriado, interviewed by Silje Anette Teigen, videocall, May 13, 2020, 4. (D.A.Q.3, 97)

<sup>10</sup> SCB website: <http://2019.screencitybiennial.org/>.

<sup>11</sup> Arriado, interviewed, 2.

<sup>12</sup> *Ibid*, 8, 9.

The catalogue was just as extensive as the website, but it in addition it provided a simple map, information about the Son.AR app, and the curators' background. The curators saw the catalogue as being just as important as the app and website, and stated that the catalogue was meant to be used interchangeably with the app.<sup>13</sup> (Ill. 1)

The lead curator noted that the Son.AR app was created out of a need to mediate the artworks on-site, in the various semi-public and public spaces spread around Stavanger.<sup>14</sup> (Ill. 5, 6) It was also created to provide a digital version of the catalogue, to connect the exhibitions in order to help the visitors navigate more easily, and to add another layer of experience to the biennial.<sup>15</sup> The fact that the app designers are also sound artists influenced the design of the Son.AR app.<sup>16</sup> The app used sound cues, that represented each artwork and spatial localisation technologies to guide the visitor to the locations.<sup>17</sup> This allowed visitors to look away from their phone, and use their other senses when navigating towards each exhibition, but it also created an automatic route similar to Google maps according to what exhibition the visitor wanted to see.<sup>18</sup> The lead curator and the app designers wanted to explore the intersection between curating, navigating, technology, and sound art, to create a new type of visitor experience that added an auditive and virtual layer over the whole city. The curators did this through creating a framework of mediation around different layers covering the biennial: the city, the exhibition venues, and artworks, where the Son.AR app was integrated in all these layers to 'bridge' visitors' transition between navigating and experiencing/reading about artworks.<sup>19</sup> The co-curator confirmed that it was very important to connect all layers, both virtual and material, shown in how the graphic design and information provided was the same in all mediation resources.<sup>20</sup> The app designers were constantly thinking about how to connect the physical surroundings to the "virtual realm", by asking themselves what sounds would characterise the exhibition venues, and how they could guide visitors through adapting the volume of the sound according to the direction people held their phones.<sup>21</sup>

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<sup>13</sup> Saracino, interviewed, 11.

<sup>14</sup> Arriado, interviewed, 2, 9.

<sup>15</sup> Ibid, 2.

<sup>16</sup> Ibid.

<sup>17</sup> Davide Luciani, interviewed by Silje Anette Teigen, videocall, May 12, 2020, 2, 3. (D.L.Q.1, 98, 99)

<sup>18</sup> Luciani, interviewed, 2.

<sup>19</sup> Arriado, interviewed, 4.

<sup>20</sup> Saracino, interviewed, 11. (V.S.Q.1, 98)

<sup>21</sup> Luciani, interviewed, 3, 4. (D.L.Q.2, 99)

As a part of their mediation program, the online journal called *SCB Journal* functioned as a research platform for the exchange of knowledge and questions related to the concept of the biennial and its artworks.<sup>22</sup> It let visitors learn more about the artworks shown at the SCB.

The text panels were important sources for signposting the locations of the exhibitions on-site. Most of information they offered could be found in the catalogue and app. Adding to the consistency of the visual appearance of the biennial, the text panels had the same design as all other information resources, which is crucial when exhibitions are spread around in public spaces, where art is not typically expected to be.<sup>23</sup>

The labels, posters, and banners were spread around subtly. Not all artworks had physical labels, as they were performances, but there were small posters and larger banners spread around the city for signalling the presence of the artworks' locations.

Visitor B found it quite easy to navigate through Stavanger by using the map that was provided in the brochure and catalogue, however she tried the app and described it as being elegant, easy to use, and fun to test.<sup>24</sup> Visitor C said that the sound on Son.AR did not always work on his device, however he noted that it would be a very interesting experience to be guided by audio, if the sound worked the whole time.<sup>25</sup> The mediation resources visitor B found the most useful was the little brochure, due to its map being his preferred navigation tool, and the catalogue, being his prime source of information.<sup>26</sup> He also noted that he did not use the website very much, which shows that even for a biennial that centres itself around new uses of technology, both in art and mediation, it still is important to have a duality between material and virtual mediation tools.<sup>27</sup>

### 3.3 Program and Layout of Exhibitions

The title of the thesis introduces the metaphor of the 'sprawling' exhibition.<sup>28</sup> Describing the SCB's exhibitions as sprawling alludes to the decentralised nature of how the exhibitions at the

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<sup>22</sup> "SCB Journal," the Screen City Biennial, vol. 2, 2019, accessed May 19, 2020, <http://journal.screencitybiennial.org/>.

<sup>23</sup> Arriado, interviewed, 5.

<sup>24</sup> Saara Ekström, interviewed by Silje Anette Teigen, phone call, June 04, 2020, 3. (S.E.Q.1, 2, 101)

<sup>25</sup> Nuno Sacramento, interviewed by Silje Anette Teigen, videocall, 25.05.2020, 3. (N.S.Q.1, 101, 102)

<sup>26</sup> Sacramento, interviewed, 3.

<sup>27</sup> Ibid, 4.

<sup>28</sup> The term 'sprawling' is influenced by an artwork called *The Sprawl* made in 2016 by the artists group Metahaven. The artwork is a website that merges and attempts to 'manipulate' the viewer through overt 'propaganda', using features of the Internet and news. The site 'sprawls' and changes according to the viewer's interaction. This dynamic

biennial are spread around the city, and how they occupy physical, virtual, and hybrid layers of space. In contrast to museums, there is no apparent logic or consensus on what order the exhibitions should be seen.

The program, layout, and exhibition venues at the SCB were highly intertwined. The biennial promoted visitors' self-directed experiences through the city, by providing them with a map in the brochure and catalogue, and an interactive map in the Son.AR app. The few events with a set time functioned as fixed elements in visitors' agendas, whereas the exhibitions were open throughout the length the biennial. The program could be found in the printed catalogue, online catalogue, and Son.AR app. (Ill. 4, 5, 6) The venues were selected according to what artwork was shown.<sup>29</sup> Thus, they offered an extra layer of interpretation and were meant to engage in a dialogue with the artworks.

### 3.4 Overview of Artworks and their Locations

The SCB's sprawling nature becomes apparent in the vast range of locations chosen as exhibition venues. The more traditional video artworks, where video could be seen on a screen, were shown in a cinema<sup>30</sup>, a hotel<sup>31</sup>, the international cruise terminal of Stavanger<sup>32</sup>, a boat<sup>33</sup>, the *Oil Museum*<sup>34</sup>, *Domkirken* cathedral<sup>35</sup>, and in the chapel next to the cathedral<sup>36</sup>. One video artwork was shown as a moving image walk, where videos were projected onto buildings and participating visitors.<sup>37</sup> The sound performances were shown at the *Stavanger Art Museum*<sup>38</sup> and the *Rødne Fjord Cruise*<sup>39</sup>. The mixed media installations were shown at the *Oil Museum*<sup>40</sup> and

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feature can be seen in many of the SCB's artworks and layout, as each visitor's route through the venues is automatically created on the Son.AR app according to their chosen destination. <http://sprawl.space/about-the-sprawl/>

<sup>29</sup> Saracino, interviewed, 11. (V.S.Q.3, 103-105)

<sup>30</sup> Oliver Ressler's video work on climate activism (Ill. 12), the video program *Unquiet* showing five videos at the *Odeon Cinema* (Ill. 17), and a video program curated by Gabriel Bogossian. (Fig. 24)

<sup>31</sup> Video program at the *Clarion Hotel* called *KUNST.TV* showing works by four artists. (Ill. 7)

<sup>32</sup> Video work by Flatform. (Ill. 21)

<sup>33</sup> Four video works at the boat *MS Sandnes*, where each artwork was allocated a different cabin. (Ill. 18)

<sup>34</sup> Video by Andrew Norman Wilson. (Ill. 9)

<sup>35</sup> Emilija Škarnulytė's video work *Deep Point Cloud*. (Ill. 11)

<sup>36</sup> Video work of fishermen from Brazil by Jonathas de Andrade. (Ill. 14)

<sup>37</sup> Moving image walk by Saara Eekström. (Ill. 16)

<sup>38</sup> Sound performance by the artist group *Band of Weeds*. (Ill. 15)

<sup>39</sup> Sound performance *Tidal Pulse II* by Enrique Ramirez. (Ill. 19)

<sup>40</sup> Sculpture and video by Tove Kommedal (Ill. 8)



the international cruise terminal<sup>41</sup>. The only AR installation at the SCB was shown at *Torget*<sup>42</sup>, the city square of Stavanger, and the VR installations were shown on a boat<sup>43</sup> and in a ferry terminal called *Fiskepiren*.<sup>44</sup> The live video performances were shown at Stavanger's concert hall.<sup>45</sup>

As we have seen in this chapter the SCB presented a mediation program and a range of exhibitions that sprawled through virtual, hybrid, and physical layers of space. Exhibiting in the Oil Museum and the Stavanger Art museum, as well as public spaces, offered a contrast that let visitors see art within museums and experience new ways of interacting with public spaces and new media art.

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<sup>41</sup> Installation by Kristina Ollek with deep sea mining as its topic, (Ill. 20)

<sup>42</sup> *Tentacle Tongue* by Tuomas Laitinen. (Ill. 13)

<sup>43</sup> VR work by Momoko Seto at the boat *MS Sandnes*. (Ill. 18)

<sup>44</sup> *The Bone* by Michelle-Marie Letelier. (Ill. 10)

<sup>45</sup> Live video performance by Michelle-Marie Letelier and Kala (Ill. 22) and live performance accompanied by music by Marolijn Dijkman and Toril Johannesen. (Ill. 23)

## Chapter 4

### Analysing Sprawling Exhibitions

This chapter analyses three exhibitions with immersive experiences at the Screen City Biennial. First the audio-visual installation *Tidal Pulse II* is analysed, followed by the augmented reality installation *Tentacle Tongue* and the virtual reality installation *The Bone*. Each three-part analysis includes: the characteristics of the medium, an account of the exhibition described from a participant-observer perspective, and a spatial analysis wherein the SCB exhibition is compared with a museum exhibition with a similar multimedia installation. This last segment is based on Stephanie Moser's methodological framework for exhibition analysis with regards to space as a key element influencing exhibitions.<sup>1</sup> The comparative analyses present figures in which the spaces and objects in the exhibitions are modelled into Venn-diagrams, as well as descriptions of how visitors experienced the SCB exhibitions, based on observation of visitors on-site and interviews.

Section 4.4 develops the analysis of the VR installation *The Bone* further, by using Actor-Network Theory as a methodological and analytical tool to model the interactions that might happen in the exhibition. Here the interaction between the visitor, the VR installation, and the mediation program is examined. The semiotic responses to the different spaces in the exhibitions, discussed in this chapter, along with the mapping of interactions, are meant to offer insights into how the spaces and the visitor function as actants forming their own 'material-semiotic practices'.<sup>2</sup>

#### 4.1 Expanding Reality through Sound: *Tidal Pulse II*

This subchapter analyses the audio-visual installation *Tidal Pulse II*. (Ill. 19) Immersive audio-visual experiences will be explained in terms of their forms of immersion and interaction, followed by a participant observation account of *Tidal Pulse II*. Then an analysis compares *Tidal Pulse II* with a sound shower and timeline display at the National Museum of Antiquities in Leiden, the Netherlands. (Ill. 27)

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<sup>1</sup> Stephanie Moser, "THE DEVIL IS IN THE DETAIL: Museum Displays and the Creation of Knowledge," *Museum Anthropology* 33, no. 1 (2010): 24, 25.

<sup>2</sup> Laura Chernaik, "Transnationalism, Technoscience and Difference: The Analysis of Material-Semiotic Practices," in *Virtual Geographies: Bodies, Space and Relation*, eds. Mike Crang, Phil Crang, and Jon May (London: Routledge, 2013), 87.

#### 4.1.1 Characteristics of Audio-Visual Experiences

From this point onwards, the term ‘immersive audio-visual experience’ is used in the thesis as an umbrella term for immersive multimedia installations in museum and as artworks using sound. In the form of artworks these installations are often described as sound performances or sound pieces. The main element of the immersive AV experiences, that will be described in the following two sections, is the role of sound as an auditive layer over surroundings including either museum artefacts or natural sites. The layer of sound is meant to immerse the visitor in an interpretive experience, hence the description of these AV experiences as ‘immersive’, rather than acting as an informative and interpretive aid.

Whereas VR and AR installations allow the visitor to listen to monologues and soundscapes while they see imagery, they can relate directly to the VR or AR experience, the use of technology in immersive AV experiences is more subtle and can require more concentration from the visitor. This is often the case with these types of installations as artworks, due to how sound performances often have more abstract relations to their surroundings. Thus, even though the sound is transferred using technological means, the level of immersion experienced in sound art depends on the imagination and attention of the visitor, similar to how immersion functions as a mental phenomenon when reading a book.<sup>3</sup> Immersive AV experiences encourage a psychological form of interaction where the visitor switches between observing their surroundings and reflecting on themes or narratives presented through sound. The interaction they offer can also be physical. Sometimes the visitor is encouraged to walk around, press a button to start the audio, or touch objects, or textures while listening.

#### 4.1.2 *Tidal Pulse II* – Audio-visual experience and artwork

The sound performance and immersive AV experience *Tidal Pulse II* was created by Enrique Ramirez and installed on the *Rødne Fjord Cruise*. The experience lasted three hours and was described as being a site-responsive sound piece and a visual voyage.<sup>4</sup> (Ill. 19) The visitors were meant to participate in the AV experience, thus it seemed important to seek out information about the concept of the work, to understand how to participate through being a ‘site-responsive’ visitor. This audio-visual experience aimed to ‘take the pulse’ of the boat as

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<sup>3</sup> Marie-Laure Ryan, *Narrative as Virtual Reality 2: Revisiting Immersion and Interactivity in Literature and Electronic Media* (Baltimore: Johns Hopkins University Press, 2015), 61.

<sup>4</sup> *Screen City Biennial*, Screen City Biennial 2019 Ecologies – Lost, Found and Continued, Edited by Daniela Arriado (Stavanger: Screen City Biennial, 2019), exhibition catalogue, 115.

a ‘fuel-powered organ’ drifting along the Norwegian coast.<sup>5</sup> This was done through real-time recording of sounds with microphones attached inside and outside the boat. This meant that sounds of the engine and water splashing up against the boat, could be heard in a remixed form through visitors’ wireless headphones during the entire journey on the fjord. Visitors could read, in the catalogue and Son.AR app, that the artist developed his research in Harstad, with the first edition of *Tidal Pulse*, where he focused on oil extraction and deep-sea mining.<sup>6</sup> These topics are also highly relevant to Stavanger, due to its fossil-fuel driven economy. In many of his artworks, the artist uses image and sound to create stories within stories, through encouraging participating visitors to reflect on the balance between the poetic and the political.<sup>7</sup> The audio that was to be played on visitor’s headphones during the entire journey on the fjord, were sounds from the boat that were intertwined with the voices of local activists, politicians, scientists and workers in the oil industry reflecting on the future of fossil-fuels.<sup>8</sup>

The artist was present on the boat to remix the sounds live and he introduced himself to participating visitors entering the boat. Visitors were informed that while listening they could sit or walk, whilst looking outside at the mountains and fjord. The artist described the work as being a form of ‘expanded’ cinema. This description is fitting, as each visitor was invited to narrate their own experience based on what they chose to hear and see.

During the AV experience it became clear that the participating visitors were indeed the central agents in the artwork, observed through the visitors’ physical interaction with their surroundings and introspective facial expressions. Visitors were observed walking on deck, while looking at the landscape, or looking thoughtfully out the windows of the boat. (Ill. 19) Some visitors disengaged by taking off the headphones, which was an intended aspect of the work according to the co-curator of the SCB.<sup>9</sup> This feature allowed visitors to take breaks and added an ephemeral quality to the artwork, as it could not exist without the visitor choosing to engage with it. Furthermore, it seemed as if the visitors’ individual and transformative experiences, represented the intention of the work and its multi-faceted meanings. These transformative experiences were highly individual, however the one that concluded this

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<sup>5</sup> *Screen City*, Screen, 115.

<sup>6</sup> Ibid.

<sup>7</sup> Ibid.

<sup>8</sup> Ibid.

<sup>9</sup> Vanina Saracino, interviewed by Silje Anette Teigen, videocall, May 15, 2020, 7. (V.S.Q.4, 110, 111)

observation was characterised by feeling immersed in the landscape through observing, listening, and reflecting.

#### 4.1.3 Comparative analysis: *Tidal Pulse II* and Sound Shower-Timeline Display

The two audio-visual installations, *Tidal Pulse II* and a museum’s sound shower and timeline display, will be analysed with regards to spaces that are modelled in Venn diagrams below.

The first diagram gives an overview of the spaces that are implemented in *Tidal Pulse II*, and what spaces are ‘created’ by the AV experience and visitor. Analysing space as being both psychological and physical at the same time creates the possibility of analysing all the spaces implemented in the immersive AV experiences. Following the Venn diagrams are analytic sections ordered in the surrounding, audio-visual, and transformative space within the exhibitions.

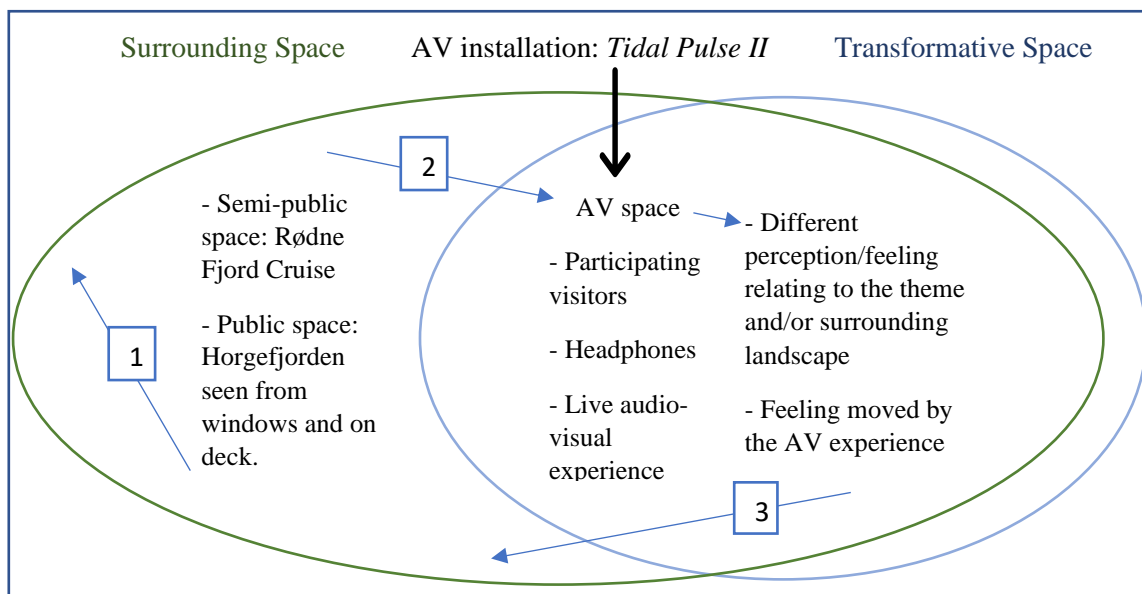


Figure 1. The diagram shows an overview of the exhibition’s spaces, and the visitor’s movement and reflective stages. Arrow 1: Pre-exhibit space, entering the exhibition. Arrow 2: Mid-exhibit space, transitioning into space created by installation. Arrow 3: After-exhibit space, disengaging from exhibit, emerging back into non-augmented surroundings.

In the diagram above, and in all consecutive diagrams, the green circles represent the surrounding spaces, and more concretely the physical exhibition space. The blue circles represent the reflective and transformative spaces the visitors enter during and after their experience. These two spaces overlap where the visitor transitions into the AV space, or the ‘expanded’ real space, ‘created’ by *Tidal Pulse II*. The arrows show the movement of the visitor and their three reflective stages: the pre-exhibit mental space; the visitor enters the

exhibition space and possibly reflects on the exhibit they are about to engage with (arrow 1), the mid-exhibit space; the visitor transitions into the space ‘created’ by the installation and engages with the exhibit, this is where immersion and interaction might happen (arrow 2), and the post-exhibit mental space; the visitor re-emerges into their non-augmented surrounding space after disengaging, furthermore this is where a transformative experience, developed while engaging with the installation, might crystallise into interpretations and opinions about the installation and how it might relate to the surrounding space (arrow 3). As the participation and reflection of visitors is intimately tied up with how the various installations discussed in this thesis function, it is important to visualise the symbiosis between the psychological and physical spaces that are at play in these exhibitions. Before *Tidal Pulse II* and the diagram above is analysed in depth, the sound shower and timeline display at the National Museum of Antiquities in Leiden will be introduced, along with a Venn-diagram.

The sound shower and timeline display that will be compared to *Tidal Pulse II* is a part of a permanent exhibition called *Archaeology of the Netherlands* at the National Museum of Antiquities in Leiden. (Ill. 27) Similar to *Tidal Pulse II* the sound is not the only feature of the AV installation, as the sound shower is placed above an enlarged representation of a long timeline representing a time span of three hundred thousand years. This timeline display also has archaeological objects, labels, videos and other multimedia applications imbedded in it.<sup>10</sup> The museum has called the AV installation ‘interactive meeting places’ where visitors stand under various sound showers while looking at the objects on display. One section of the timeline display shows prehistoric objects found in the Netherlands and through the sound shower above the visitor ‘meets’ reindeer hunters and Bronze age farmers through audio. Thus, instead of presenting facts already present in the display’s text panels, the sound showers include soundscapes that illustrate scenes from the past with a type of historical role-play. The following Venn diagram presents the spaces and elements that the sound shower and timeline display is made up of.

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<sup>10</sup> “Archaeology of the Netherlands,” Rijksmuseum van Oudheden, accessed April 29, 2020, <https://www.rmo.nl/en/exhibitions/permanent-exhibitions/archaeology-of-the-netherlands/>, par. 2.

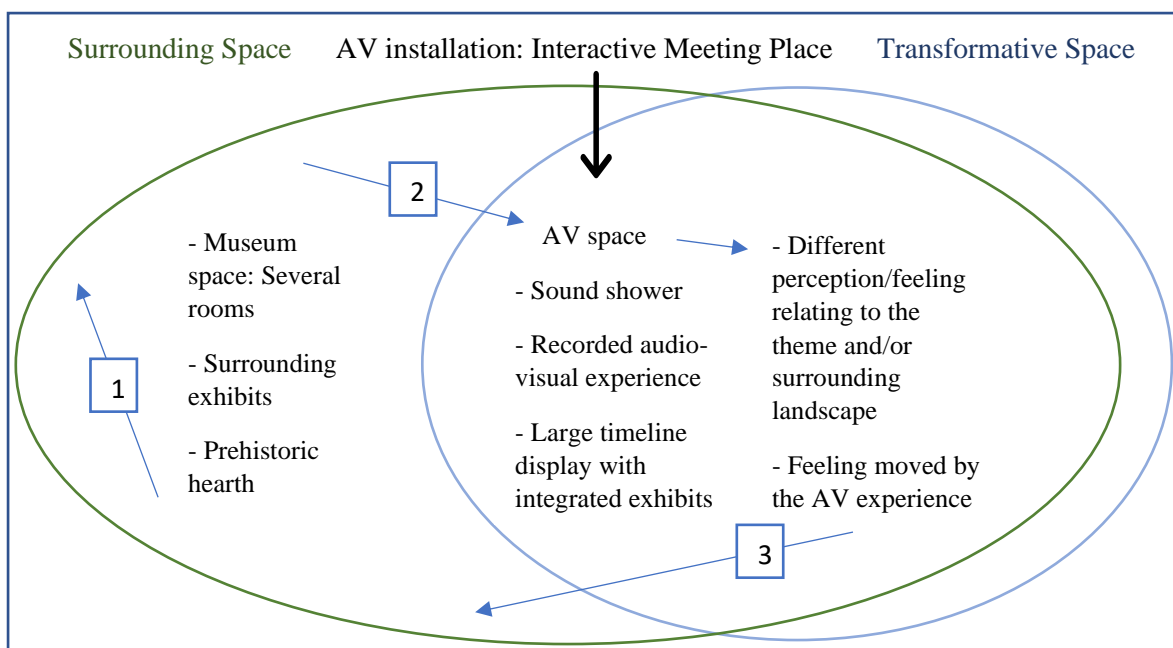


Figure 2. The diagram shows an overview of the spaces, and the order of the visitor's movement and reflective stages, within the exhibition containing the audio-visual experience called an 'Interactive Meeting Place'.

When entering the *Archaeology of the Netherlands* exhibition, and thus the pre-exhibit space, the visitor is met with an exhibition layout in which the space at is laid out in a highly creative way, as the timeline becomes a large structure 'floating' and bending through several rooms. (Fig. 2, arrow 1) The display has organic shapes that function as integrated cases, traditional display cases popping out of the timeline, and some parts that lift up to create sleeping spaces in different historic styles for children to crawl into. (Ill. 27) This physical structure, along with the audio following it from above and the videos integrated in it, creates a dynamic and interactive exhibition space, while remaining highly chronological. The form of the display encourages the visitor to walk through the many rooms it covers, similar to how the layout of the *Rødne Fjord Cruise* encouraged visitors to walk around the boat to see the landscape from different perspectives.

When starting to engage with the exhibit, the visitor 'enters' the AV space, which is physical space layered with sound, and the mid-exhibit mental space shown by arrow number two. (Fig. 1, 2) However, in the case of *Tidal Pulse II* it might be better to conceptualise AV space as sound 'expanding' reality or surroundings. In this stage of the visitor experience, one needs to ask how visitors interact with the installation and what feelings arise, during the AV experience. The section of the sound shower and timeline display that presents the prehistoric theme and artefacts, mentioned earlier, includes a hearth that burned at least 11,650 years ago and various spear shaped stones. The visitor is asked to push a button, which starts playing

audio which is not directly informative, but ‘transports’ the visitor back in time in the form of an audio theatre. The visitor hears a fire burning and ‘prehistoric’ humans talking to each other about hunting and cooking. Thus, when exiting the mid-exhibit space and entering into the after-exhibit space, the visitor might look at the artefacts, and surrounding exhibits, with a new perspective and a more embodied response due to feeling ‘immersed’ in the experience of listening to the audio theatre while seeing prehistoric objects. (Fig. 2, arrow 3)

When enquiring into the role of space in the unconventional exhibition of *Tidal Pulse II*, it becomes clear that the location and the space goes hand in hand. In the pre-exhibit space (arrow 1), the visitors observed their surroundings, and as they put on the headphones, they entered the mid-exhibit space (arrow 2) and the nature scenes became implemented in the AV experience. (Fig. 1) A large section of the fjord became implemented in the AV experience as the voyage was the artwork. In the mid-exhibit space, the visitors interacted with their surroundings while ‘immersed’ in a reality that is supposed to become perceived as ‘expanded’. The form of interaction in both AV experiences involves the visitor and invites them to interact visually and to through listening, while reflecting on information presented through audio.

Visitor A described all his interaction with the work as centred on rendering the input from the artist to what he had to contextualise with his eyes, which he found intense and tiring as it required him to perform as an active participant.<sup>11</sup> When asked how she interacted with the work, visitor B answered “you open up to let yourself go”, referring to how she gave her attention to the voices in the headphones and the stories they told.<sup>12</sup> This presents an interesting description of how one can feel completely immersed in something through actively directing attention to the input offered. Visitor C said he liked that the technology was not too prominent, and listed many ways of interacting with the artwork, saying how visitors could go outside, stay inside, eat or drink something, and sit by the window, but on a more personal level he described that he alternated between listening deeply to the interviews and observing the fjord.<sup>13</sup>

A point of clarification on how transformative space is employed in this thesis; it is conceptualised as a reflective space ‘entered’ by the visitor during their mid-exhibit and after-

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<sup>11</sup> Davide Luciani, interviewed by Silje Anette Teigen, videocall, May 12, 2020, 13. (D.L.Q.9, 117)

<sup>12</sup> Saara Ekström, interviewed by Silje Anette Teigen, phone call, June 04, 2020, 8. (S.E.Q.9, 120)

<sup>13</sup> Nuno Sacramento, interviewed by Silje Anette Teigen, videocall, 25.05.2020, 6, 7. (N.S.Q 6.7., 121, 122)



exhibit mental spaces. It is assumed that when the visitor disengages from the exhibit and ‘re-enters’ the non-augmented surrounding exhibition space, a visitor can potentially experience an individual and transformative response, which can often be characterised by feeling moved or having gained a new perspective.

The analysis of the transformative experiences described in this thesis are influenced by Moser’s notes on space in her 2010 paper on exhibition analysis.<sup>14</sup> She states that in line with current museological practice, one should create spaces that enhance the visitor experience and establish effective reception of the exhibition message<sup>15</sup> A visitor having a transformative experience in relation to an exhibit, can be said to achieve Moser’s notes on space in exhibitions. The concept of a ‘transformative space’ is further influenced by museological literature on transformative experiences where visitors find meaning, which is usually viewed as uniquely made possible by museum exhibitions.<sup>16</sup> However, as multimedia screens in museums are viewed as being able to offer visitors transformative experiences, we can also analyse IVEs and immersive AV experiences in a similar way.<sup>17</sup> Barry Lord states that “the transformation takes place because the visitor is moved by the perceived authenticity of the exhibit to discover meaning in the object on display.”<sup>18</sup> In contrast, when dealing with simulated experiences it might not be the ‘authenticity’ of the virtual experience that moves the visitor, but rather the narratives and intimate encounter with virtual imagery. These factors might re-direct the visitors’ attention to new aspects in the surrounding exhibition space. This ‘re-directing’ of visitors’ attention through immersive experiences is precisely what sets these interpretive experiences apart from interpretive aids. Thus, the IVEs and immersive AV experiences can catalyse transformative experiences, while the visitor interacts with the multimedia installation, and when ‘re-entering’ the exhibition surroundings.

To illustrate some examples; during observation of *Tidal Pulse II* and the sound shower display the transformative experiences were characterised by feeling more present in the landscape and in a prehistoric past. (Fig. 1, 2, arrow 3) With regards to visitors’ transformative experiences of *Tidal Pulse II*, visitor A described enjoying how the sound connected to specific and private moments, through how the visuals were connected to the

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<sup>14</sup> Moser, “THE DEVIL,” 25

<sup>15</sup> Ibid.

<sup>16</sup> Barry Lord, “The Purpose of Museum Exhibitions,” in *Manual of Museum Exhibitions*, 2nd ed, ed. Barry Lord and Maria Piacente (Lanham and Plymouth: Rowman & Littlefield, 2014), 11.

<sup>17</sup> Lord, “The Purpose,” 11.

<sup>18</sup> Ibid, 12.

sound.<sup>19</sup> He noted that as a concluding reflection he saw three storylines; the politics, the surroundings, and the act of listening to the music, all at the same time.<sup>20</sup> Further he said this offered a threefold experience; on an intimate, political and a rational level.<sup>21</sup> This description shows how some visitors internalised the curators' and artist's wish to tie visitors' different forms of interaction together.<sup>22</sup> These were looking at the boat, fjord, and the active cultivation of bred fish, and listening to voices reflecting on interventions in marine ecosystems.<sup>23</sup> When visitor B was asked how she experienced the work, she noted how the work seemed connected to the landscape, and added how she felt as if gradually leaving bits of herself behind as she felt more and more immersed in the work.<sup>24</sup> She further described the experience as being overwhelming, beautiful, and dramatic, and that it had a meditational quality of her mind feeling cleared.<sup>25</sup> The feeling that everyone were immersed in the experience at the same time, made the artwork seem almost sacral to her, which shows how the concept of what we relate to immersion nowadays might be evolving.<sup>26</sup> Based on the visitors' descriptions it is clear that they understood that their participation and reflection was implicated in the artwork.<sup>27</sup> All visitors also understood the close relationship between the landscape and the 'recording' of their experience, which the curators hoped would be picked up on by the visitors.<sup>28</sup>

*Tidal Pulse II* showed how immersive AV experiences can encourage a high degree of interaction and a type of imaginative immersion. It is a fascinating finding, in the case of *Tidal Pulse II*, that redirecting peoples' attention to the landscape surrounding them can catalyse such intense feelings of immersion, with only sound 'expanding' the physical space, instead of any virtual imagery

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<sup>19</sup> Luciani, interviewed, 14. (D.L.Q.11, 118)

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

<sup>22</sup> Saracino, interviewed, 7. (V.S.Q.5, 115, 116)

<sup>23</sup> Ibid.

<sup>24</sup> Ekström, interviewed, 7. (S.E.Q.7, 118, 119)

<sup>25</sup> Ibid, 8.

<sup>26</sup> Ibid. (S.E.Q.8, 119)

<sup>27</sup> Saracino, interviewed, 7.

<sup>28</sup> Ibid.

## 4.2 Exhibiting in Hybrid Space: *Tentacle Tongue*

This subchapter gives a description of the characteristics of augmented reality and its forms of interaction and immersion, followed by an introduction of the AR installation *Tentacle Tongue*, and a participant observation account of the its exhibition. Then an analysis compares *Tentacle Tongue* with an AR installation called *Visual Ecoiophonic* shown in the National Museum of Architecture in Oslo.

### 4.2.1 Immersion and Interaction in Augmented Reality

In contrast to VR, AR technology does not require users to ‘insert’ themselves into an enclosed virtual world, it rather creates virtual imagery, text and/or audio that is superimposed onto physical space.<sup>29</sup> The resulting effect is a potential feeling of immersion, as the user sees virtual imagery as a layer covering physical locations through a mobile device’s or tablet’s screen, seemingly becoming a part of the visitor’s reality, hence the name augmented reality.<sup>30</sup> Any modern mobile device can download the appropriate AR viewing app or browser and has a camera that can be used to view and interact with an AR experience. In the future, one might increasingly see specific devices for AR such as Google Glasses, as the immersion experienced through glasses is more total than through a mobile device.<sup>31</sup>

AR experiences allow interaction in the form of the visitor being able to move the screen to see different perspectives of the virtual imagery, and sometimes to directly manipulate the imagery through touch. The layering of virtual imagery over physical space transforms the space observed through the screen into a hybrid space. Furthermore, the physical space AR imagery is superimposed onto ‘interacts’ with the virtual imagery as a background, thus creating a highly visible connection between the visitor’s surroundings and the ‘created’ hybrid space.

### 4.2.2 *Tentacle Tongue* - AR experience and artwork

The AR installation *Tentacle Tongue*, created by Tuomas A. Laitinen, was shown at the city square in Stavanger called *Torget*. (Ill. 13) The AR work was inspired by marine species and the movement of tentacles, and according to the artist the artwork was meant to question

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<sup>29</sup> Christiane Paul, *Digital Art*, 3rd ed. (London: Thames & Hudson, 2015), 237.

<sup>30</sup> Paul, *Digital*, 238.

<sup>31</sup> *Ibid*, 237, 341.

biodiversity.<sup>32</sup> *Tentacle Tongue* was difficult to locate, despite the description of its location on a map in the catalogue and on the Son.AR app. What unveiled its location in the end was the AR technology imbedded in Son.AR that played a sound signalling the presence of the artwork, which got louder as work got nearer. AR often requires a flat surface or a 2D trigger image to show up, thus there was a large poster on the façade of a shopping mall that acted as the trigger image. However, the absence of a text panel made the poster blend almost too well into the urban landscape as it bore resemblance to a commercial poster.

In contrast to the VR installation *The Bone*, which will be analysed in section 4.3, it was very difficult to find any elements in the surrounding space that seemed to have any relevance to the AR experience. After having downloaded an app called Arilyn to ‘activate’ the poster, the AR imagery appeared on the mobile screen when held up towards the poster. The imagery consisted of nine nodes or blob shapes which activated when touched on the mobile screen, and according to the artist they represented an octopus’ decentralised nervous system.<sup>33</sup> Some of the nodes activated white text in the shape of tentacles that sprawled out of the poster and into the city square, encouraging visitors to turn around and explore how the virtual imagery interacted with the open urban space and surrounding architecture. One of the other nodes activated a video that played within all the nodes, and another node changed the colour of all the shapes. (Ill. 13) The shapes created in the hybrid layer seen on the phone were massive and covered the whole city square.

A visitor was observed interacting with the AR installation. She held her phone up towards the poster, touched the phone’s screen, and thereafter moved around while looking at her phone. It started raining, but that did not make the visitor end the experience quickly, which might indicate that she found the AR experience engaging to interact with.

#### 4.2.3 Comparative analysis: *Visual Ecoiophonic* and *Tentacle Tongue*

This section presents a comparative analysis of two AR installations, *Visual Ecoiophonic* and *Tentacle Tongue*, with regards to spaces modelled in Venn diagrams below. (Ill. 26, 13) First a Venn diagram of the spaces implemented in *Tentacle Tongue* is presented, followed by an introduction of *Visual Ecoiophonic* and a Venn diagram representing its spaces and elements.

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<sup>32</sup> *Screen City*, Screen, 101.

<sup>33</sup> *Ibid*, 101.

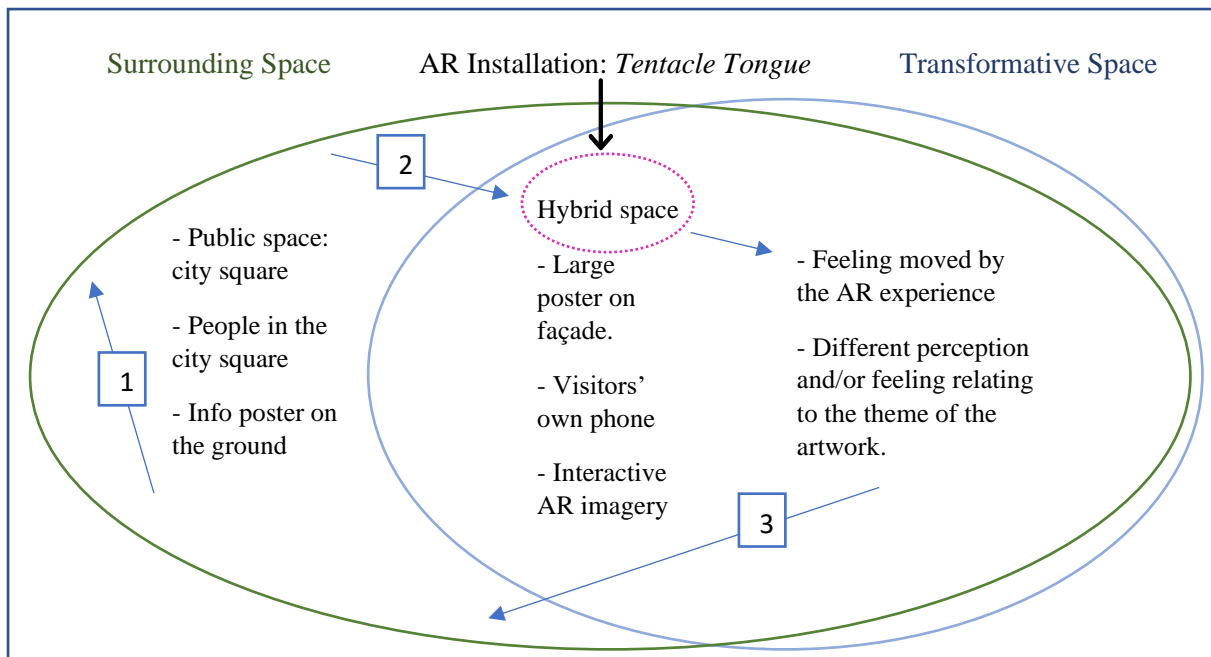


Figure 3. Showing a Venn diagram with an overview of the spaces, and the visitor's movement and reflective stages, within the *Torget* exhibition containing the AR installation *Tentacle Tongue*.

As mentioned previously, the arrows in the Venn diagram show the visitors movements through the exhibition and the three reflective stages of the visitor experience. The first arrow shows the visitor coming into the city square and trying to locate the AR installation. The second arrow shows the visitor transitioning into a hybrid space created by *Tentacle Tongue*, which is the mid-exhibit stage when immersion and interaction with the AR imagery takes place. The third arrows shows the visitor disengaging from the AR experience into their non-augmented surroundings, and this is where a transformative experience might articulate itself to the visitor. (Fig. 3) The hybrid spaces in both diagrams of the exhibitions are marked by pink dashed circles, due to how AR imagery adds a permeable layer to space, as opposed to an enclosed space. *Tentacle Tongue* will be analysed further after the next AR installation is introduced and its various spaces modelled.

*Visual Ecoiophonic* was set in the exhibition *Enough: The Architecture of Degrowth* in 2019 at the National Museum of Architecture in Oslo. (Ill. 26) It consisted of an open and vertical wooden box, decorated with multicoloured candle wax, with sixteen images shown on rubber cards, and an iPad attached to a string. The trigger images, inspired by Sámi woodcut techniques, illustrated various Sámi terms, and showed AR imagery when the visitor held the iPad in front of them. The virtual illustrations were meant to function as a form of augmented

storytelling.<sup>34</sup> The Venn diagram below shows the spaces implemented in *Visual Ecoiophonic*.

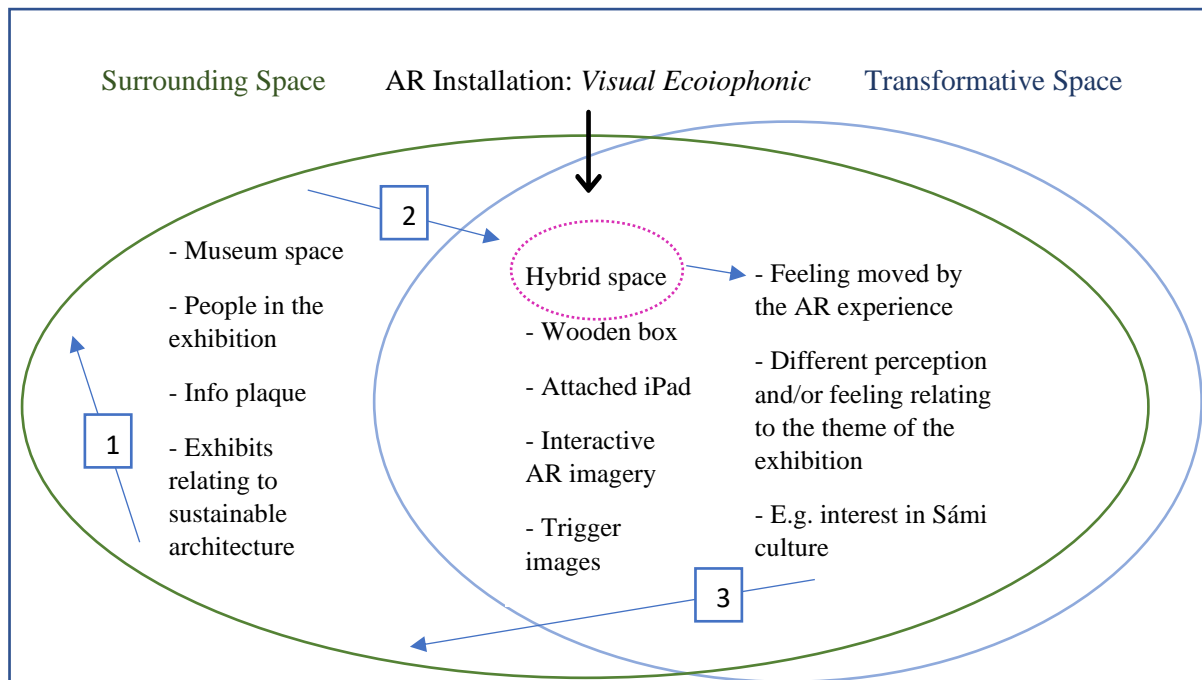


Figure 4. Showing a Venn diagram with an overview of the spaces, and the visitor’s movement and reflective stages, within the exhibition *Enough: The Architecture of Degrowth* containing the AR installation *Visual*

‘Reading’ the surrounding space becomes important in AR installations, as one needs to locate the image or surface that triggers the animation to appear on the mobile device. By placing the trigger image poster for *Tentacle Tongue* on an urban façade, the exhibition became rather invisible, which demanded the visitors to direct their attention to potential clues in their surroundings. (Fig. 3, arrow 1) The trigger image became ‘entrance’ to the exhibition, similar to the rubber image cards of *Visual Ecoiophonic*. (Ill. 26) Once the poster was found and activated, the public space became ‘expanded’ and enveloped within the exhibition. (Fig. 3, arrow 2) As mentioned, AR in public space requires the visitor to be highly attentive to find the trigger image. In addition, the visitor must download the app and know intuitively how to interact with an AR trigger image and app, which sets the framework for the visitor’s experience.

Two of the three visitors interviewed described having trouble locating and making *Tentacle Tongue* appear, which exemplifies some of the curatorial challenges related to AR installations and hybrid space. Visitor B tried to locate the work by using a map several

<sup>34</sup> Alicia Lazzaroni and Antonio Bernacchi, “Visual Ecolophonic,” *animali domestici*, September 2019, <https://animalidomestici.eu/Visual-Ecolophonic>), par. 5. a

times, but she did not manage to find it, perhaps due to the AR poster blending into the commercial façade it hung on.<sup>35</sup> Visitor C did find the AR poster, but he was not aware that the artwork required one to download a separate app to view it, thus rendering the artwork partly invisible to him, and completely invisible to visitor B.<sup>36</sup> (Fig. 3, arrow 1) The co-curator noted that the extra step of having to download an app to see the artwork can be an obstacle for people.<sup>37</sup> Both curators noted that *Tentacle Tongue* was a difficult experience to mediate, due to the amount of visual noise in the public space.<sup>38</sup> To help visitors transition into the hybrid space, the curators placed a poster on the ground, but they relied on visitors noticing the large poster and knowing that it had to be activated.<sup>39</sup>

With regards to the connection between the hybrid and surrounding space, visitor A said that the public space might make it feel a bit “unsafe” to engage with the work, due to the intimate relationship between the hybrid and public space.<sup>40</sup> However, he noted that he thought the work had to be in the city square to change the way people had always perceived it.<sup>41</sup> The varying scope of experiences relating to *Tentacle Tongue*, reveals the issue of facilitating the transition of the visitor ‘into’ the hybrid space, as presenting a challenge relating to curating AR installations in public space. (Fig. 3, arrow 2)

As previously mentioned, hybrid space is an ‘in between’ space, where the visitor sees virtual imagery on their device’s screen with the physical surrounding space as background. In contrast to *Visual Ecoiophonic*, *Tentacle Tongue* extended itself into an open space, which encouraged visitors to turn around and explore the peripheries of the city square; a form of interaction exemplified in the participant observation account. This shows how AR installations can benefit from being exhibiting in public space, as this offers new ways of experiencing urban and natural sites. The augmented storytelling of *Visual Ecoiophonic* also ‘expanded’ space through adding a hybrid layer, but then from inside the museum. (Fig. 4, arrow 2) Similar to *Tentacle Tongue*, the visitor was invited to engage with the hybrid space, however the images were not animated to move around, which sometimes caused the AR imagery to ‘float’ out the screen making it difficult to get a good look at them. Visitor A, who managed to locate *Tentacle Tongue* and download the app, found the work interesting,

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<sup>35</sup> Ekström, interviewed, 6. (S.E.Q.6, 113)

<sup>36</sup> Sacramento, interviewed, 5. (N.S.Q.5, 114)

<sup>37</sup> Saracino, interviewed, 6.

<sup>38</sup> Daniela Arriado, interviewed by Silje Anette Teigen, videocall, May 13, 2020, 6. (D.A.Q.5, 109, 110)

<sup>39</sup> Ibid.

<sup>40</sup> Luciani, interviewed, 9. (D.L.Q.7, 111, 112)

<sup>41</sup> Ibid.

despite there being some technical issues with the app.<sup>42</sup> He added that it is a shame that the little screens on mobile devices become the only “canvas” to experience the AR work on.<sup>43</sup> (Fig. 3, arrow 2)

Whereas *Visual Ecoiophonic* was intended to spark interest in learning more about Sámi culture, (Fig. 4, arrow 3) *Tentacle Tongue* subject was related to the interaction with the visitor and their interpretation of the aquatic lifeforms the artwork presented.

Notwithstanding experiencing some technical issues, visitor A described a transformative experience of able to ‘lose himself’ in the work’s representation and stories of the artist.<sup>44</sup> Further, he said the work changed the way he perceived the square and hybrid space, as he found it exciting that the hybrid space itself was making many people point their phones at an invisible artwork - potentially changing the direction of attention for everyone in the square.<sup>45</sup> The lead-curator noted, regarding the connection between the hybrid and real space, that when the visitor ‘enters’ the work through their device, an interaction is created that allows the visitor to move around and be a part of the hybrid layer.<sup>46</sup> With regards to the curatorial challenges related to AR installations, it is presumably easier to make the location of an AR installation visible to visitors in museums, however having to download an app, or having an attached iPad with motionless imagery, can also present obstacles as shown by *Tentacle Tongue* and *Visual Ecoiophonic*.

### 4.3 Exhibiting in Virtual Spaces: *The Bone*

This subchapter delves into the characteristics of VR experiences and introduces the VR installation *The Bone*, followed by a participant observation account of the installation’s exhibition. Subsequently an analysis compares *The Bone* with a VR experience called *Viking VR* shown at the Yorkshire Museum, and in section 4.4. the analysis of *The Bone* is developed further.

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<sup>42</sup> Ibid.

<sup>43</sup> Ibid.

<sup>44</sup> Ibid.

<sup>45</sup> Ibid, 10.

<sup>46</sup> Arriado, interviewed, 6.



### 4.3.1 Characteristics of Virtual Reality

The term ‘virtual reality’ was first coined in 1983 by Jaron Lanier whose company developed the first immersive virtual reality products.<sup>47</sup> In recent decades VR has been used to describe many forms of computer generated imagery, though lately it has mostly been used in relation to VR experiences accessed through VR goggles or headsets.<sup>48</sup> Christiane Paul defines the original meaning of VR as referring to a reality that fully immerses its users in a three-dimensional world generated by a computer, allowing them to interact with the virtual objects that comprise that world.<sup>49</sup>

VR presents a more invasive use of technology as it offers a more total form of immersion than AV and AR installations, due to how the visitor is ‘inserted’, as a first technical step, into an all-encompassing virtual world, that shuts out reality or the physical surroundings. This insertion allows a psychological response, most often referred to as immersion, which gives the sensation of being inside a dream. In his book on virtual art, Oliver Grau presents how immersion has historically been linked to art and architecture.<sup>50</sup> He traces immersion in present day art and VR back to the classical world, and refers to frescos in Pompeii, and the painted ceiling of Baroque churches, as traditionally being linked to immersion as a response to realistically painted scenes.<sup>51</sup>

The most common form of interaction in VR is either carried out by moving and clicking on a handheld device that moves and activates an icon in the interface, or by tracking the head movements of the user with gyroscopic sensors, on the VR headset, that activates an action as the user locks their gaze on objects in the virtual world. After ‘insertion’ into the VR world through a headset, the visitor has now, according to Donna Haraway, become a ‘cyborg’ or a ‘pilot with a head mounted display’.<sup>52</sup>

### 4.3.2 *The Bone* - VR experience and artwork

The *Fiskepiren* exhibition was set in a ferry terminal and showed the VR installation *The Bone* by Michelle-Marie Letelier. (Ill. 10) Coming into the *Fiskepiren* exhibition visitors could see rows of chairs with people waiting for the ferry, a wooden rowing boat placed at the end of the hall facing large windows, showing a panorama view of the coastal line leading

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<sup>47</sup> Paul, *Digital Art*, 125.

<sup>48</sup> Ibid.

<sup>49</sup> Ibid.

<sup>50</sup> Oliver Grau, *Virtual Art: from Illusion to Immersion* (Cambridge, MA: MIT Press, 2007), 5.

<sup>51</sup> Grau, *Virtual*, 5.

<sup>52</sup> Chernaik, “Transnationalism,” 85.

into the fjord, and an information plaque on the wall to the right. There were two smiling visitors sitting in the boat, wearing VR headsets, and were clearly engaged in an interactive world as they interchangeably looked up, down, and to their sides.

The information plaque, the SCB website, the catalogue, and the app all describe the work briefly and include a screenshot of a computer-generated imagery of a seascape. Therefore, before putting on the VR headset it seemed as if visitors were invited to soak in the stern atmosphere of the sea, and to enter a pre-exhibit mental space where they could ‘extend’ their senses into the fjord to feel more bodily present in the virtual space they were about to enter. One visitor was observed looking thoughtfully out at the fjord, while waiting in line for the experience. After having sat down in the boat and mounted the VR headset, the visitors were immediately inserted in a dark blue ocean scene where they moved forward in a rowing boat. A range of factors could intensify the physical embodiment in the virtual world. Among them was the HD graphics used to render the seascape, physically sitting in a similar boat to the virtual version or having prior to the ‘insertion’ looked at the coastal landscape through the windows and connected it to the virtual seascape.

The boat in the VR simulation ‘rowed’ the inserted visitor towards some type of dark creature with shining eyes. The visitor was then swooped inside the creature and sunk rapidly down to the bottom of the sea. At this point it should have become apparent that the creature was the skull of a salmon, as the visitor was now inside it, looking at the surrounding water through its eye sockets. (Ill. 10) Then, ‘monologues’ of wild and farmed salmon bred in captivity started playing, and the ‘salmon’ told stories from their lives and reflected upon their own existence. This VR experience used the form of interaction where head movement sensors were used, instead of handheld devices. When the visitor looked up at shining otoliths\*, while holding their gaze steady, the next monologue started.<sup>53</sup> This action was the most intervening form of interaction in this VR experience, whereas the other forms of interaction were: listening to monologues and shifting the gaze around to explore the virtual world. One visitor held on tightly to the sides of the boat while interacting with the VR experience. Perhaps the feeling of being pulled swiftly down to the bottom of the sea felt so realistic, that she momentarily felt as if she could fall into the sea.

*The Bone* lasted for about fifteen minutes, and afterwards visitors were free to either read the text panel, sit down, look out to the coast or behind to the people waiting for the

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<sup>53</sup> \* Otoliths are a kind of crystal in the inner ear of vertebrates that functions as an indicator of gravity, balance, direction, and movement indicators.

ferry, or to discuss the work with other visitors. After the visitor, who held tightly onto the boat, emerged from the experience, she commented on a feeling of sea legs and said it felt amazing to be inside the virtual world.

### 4.3.3 Comparative analysis: *Viking VR* and *The Bone*

This section discusses two VR installations, *The Bone* and *Viking VR*, and models all spaces implemented in them in Venn diagrams. With regards to interpreting museum objects, Eilean Hooper-Green outlines how objects are interpreted through ‘reading’ by using the gaze, which allows a broader sensory experience to take place.<sup>54</sup> In a VR experience this ‘reading’ is facilitated through a simulated experience, however VR ‘installations’ are usually comprised of more objects and spaces than simply a VR headset and one isolated virtual space. Similar to how exhibits in museums are often planned to have a connection to one another, a VR experience is often planned to be experienced in relation to the surrounding space of the exhibition.

The VR experience itself happens in an isolated virtual space, and it is in this space that visitors’ interaction and immersion take place. Thus, the virtual space becomes an exhibition element on its own and is often planned to function in relation to the surrounding space and elements within it. As mentioned earlier, viewing space as being both psychological and physical at the same time is a strategy that allows analysis of the all spaces implemented in exhibitions, with immersive virtual or audio-visual experiences, and how these spaces engage visitors. The pre-exhibit, mid-exhibit, and post-exhibit mental space of the visitor becomes even more important, as the mid-exhibit space happens within an isolated space and is therefore easier to view in contrast to the surrounding space. The Venn diagram below of the *Fiskepiren* exhibition gives an overview of the what spaces and elements are implemented in it.

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<sup>54</sup> Eilean Hooper-Greenhill, *Museums and the Interpretation of Visual Culture* (London and New York: Routledge, Taylor & Francis Group, 2000), 119.

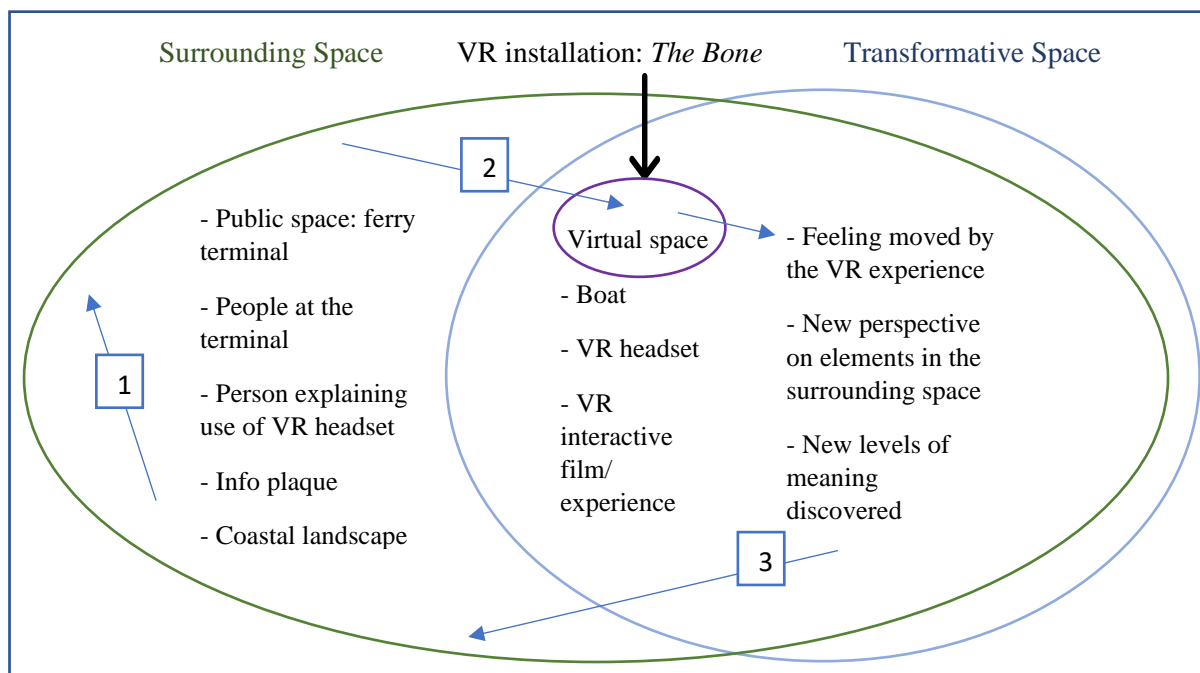


Figure 5. Showing a Venn diagram with an overview of the spaces, and the visitor's movement and reflective stages, within the exhibition containing the VR installation *the Bone*, 2019, Michelle-Marie

The diagram above shows the visitor entering the ferry terminal shown by arrow number one, transitioning into the virtual space and VR experience shown by arrow number two, and the transformative space where reflections develop and become crystallised after having engaged with the VR experience shown by arrow number three. Before analysing the surrounding, virtual, and transformative space of *The Bone*, *Viking VR* is introduced, along with a Venn diagram showing the spaces implemented in.

In 2017 the Yorkshire Museum carried out a project with an interdisciplinary team mostly made up of professors<sup>55</sup> to create a VR experience called *Viking VR* as a part of the exhibition *Viking: The Revival of the Legend*.<sup>56</sup> *Viking VR* showed three everyday scenes of how Vikings are thought to have lived in York, with one scene per custom-built headset in the form of wooden masks.<sup>57</sup> (Ill. 25) The VR installation included a white and red striped tent,

<sup>55</sup> From the University of York: Guy Schofield and Jonathan Hook from the Department of Theatre, Film and Television, Gareth Beale and Nicole Beale from the Department of Digital Creativity Labs, Julian Richards from the Department of Archaeology, Lewis Tresh from the Department of Electronic Engineering. From the University of Sheffield: Dawn Hadley from the Department of Archaeology. From the Yorkshire Museums Trust: Martin Fell.

<sup>56</sup> Guy Peter Schofield, et al., (2018) *Viking VR : Designing a Virtual Reality Experience for a Museum*, in: DIS 2018 - Proceedings of the 2018 Designing Interactive Systems Conference, ACM DIS Conference on Designing Interactive Systems 2018, 09-13 Jun 2018 Association for Computing Machinery (ACM), HKG, pp. 805-816, accessed Apr 12, 2020, [http://eprints.whiterose.ac.uk/129158/1/vikingvr\\_preprint.pdf](http://eprints.whiterose.ac.uk/129158/1/vikingvr_preprint.pdf), 805.

<sup>57</sup> Schofield, et al., "*Viking*," 805, 806.

and inside it had a wooden floor and barrels with VR masks on top. The Venn diagram below designates the central elements and spaces that make up *Viking*

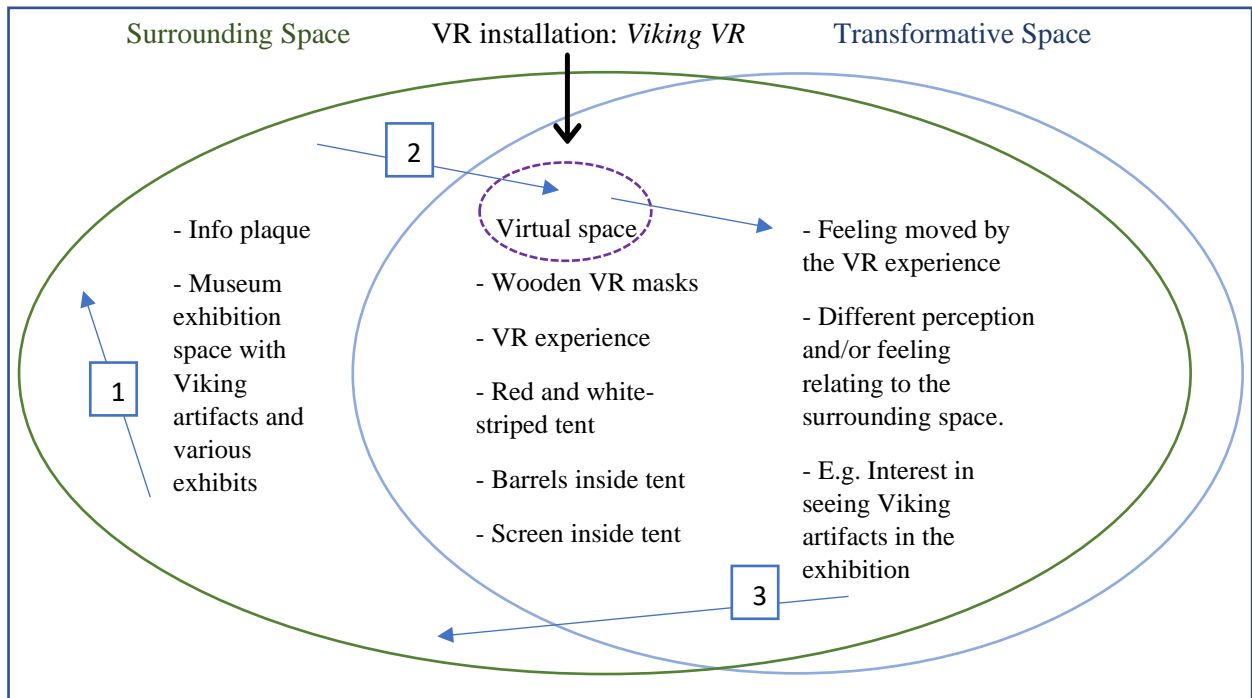


Figure 6. Showing a Venn diagram with an overview of the spaces, and the visitor’s movement and reflective stages, within the exhibition containing the VR installation *Viking VR*.

As we have seen, the surrounding exhibition space is where the visitor might enter a pre-exhibit mental space where they reflect on the VR experience, they are about to enter, whilst ‘reading’ the exhibition space. (Fig. 5, 6, arrow 1) In contrast to *The Bone*, *Viking VR* was set in a museum, as opposed to an indoor public space, but the curators of both VR installations facilitated a dialogue between the exhibition spaces, surrounding the VR experiences, and the pocket of virtual space created by the VR experience. The isolation of the virtual spaces is represented by purple circles in the diagrams.

An example of how a visitor might, within a pre-exhibit space, connect the elements in the surrounding space to the virtual space in a VR experience they are about to enter, such as *The Bone*, can be seen in the participant observation where the boat and the view to the fjord acted as potential preparatory and reflective tools to feel more physically embodied in the simulated seascape. (Fig. 5, arrow 1, Ill. 10) With regards to the surrounding space, the interdisciplinary team behind *Viking VR* asked how they could relate the VR exhibit to the exhibition spatially, and how visitors could transition from familiar exhibition spaces into a

virtual space.<sup>58</sup> Similar to the role of the boat and coastal landscape in *The Bone*, the tent and wooden barrels in *Viking VR* designated the location of the virtual space within the exhibition, which was meant to help the visitor transition into the virtual space and prepare to engage with a digital space.<sup>59</sup> (Fig. 6, arrow 2) The AR installation *Visual Ecoiophonic* also had a physical structure designating its location, and *Tidal Pulse II* had a boat defined as its interactive exhibition space. Perhaps when exhibiting AR installations in public space, a potential implication could be to follow a similar strategy used for VR and AV installations, as a more exhibit-like physical structure might have helped visitors locate *Tentacle Tongue* in the city square.

With regards to the surrounding and pre-exhibit space of *The Bone*, visitor B noted that she liked the contrast of the artwork to everyday surroundings, however she noted that if it had been exhibited by the sea, it would not have contributed to the work.<sup>60</sup> This is an interesting finding, as the sea could be seen through the windows, but must not have been a memorable part of her experience. Instead she found the contrast offered by the public space more meaningful, which shows how the curatorial strategy of letting visitors connect the artwork to the coastal landscape themselves, allowed this visitor to intuitively disregard the connection.<sup>61</sup> (Fig. 5, arrow 1) The co-curator of the SCB mentioned that putting a boat and a VR artwork into a public space created a disruption in peoples' everyday lives, which relates to this contrast mentioned by visitor B.<sup>62</sup> Visitor C described the VR headset as representing the novelty of VR experiences, which shows how VR headsets can potentially impede a visitor's transition into a virtual space. (Fig. 5, arrow 2) When visitor A was asked if the location of *The Bone* affected his experience, he answered that he found the setting and place interesting, as it had a sculptural element to it.<sup>63</sup> Further, he finds it important to create a connection between virtual and surrounding spaces, and he noted that a virtual space should be engaged early.<sup>64</sup> When asked what methods they used to create a dialogue between virtual and real space in the exhibition showing *The Bone*, the lead curator confirmed this visitor's opinion and described that it was important to start the dialogue between the spaces early,

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<sup>58</sup> Schofield, et al., "*Viking*," 808.

<sup>59</sup> Ibid.

<sup>60</sup> Ekström, interviewed, 5. (S.E.Q.4, 108)

<sup>61</sup> Ibid.

<sup>62</sup> Saracino, interviewed, 11.

<sup>63</sup> Luciani, interviewed, 8. (D.L.Q.6, 106, 107)

<sup>64</sup> Ibid.

which is why Joik, sung by a Sámi musician, played inside the VR experience and also at the entrance of the ferry terminal.<sup>65</sup>

To aid the transition of the visitor into the virtual space and mid-exhibit space, the curators and the artist created a “tactile environment”, where the wooden boat permitted the visitors to enter the virtual space through a material and specific context.<sup>66</sup> (Fig. 5, arrow 2) The co-curator stated that “when you work with public space, the city cannot just be a background,” which is why they started early thinking about what place in Stavanger would offer the “strongest dialogue” with *The Bone*.<sup>67</sup> On the topic of transitioning into the virtual space, visitor A, who thought it was important to start a dialogue early, said:

It is important to never forget the spaces around, in order to correlate the virtual experience to some degree of physicality. Otherwise, it would be blindly devoted to the virtual world, and forgetting our capacity of sensing or believing it. I think that is one of the difficulties of the connection between the physicality and the virtuality of the work is the matter of trust towards the virtual elements. I guess that helping with the plasticity of materials enables the viewers to believe in it, even the virtuality. To make it more plausible.<sup>68</sup>

Davide Luciani

The quote above leads us into the analysis of the virtual space created by VR installations. As mentioned earlier, the virtual space acts as an independent exhibit, due to how the virtual space in VR creates a pocket of enclosed space that momentarily shuts out the surrounding space when the visitor is ‘inside’ the virtual world. The virtual space created by VR is a highly interactive, and perhaps by default an engaging space, as it only appears when the visitor actively engages with the installation by putting on a headset, thus ‘inserting’ themselves into the immersive experience. This leads the visitor into a psychological mid-exhibit space where the feeling of immersion might arise. It is in the virtual space where the interpretive experience takes place, catalysed by storytelling, visual narratives, and virtual objects. In contrast to the motionless 360-degrees image and the subtle sounds of ‘daily life’ heard in *Viking VR*, (Fig. 6, Ill.25) one hears ‘monologues’ from different salmon in *The Bone* and the underwater scene changes colour according to changing sunlight ‘above’. (Fig.

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<sup>65</sup> Arriado, interviewed, 5. (D.A.Q.4, 102, 103)

<sup>66</sup> Ibid.

<sup>67</sup> Saracino, interviewed, 11.

<sup>68</sup> Luciani, interviewed, 8. (D.L.Q.5, 105, 106)

5, Ill. 10) The aim of the team behind *Viking VR* was to explore VR entering into curatorial practice as a storytelling tool, which *The Bone* can be said to achieve in a more literal sense. However, the option for the visitor to change from one monologue to the next can present a dilemma, as visitors might feel compelled to interact, even though they still want to hear all monologues.

One visitor said that the most engaging aspect of the VR experience was the stories told, however he found the interaction of switching to the next monologue disruptive to his experience,<sup>69</sup> which is an interesting counterpoint to Marcello Carrozzino and Massimo Bergamasco's finding that the more immersive and interactive the VR experience was, the more frequent was the feeling of presence in the virtual world reported.<sup>70</sup> These findings were the result of their 2010 study, in which they developed and tested six different VR experiences in museums.<sup>71</sup> Their research concluded that VR acts as a great tool for education and storytelling.<sup>72</sup> With regards to *The Bone*, the findings from the observation and interviews, in which visitor A and B reported that they enjoyed the stories within the experience the most, support the notion that VR can indeed act as an engaging storytelling tool.<sup>73</sup> (Fig. 5, arrow 2)

As opposed to *The Bone*, visitors interacted with *Viking VR* by holding the VR mask in front of their eyes like binoculars and moving the upper body or the whole body around to see a still 360 degrees image. The team behind *Viking VR* investigated how the VR experience could be social and not isolated, despite this isolation being a main characteristic of VR. Their solution to this issue can be observed in how the VR masks were designed to be hand-held and flat. (Ill. 25) Not fully 'inserting' users in virtual space, was meant to allow socialising while engaging with the virtual imagery, however the lack of full 'insertion' made the exhibition space visible in visitors' peripheral vision, consequently jeopardising the immersive response to the virtual scenes. Thus, the implication of prioritising the possibility of being social while engaging in a virtual space is a potential lower degree of immersion, subsequently making the VR experience into a partly social and partly intimate encounter. The hybrid state of being present in the virtual and surrounding space at the same time, is

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<sup>69</sup> Ibid, 6.

<sup>70</sup> Marcello Carrozzino and Massimo Bergamasco, "Beyond Virtual Museums: Experiencing Immersive Virtual Reality in Real Museums," *Journal of Cultural Heritage* 11, no. 4 (2010): pp. 452-458, 453.

<sup>71</sup> Carrozzino and Bergamasco, "Beyond," 453.

<sup>72</sup> Ibid, 453.

<sup>73</sup> Ekström, interviewed, 4. (S.E.Q.3, 108) and Luciani, interviewed, 7.



shown by the dashed purple circle around the virtual space in the *Viking VR* Venn diagram. (Fig. 6, arrow 2)

The after-exhibit reflective stage, where feelings and thoughts developed while engaging with the exhibition might become crystallised as a part of the visitor's transformative experience, is highly variable and individual. (Fig. 5, 6, arrow 3) The transformative experience relating to VR installations is conditioned by the visitor's initiative to 'insert' themselves into the virtual space and the resulting degree of immersion: how present and engaged they felt inside the experience.

Visitor A and B described their transformative experiences of *The Bone* in a rather similar way. Visitor A realised that through being detached from the "physical realm", he experienced a higher degree of consciousness.<sup>74</sup> Visitor B described a transformative experience characterised by giving her a change of perspective, and a feeling of being "disintegrated" and of "losing oneself" in the virtual world, which is highly reminiscent of the experience of visitor A.<sup>75</sup> Visitor C, who found the novelty of putting on a VR headset a bit alienating, added that he typically experiences VR as disorienting, which is useful in highlighting the issue of VR leading to a feeling of vertigo or nausea for some people.<sup>76</sup> His account of the experience presents how disorientation can affect whether the visitor has a transformative experience after having been inside a virtual space. Visitor B experienced a highly intimate encounter with the virtual object, deduced from her description of how the VR experience gave an identity to the salmon, which made her "feel very close to the beast."<sup>77</sup> (Fig. 5, arrow 3)

Moser states how a visitor's response to the types of spaces, in which they see displays presented, can be "transferred" to the subject being treated in the display, we see that this is indeed relevant to all the analysed SCB installations.<sup>78</sup> This is shown in how the subject of the artworks themselves are related to the virtual, hybrid, or audio-visual nature of their media. For example, *The Bone* utilised the characteristic of VR, being able to offer an intimate encounter that can make visitors leave behind their ego, to encourage an empathetic response to the salmon.

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<sup>74</sup> Luciani, interviewed, 6. (D.L.Q.4, 105)

<sup>75</sup> Ekström, interviewed, 5. (S.E.Q.5, 108, 109)

<sup>76</sup> Sacramento, interviewed, 4. (N.S.Q.3, 109)

<sup>77</sup> Ekström, interviewed, 4, 5. (S.E.Q.3, 108)

<sup>78</sup> Moser, "THE DEVIL," 25.

By thinking of multimedia as a material form of expression, however, it might be possible to open up a space for thinking about multimedia displays in ways that go beyond the offer of a further information point, such as a touchscreen interactive or Web site. The advantage is that we can begin to recognise the ways in which multimedia installations in museums can enhance what a number of writers are beginning to refer to as the “affective” possibilities of objects. This entails a recognition of the way in which objects, and in my argument multimedia installations are able to engage emotions and in the process produce a different kind of knowledge – one that embodies in a very material way, shared experiences, empathy, and memory.<sup>79</sup>

Andrea Witcomb

Witcomb notes, in her 2010 paper quoted above, that for multimedia to reach its potential as a ‘material’ expression with “affective” properties, multimedia should be created and thought of as independent art objects.<sup>80</sup> Now, in 2020, it seems that museum professionals, exemplified by *Viking VR*, the ‘interactive meeting places’, and *Visual Ecoiophonic*, are starting to see the ‘virtual’, ‘hybrid’, and ‘immersive audio-visual’ form of expression, created by these multimedia installations, as able to produce affective responses. It is no longer only material objects that can ‘move’ people, as we see in *The Bone*. Virtual characters and objects can produce empathetic responses, similar to how fictional characters in movies and books can spur sympathetic responses. Recognising the ‘virtual’, ‘hybrid’, and ‘immersive audio-visual’ aspect of immersive multimedia installations as ‘a new approach to thinking about the impact of multimedia in museums’, allows us to analyse how these new immaterial spaces relate to their physical surroundings. Whether visitors being moved by intimate and simulated encounters is a positive development for museums, is up to the reader, but the analyses in this chapter show how such encounters can indeed be memorable and offer transformative experiences. Ethnographic, history, and natural history museums might benefit especially from new tools to encourage empathy towards stories, people, or animals, from the past and present.

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<sup>79</sup> Andrea Witcomb, “Materiality of Virtual Technologies: A New Approach to Thinking about the Impact of Multimedia in Museums,” in *Theorizing Digital Cultural Heritage: A Critical Discourse*, ed. Fiona Cameron and Sarah Kenderdine (Cambridge, MA: MIT Press, 2010), 36.

<sup>80</sup> Witcomb, “Materiality,” 35-37.

## 4.4 ANT Analysis of *The Bone*

If we ‘translate’ the *Fiskepiren* exhibition as a ‘punctualised’ actor, to use Actor-Network Theory terminology, into a network of interactions between various actors, all exhibition elements that could potentially generate effects of agency for the visitor are revealed. ANT defines a ‘punctualised’ actor as a simplification of a network, made of heterogeneous bits and pieces, into something that passes as a single actor.<sup>81</sup> The concept of a ‘heterogeneous’ environment presents society, machines, and agents, as effects generated in patterned networks of diverse materials, not only humans.<sup>82</sup> ANT was primarily concerned with the mechanics of power relations, how certain actors maintain power through a network of actors, and how resistances are kept under control.<sup>83</sup> However, ANT can be transferred to museology and cultural heritage for the purpose of exhibition analysis. ANT allows the surrounding and virtual space presented in the Venn-diagram to be populated with possible interactions between the VR installation and the visitor. (Fig. 5)

Thus, if we analyse *The Bone* as a punctualised actor and ‘translate’ it, meaning that the actor is ‘revealed’ as a network containing many actors arranged in an interactive structure, it is possible to visualise how knowledge is produced in the heterogenous network within the *Fiskepiren* exhibition.<sup>84</sup> ANT uses strategies of translation to determine how the ‘work’ of all the networks that make up the punctualised actor is used, borrowed, or, profited from, to generate effects of agency, organisation, and power, and furthermore how resistances are overcome.<sup>85</sup> When this ‘strategy of translation’ is used for the purpose of analysing the *Fiskepiren* exhibition, one can ask: How are the effects of all the networks that make up the exhibition used to generate effects of agency for the visitor? When visualising all elements that are facilitated for the visitor and VR experience to interact with, one gets a clear image of all the ways a visitor can interact with the exhibition. Moreover, we can see what interactions that could possibly inform the visitor’s experience and interpretation of the work. The following diagram presents the actors that the exhibition is made up of and reveals the network which the *Fiskepiren* exhibition as a punctualised actor is comprised of. We see a

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<sup>81</sup> John Law, “Notes on the Theory of the Actor Network: Ordering, Strategy and Heterogeneity,” *Centre for Science Studies*, Lancaster University (2003), <http://www.comp.lancs.ac.uk/sociology/papers/Law-Notes-on-ANT.pdf>, 2.

<sup>82</sup> Law, “Notes,” 2.

<sup>83</sup> Ibid, 1.

<sup>84</sup> Ibid, 2.

<sup>85</sup> Ibid, 6.

hypothetical visitor and the VR experience as central actors. The interactions between these two actors, and the surrounding space, is mapped onto the diagram.

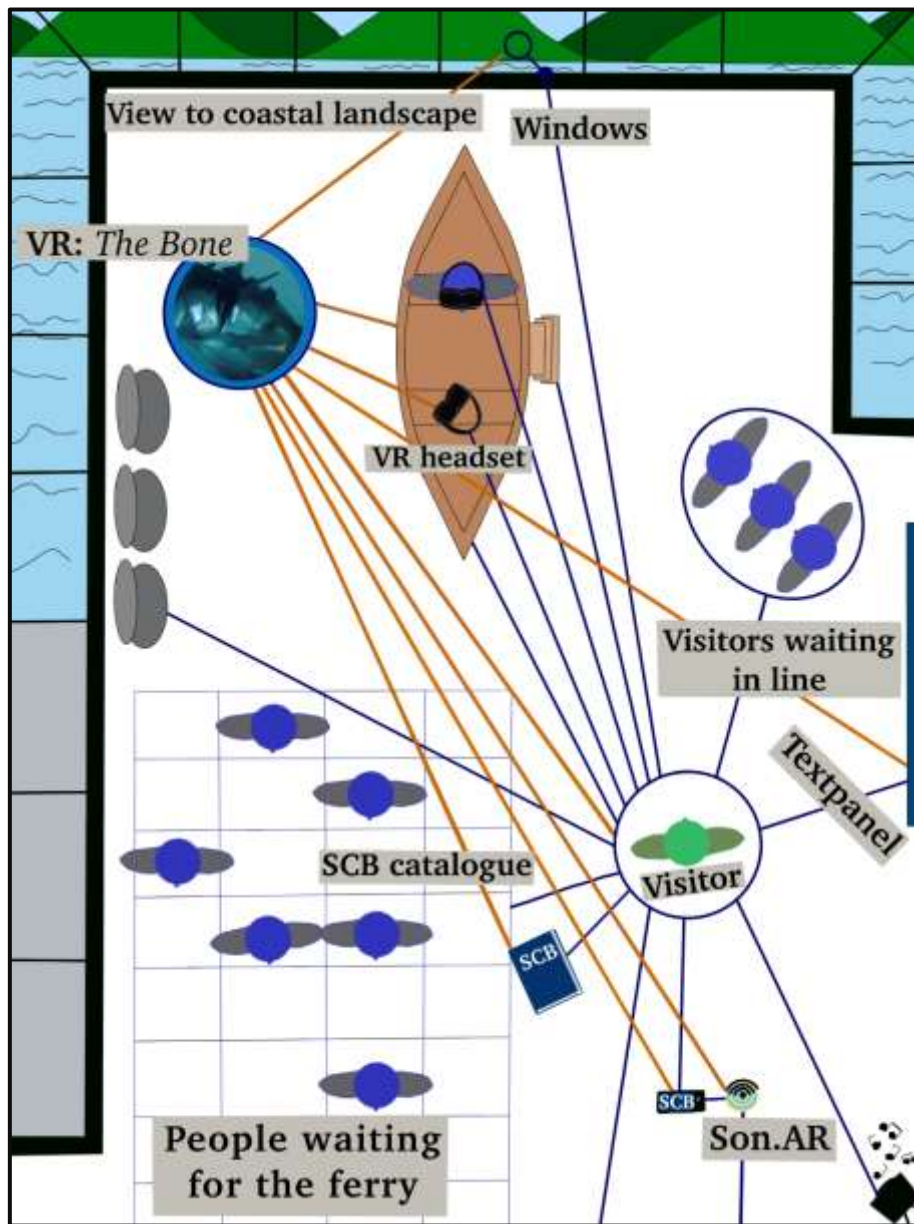


Figure 7. Diagram showing the network of interactions that the *Fiskepiren* exhibition, hosting *The Bone*, is made up of.

As mentioned earlier, what makes the *Fiskepiren* exhibition interesting as a case study to better understand how an exhibition with a VR installation can be planned, is the fact that there is only one exhibit in the exhibition. This created the opportunity to investigate how the exhibition can facilitated meaningful interactions in virtual space, that related to the theme of the exhibition and the surrounding space. In contrast to the Venn diagrams, the ANT diagram shows how the visitor and VR experience is connected to the mediation program, as well as the virtual and surrounding space. According to the diagram, the possible interactions a

hypothetical visitor can perform in relation to *The Bone* and the surrounding space are:

(shown by dark blue lines in Fig. 7)

- Starting the experience of the exhibition before arriving on-site through reflecting over expectations or through using the catalogue map or Son.AR app to guide them with a map or sound. (Ill. 4, 5)
- Listening to Joik music playing by the entrance of the ferry terminal.
- Reading about the work using the catalogue, website, Son.AR, or text panel.
- Looking at people waiting for the ferry or people standing in line.
- Observing visitors interacting with *The Bone*.
- Looking through the windows to the coastal landscape, potentially while reflecting on the work.
- Understanding that one needs to enter the boat, as there are stairs on one side and headsets placed in the boat.
- Experiencing *The Bone* through a VR headset.
- Sitting on the chairs to the left to rest or reflect on the work.

The possible interactions between the VR experience *The Bone* and the visitor and surrounding space are: (shown by orange lines in Fig. 7)

- Being read about in the catalogue, website, Son.AR app, and text panel.
- Being reflected on by the visitor.
- Being placed in connection to the boat to make visitors feel more embodied in the virtual space.
- Being experienced through a headset.
- Relying on the visitor to put on the headset to be able to appear.
- Rendering images in real-time according to the visitor's head movements.
- Being placed in connection to the coastal landscape through windows, to make visitors feel more embodied in the virtual space, and to relate to the subject of VR experience.

The diagram also gives an example of how the curators facilitated dialogues between traditional exhibition elements, such as text panels, catalogue, material objects, and virtual elements: mediation apps, VR experience, and the website. What resulting experience the visitor has is highly individual in any exhibition, however the diagram reveals what structures have been put in place to make the exhibition create effects of agency on the visitor.

As we have seen the comparative analyses in this chapter, immersive AV, AR, and VR experiences can ‘expand’ exhibitions by creating either an audio-visual or hybrid layer over physical space, or a virtual pocket of space, which can all transport visitors into a transformative space where they find new layers of meaning or interest in the exhibition. The visitor experiences described in the interviews and the producers’ curatorial strategies present many approaches and challenges that emerge regarding curating in ‘loose’ spaces.

Potential issues with regards to the surrounding spaces of an AV, AR, or VR installation revolve around effectively transitioning visitors into an audio-visual, hybrid, or virtual space. In the analysis of the AR installation *Tentacle Tongue* this issue was exemplified in how two of the visitors did not transition into the hybrid space, due to the trigger image blending into the urban architecture, thus not being recognisable enough as the ‘entry’ of an exhibition and installation. Another potential issue is whether or not visitors connect artefacts or elements, exemplified by the connection between the Viking age artefacts in *Viking VR* and the coastal landscape in *The Bone* with narratives or themes presented in the virtual spaces. The analysis of the virtual spaces in VR installations show that the issue of the VR experience being isolated or social, presents another curatorial challenge that has not yet been fully resolved. However, the ‘sprawling’ exhibitions analysed in this chapter have presented a multitude of ways in which AV, AR, and VR installations can be used to create engaging spaces.

## Chapter 5

### Implication Analysis: The SCB and Immersive Experiences for Museums

This chapter presents an implication analysis of the Screen City Biennial’s mediation program, and the three exhibitions presenting *The Bone*, *Tentacle Tongue* and *Tidal Pulse II*, through employing Gail Dexter Lord’s museum-specific evaluation criteria for evaluating museum exhibitions. Museum-specific criteria are chosen as an analytical tool, due to them being implied in planning processes of museum exhibitions, which is useful when one attempts to generate knowledge valuable for the field of museology.<sup>1</sup>

Gail Dexter Lord outlines five criteria for evaluating museum exhibitions, which he sees as being inherent. They are; creation of new knowledge, transformative experiences, self-directed experiences, engagement with the full diversity of visitors, and transparency as to the sources of the viewpoint of the exhibition.<sup>2</sup> These criteria allow us to read the SCB through museological glasses, while discussing potential implications that have surfaced in the analyses, with regards to curating exhibitions, in museums and public space, using immersive virtual experience and audio-visual experiences as exhibits. Lord notes that “in this interdisciplinary age, it is the very combination of research fields that yields new knowledge”, further he states that this can be achieved by juxtaposing for example art, museum objects, and archival materials.<sup>3</sup> What implications do strategies to create new knowledge employed in the SCB’s mediation program and exhibitions present for the field of museology and cultural heritage?

The SCB’s mediation program combined virtual and material resources, and navigation with the possibility of having an aesthetic experience while orientating. Utilising new technology to merge practical tools with aesthetic experiences, might present implications for how museums can create new experiences, with regards to orienting through museums or public spaces.

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<sup>1</sup> Duncan Grewcock, “Before, During and After: Front-End, Formative, and Summative Evaluation” in *Manual of Museum Exhibitions*, 2nd ed, ed. Barry Lord and Maria Piacente (Lanham and Plymouth: Rowman & Littlefield, 2014), 33.

<sup>2</sup> Gail Dexter Lord, “Museum-Specific Evaluation Criteria” in *Manual of Museum Exhibitions*, 2nd ed, ed. Barry Lord and Maria Piacente (Lanham and Plymouth: Rowman & Littlefield, 2014), 28, 29.

<sup>3</sup> Lord, “Museum,” 28.

An example of potential implications offered by the SCB's exhibitions can be presented with the *Fiskepiren* exhibition displaying *The Bone*. This exhibition combined storytelling, technology, art, and public space to create new knowledge on the topic of cultivation of bred salmon. Several visitors said it was the storytelling that kept them engaged, and that the set-up with the boat and unexpected exhibition venue helped them transition into the virtual space. For exhibition planners seeking to use a VR installation as an exhibit in a museum or public space, these notions may present implications with regards to including storytelling, in the form of audio, and thinking about materials that can help visitors suspend their disbelief when entering into the virtual space.

On the topic of transformative experiences Lord describes the temporal-spatial quality of exhibitions as being what encourages surprise, new values, and ideas on part of the visitors.<sup>4</sup> He also states that the temporal-spatial experience of exhibitions places pre-existing ideas in a new context.<sup>5</sup> In relation to the SCB, one can ask; how did the exhibitions, with the VR, AR and audio-visual experience, use time and space to create transformative experiences for its visitors?<sup>6</sup> With *The Bone*, it seems to have been the total immersion as a response to the enclosed virtual space, created by the VR installation, that catalysed the visitors experiences of "loosing oneself" and a higher degree of consciousness.<sup>7</sup> This presents virtual space, and the time allocated, to be the temporal-spatial quality of VR installations that facilitate transformative experiences.

An implication of curating exhibitions in public space or museums that include immersive experiences is how technology can set potential limitations and create certain opportunities that in turn may affect visitor's transformative experiences? The potential disorientating effect of VR in its presents form sets limits to the amount of time a visitor can be 'inserted' in the experience, whereas AR can be engaged with for much longer periods of time as the visitor is then present in physical space and interacts with virtual imagery through more familiar devices than VR headsets. However, when describing *Tentacle Tongue* visitor A said he saw only being able to see the imagery through a little screen as a limitation.<sup>8</sup> An immersive audio-visual installation,

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<sup>4</sup> Ibid, 28.

<sup>5</sup> Ibid, 28.

<sup>6</sup> Ibid, 28.

<sup>7</sup> Saara Ekström, interviewed by Silje Anette Teigen, phone call, June 04, 2020, 3. and Davide Luciani, interviewed by Silje Anette Teigen, videocall, May 12, 2020, 6.

<sup>8</sup> Luciani, interviewed, 9.



on the other hand, that seeks to ‘expand’ physical surroundings through sound, allows an interpretive experience of physical space devoid of simulated imagery. As *Tidal Pulse II* showed, this permitted the experience to last three hours and implement a part of a fjord into the visitor’s transformative experiences. Thus, immersive AV experience present opportunities for mediating various forms of cultural heritage in innovative ways, in public space, without spending a lot of money on advanced technology. AR also facilitates interaction with large sections of public space. However, their ‘invisible’ quality implicates the need for highly overt mediation to make it easy for visitors to locate trigger images.

The third criterium listed is self-directed experiences, which relates to John and Lynn Dierking’s description of museum exhibitions as “free choice learning environments”.<sup>9</sup> Lord proposes asking “how has this exhibition adapted its content to the many different ways that visitors may wish to experience it?”. The curators of the SCB facilitated self-directed experiences through their mediation program and exhibitions. The mediation program revolved around connecting layers of mediation related to all the different types of spaces the visitors occupied at the biennial and before their arrival. Their approach was twofold, meaning that all information and navigation tools were presented in virtual and material formats. This was a strategy implemented to reach all visitors through their preferred means of communication.

In several of the SCB’s exhibitions, the curators facilitated subtle connections between the surrounding spaces and the artworks, that were not articulated through the mediation platforms. In the case of *The Bone* the work’s connection to the coastal landscape, seen through the windows, was not stated on the text panel, website, or app, which allowed visitor B to not notice the link. This permitted directing her attention to the characteristic of the surroundings being a public space, which created a contrast that contributed to her transition into the virtual space. With *Tentacle Tongue* the connection of the trigger poster to the commercial setting, it was put in, did not create the contrast the previous visitor mentioned with regards to *the Bone*, subsequently making the artwork invisible to her. Thus, an implication for creating self-directed experiences in relation to AR and VR in museums or public space is the negotiation of a balance between the visitor locating the work easily, while not overstating the associations the visitor

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<sup>9</sup> Lord, “Museum,” 28.

could potentially make between the installation and its surroundings, in order to facilitate self-directed experiences.

Concerning the criteria of engagement with the full diversity of visitors, Lord asks: does this exhibition engage effectively with diverse audiences?<sup>10</sup> With regards to connecting the exhibition locations, deepen visitor's experience, but also in relation to accessibility, the SCB used the app, Son.AR, and its augmented sonic map to guide visitor's navigation, using sound and spatial localisation technology that has not been attempted earlier in exhibitions.<sup>11</sup> One of the app designers imagines that using augmented sonic maps, where visitors can see the route and be lead to the location, through sound and interactive maps that react the visitors movements, can improve accessibility of exhibitions for people who have hearing or vision impairments.<sup>12</sup> Using an app or website with an interactive map that creates routes from where the visitor stands to the artwork or museum object, could potentially have implications for museums or art and culture organisations that display sculptures or objects/buildings relating to cultural heritage in public space.

The last criterium Lord mentions is transparency as to the sources of viewpoint of the exhibition, and he asks; to what degree has the exhibition revealed its sources and encouraged critical thinking?<sup>13</sup> In laying out the concept of the biennial the curators were clear about how their aim was to present art that enquires into creation of knowledge that could lead towards a more sustainable future, and further how "human action affects the ecologies with which it is implicated."<sup>14</sup>

Another form of transparency used at the SCB was the information on whether an artwork is commissioned by the curators or not, however they did not clarify to what degree they were involved in collaboration with the artists. The commissions allowed the curators to collaborate with the artists to create artworks that would create meaningful dialogues with their surroundings. For example, the artwork *Tidal Pulse II* was commissioned, and through close

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<sup>10</sup> Ibid, 29.

<sup>11</sup> Luciani, interviewed, 2, 3.

<sup>12</sup> Ibid, 4.

<sup>13</sup> Lord, "Museum," 29.

<sup>14</sup> *Screen City Biennial*, Screen City Biennial 2019 Ecologies – Lost, Found and Continued, Edited by Daniela Arriado (Stavanger: Screen City Biennial, 2019), exhibition catalogue, 21, 22.

collaboration the curators helped with conducting interviews for the monologues and they were involved with choosing a route that would go past bred fish being cultivated in the fjord. The co-curator said this gave them the chance to tie together messages from the whole biennial.<sup>15</sup>

The potential implications, for museums who want to create similar immersive experiences as catalysed by exhibitions at the SCB, is the opportunities that collaboration between artists, curators, museum, and cultural heritage professionals can offer. In a similar way to how combining art and museum objects can create new knowledge, collaboration between curators specialising in curating new media, artists using VR, AR, or AV installations as their media, and museums and cultural heritage professionals can create new knowledge through combing their expertise. Cross-disciplinary collaboration can create a platform for innovative curating, as shown by the SCBs collaboration with artists and the interdisciplinary team behind *Viking VR*. In conclusion, utilising the strengths of different disciplines in collaboration can potentially have implications for the creation of new curatorial and artistic strategies to create meaningful dialogues between artworks, museum objects and research, and surrounding exhibition spaces.

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<sup>15</sup> Vanina Saracino, interviewed by Silje Anette Teigen, videocall, May 15, 7.

## Conclusion

As we have seen in this thesis, VR, AR, and immersive AV installations, their forms of interaction and immersion, and creation of virtual, hybrid, and ‘expanded’ real space, can engage visitors in different ways than interpretive aids. In section 1.1 a question was posed with regards to whether VR and AR could function as modern forms of simulation for the purpose of offering interpretive experiences, that could be experienced as enchanting and novel in similar ways to the Renaissance studiolo and curiosity cabinet. Visitor B described *The Bone* as mesmerising and ‘luring’ her in, and the virtual space as monumental, despite providing an intimate encounter.<sup>1</sup> Visitor A described it as exciting and cinematic,<sup>2</sup> and visitor C defined it as playful, disorientating, and a novelty.<sup>3</sup> It is up to the reader to decide if these descriptions present the immersive experience provided by VR installations in exhibitions as the ‘modern’ chamber of curiosities or studiolo, however the visitors’ descriptions show how VR can offer highly individual experiences that only reveal themselves to visitors who choose to engage with them, similar to how the chamber of curiosities invited the viewer to open them.

We have seen how space can be conceptualised in a complex and layered manner. By employing a loose approach to semiotics and discussing space as something physical and psychological, the role of the visitor in exhibition spaces - with virtual, hybrid, and ‘expanded’ real space - as an active participant creating their own self-directed experience becomes apparent. The three reflective stages of interpretation were used as analytical tools to analyse the tension between the visitor, installations, and their surrounding spaces. They were also indirectly applied to the formulation of the interview guides to reveal what reflections the visitors had regarding their experiences of the AV, AR, and VR installation, and how the visitors’ interactions conditioned the presence and visual/reflective output of the installations themselves.

In the coming years immersive virtual experiences, and perhaps immersive audio-visual experiences, are likely to be popular and give many visitors a new type of museum experience. The field of digital cultural heritage would benefit from accumulating more research into how

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<sup>1</sup> Saara Ekström, interviewed by Silje Anette Teigen, phone call, June 04, 2020, 4, 5.

<sup>2</sup> Davide Luciani, interviewed by Silje Anette Teigen, videocall, May 12, 2020, 2, 3.

<sup>3</sup> Nuno Sacramento, interviewed by Silje Anette Teigen, videocall, 25.05.2020, 3.

immersive experiences displayed in museum exhibitions, affect other exhibits surrounding them. If this type of immersive experience becomes ubiquitous with the notion of ‘experience’, and it does not create a powerful dialogue with its surrounding space, themes, and objects, but rather becomes an ‘experiential pocket’, then a consequence could be fewer meaningful visitor experiences at the museum. Researching what immersive experiences can offer to visitors and museum learning is important to understand how immersive and interactive spaces, created with technology, can engage visitors. However, the following question can also be useful to ask with regards to curating exhibitions with immersive experiences. What can this immersive experience offer to the museum collection, the institution’s ongoing research, and the surrounding space and exhibits in the room or in public space?

In section 4.2.3, the AR installation, at the National Museum of Architecture, did not interact with the surrounding museum space and exhibits, however this thesis has presented the SCB exhibitions as examples of how immersive experiences can interact with surrounding spaces in new ways. These two points might present possibilities for museums with regards to AR, in the form of visitors being able to use their smartphone cameras to interact with whole exhibitions and textual/auditive content for interpretation. This prospect is based on the analysis of *Tentacle Tongue*, and a study from 2012, which found that sixty percent of museum visitors used their smartphones during their visit, and eighty-three percent of these used their phones to take photos.<sup>4</sup> Hence, AR would allow visitors to continue a similar behaviour and museum professionals would get a new platform to ‘reach visitors where they are’, and perhaps to engage younger audiences, in a manner more familiar to them than text panels. Whereas VR can provide intimate encounters with museum objects, AR can potentially offer experiences that are more social, as one can communicate with others while looking at a smartphone, but not with a VR headset.

In conclusion, analysing the Screen City Biennial as a case study has given examples of how museums can potentially expand beyond their walls and into public spaces, with the use of digital forms of mediation and new forms of multimedia installations, that physically impact

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<sup>4</sup> Ngaire Blankenberg, ‘Virtual Experiences’ in *Manual of Museum Exhibitions*, 2nd ed, ed. Barry Lord and Maria Piacente (Lanham and Plymouth: Rowman & Littlefield, 2014), 149, 250.

these sites very little. The thesis has examined the role of the visitor in negotiating the tension between multimedia installations, offering immersive experiences, and their surrounding spaces, in order to show how ‘sprawling’ exhibitions can expand spaces, offer new ways of creating engaging museum spaces, and encourage visitors’ self-directed experiences.

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## A. Illustrations

Program	Installations
	<p><b>MS SANDNES</b> 17–20 October, 14–20h 26–27 October, 12–16h</p> <p>Monika Seto, <i>PLANET 7</i> (2017) Richard Alexandersson, <i>pod</i> (2017) Mai Hofstad Gunnes, <i>Wave. Whija. Fox.</i> (2017) Sissel M. Bergh, <i>#7jectale (Water) Knowsawknow</i> (2018)</p>
	<p><b>DOMKIRKEN (STAVANGER CATHEDRAL) / CHAPEL</b> 17–20 October, 14–20h 26–27 October, 12–16h</p> <p>Jonathas de Andrade, <i>O Peixe (The Fish)</i>, 2016</p>
	<p><b>FISKEPIREN (FERRY TERMINAL)</b> 17–20 October, 14–20h 26–27 October, 12–16h</p> <p>Michelle-Marie Letelier, <i>The Bone</i> (2019)</p>
	<p><b>UTENRIKS-TERMINALEN (INTERNATIONAL TERMINAL)</b> 17–20 October, 14–20h 26–27 October, 12–16h</p> <p>Platform, <i>That Which is to Come is Just a Promise</i> (2019) Kristina Öiek, <i>Neutivie New Era</i> (2018)</p>
	<p><b>NORWEGIAN PETROLEUM MUSEUM</b> 17–20 October, 12–16h</p> <p>Tove Kammedal, <i>Borda</i> (2015) Andrew Norman Wilson, <i>Gate to Seekers 2012</i> (2015)</p>
	<p>Program 53</p>

Film Program	Talks and Panels
<p><b>ODEON CINEMA</b> 18 October, 12–13.30h</p> <p><i>Everything's Coming Together While Everything's Falling Apart</i> Oliver Reesler, <i>The ZAD</i> (2017) Oliver Reesler, <i>Limby Vime My</i> (2019)</p> <p>19 October, 12–13.30h 26 October, 12–13.30h</p> <p><i>Unquiet</i>, curated by Natharja van Dijk</p> <p>Mikhail Karikis, <i>Children of the Unquiet</i> (2014) Ursula Biermann, <i>Sublimatic</i> (2015) Jakob Kudsk Steensen, <i>RE-WILDLING</i> (2016) Mikhail Karikis, <i>No Ordinary Protest</i> (2018) Luiz Roque, <i>ZERO</i> (2019)</p> <p>20 October, 12–14h 27 October, 12–14h</p> <p><i>The Last Nature</i>, curated by Gabriel Bogossian</p> <p>Ximena Garrido-Lecca, <i>Cochinas</i> (2014) Vincent Carletti, <i>D Espinha da TV</i> (1990) Laura Huertta Mills, <i>Journey to a Land</i> Ghazwan Khatem (2017) Andrés Bodoño, <i>Vigaxto</i> (2015)</p> <p>+ <b>Forest Low</b> Ursula Biermann and Paulo Tavares, <i>Forest Low</i> (2014)</p>	<p><b>MS SANDNES</b> 17 October, 19–20h</p> <p><b>Opening Talk</b> Introduction to the 2019 Screen City Biennial <i>Ecologies – last, found and combined</i> with Daniela Ariado and Vanina Seracina</p> <p>19 October, 16–18h</p> <p><b>The Bone, Visual Arts Meets Ecophilosophy</b> Panel and artist talk. With Michelle-Marie Letelier and Martin Lee Müller</p> <p>In her virtual reality work, <i>The Bone</i>, Letelier reflects on the atypical, poetic and philosophical aspects of human-animal ecologies both indigenous and industrial. Here she collaborates with poet-philosopher Martin Lee Müller, who in his book <i>Being Salmon</i>, David James explores the irreducibly rich sensual world of salmon and the tragedy of our self-absorption.</p> <p>20 October, 14.30–16h</p> <p><b>Digital Dynamics: Art's New Making</b> Panel and audience conversation With Soora Ekdström, Taneli Johannesen and Laura Belyif. Moderated by Tanya Toft Ag</p> <p>The digital has launched both excitement and concern with art's ecologies of making the 'new'. Art's making begins not with the tool but with a sense of who we are, our origins, histories, centers and peripheries, and it continues in our</p>

DOMKIRKEN (STAVANGER CATHEDRAL)	17-20 October, 14-20h Emilija Škarnulytė, <i>Deep Point Cloud</i> (2019)	<b>Live Cinema and Performances</b>
STAVANGER MUSEUM	25 October, 19-23h (Museum Night) Inaïde Túrolosmeque (2018)	CONCERT HALL 19 October, 20.30-23.15h Michelle-Marie Letellier and Kaima, <i>Coliche Crystals</i> (2019) Marjolijn Dijkman and Teri Johannesson, <i>Reclaiming Vision</i> (2018)
TORGET (STAVANGER CITY SQUARE)	17-30 October, 24h Tuomas A. Laitinen, <i>Tentacle Tongue</i> (2019)	RØDNE FJORD CRUISE 18, 19, 20 October, 15-18h Enrique Ramirez, <i>Tidal Pulse II</i> (2019)
STAVANGER AIRPORT	17-30 October, 24h Tuomas A. Laitinen, <i>Tentacle Tongue</i> (2019)	STAVANGER CATHEDRAL 17 October, 18-19h Emilija Škarnulytė and Jovūbas Čičkas, <i>Deep Point Cloud</i> (2019)
KUNST.TV (at Clarion Hotel, open hotel room)	17-20 October, 24h Ulrike Biemann, <i>Subatlantic</i> (2016) Emilija Škarnulytė, <i>No Place Rising</i> (2016) Luca Rago, <i>ZERO</i> (2019) Michelle-Marie Letellier, <i>Outline for The Bonding</i> (2019)	STAVANGER AIR MUSEUM 18 October, 19.30-20.45h Brend of Weeds, <i>The Greenhouse Phenomenon</i> (2019)
		MS SANDNES 18 October, 22-22.30h Soara Ekström, <i>Beacon</i> (2019) 19 October, 20-20.30h Soara Ekström, <i>Beacon</i> (2019)

	co-evolution with technics. What ecologies are implicated in art's making today, and what does the pursuit of the 'new' promise, challenge and feed forward?	<b>Online Exhibition</b>
ODEON CINEMA	18 October, 12-13.30h <i>Everything's Coming Together While Everything's Falling Apart</i> Verina Saracino in conversation with Oliver Ressler on artistic practices interwined with environmental activism, following the screening of his works.	SCREENCITY BIENNIAL .ORG 17-30 October, 24h Oliver Ressler The Online Exhibition presents Oliver Ressler's body of work <i>Everything's Coming Together While Everything's Falling Apart</i> , an ongoing project that follows the activists' struggles against a fossil fuel-dependent economy. <i>Everything's Coming Together While Everything's Falling Apart</i> includes <i>Limby Jume My</i> (2019), <i>Code Road</i> (2018), <i>The ZAD</i> (2017), <i>Ende Gelände</i> (2016), <i>GDPT</i> (2016).
CONCERT HALL	19 October, 21-23h Audience conversation Daniela Arriado in conversation with Michelle-Marie Letellier, Kaima, Marjolijn Dijkman and Teri Johannesson following their performances.	

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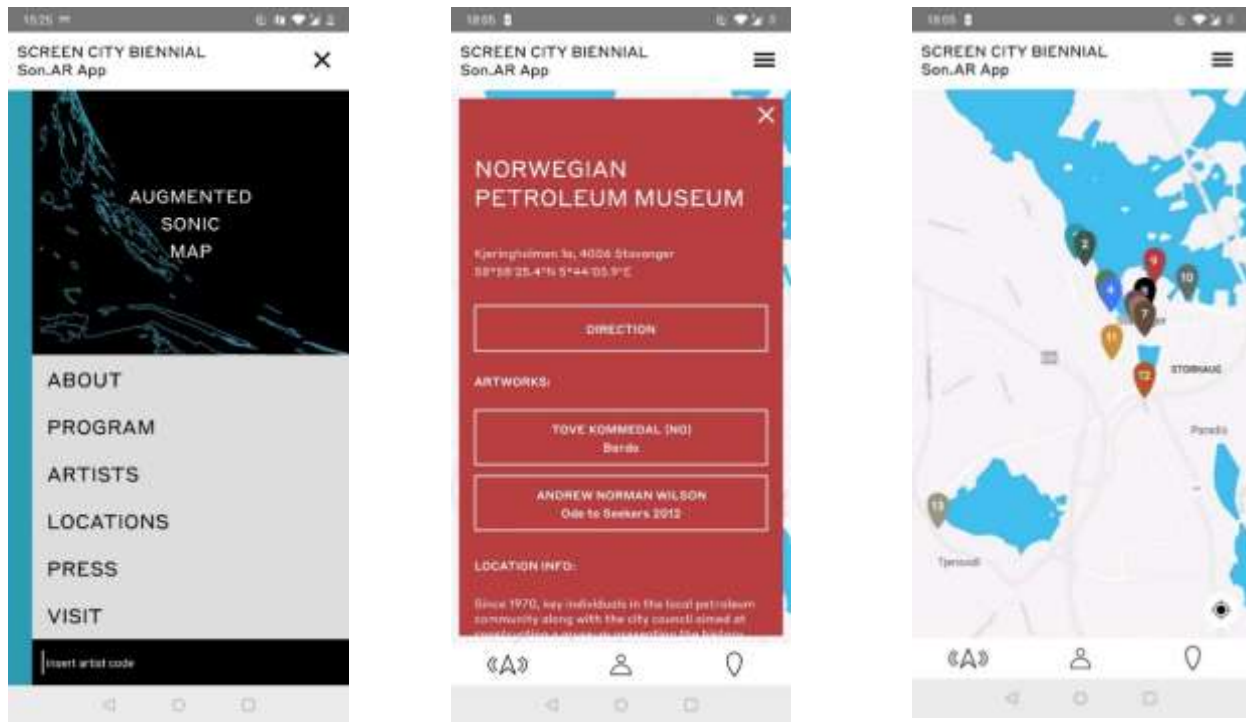
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6. Arriado, Daniela and Vanina Saracino. "Navigation." Screen City Biennial 2019. Catalogue. Image: Own.





7. Roque, Luiz. *ZERO*, 2019. HD video. 5.30 min. Lower image to the right: Own.  
Letelier, Michelle-Marie. *Outline for the Bonding*, 2019. 16 mm film transferred to HD. 5.21 min. Lower image to the left: Own  
Other videos shown: Biemann, Ursula. *Subatlantic*, 2015. HD video. 11.43 min.  
Škarnulytė, Emilija. *No Place Rising*, 2016. HD video. 10 min.  
All works were seen in Stavanger as a part of the exhibition *KUNST.TV* at *Clarion Hotel*, Screen City Biennial 2019. Images: Own.



8. Kommedal, Tove. *Bardo*, 2015. HD video. 2.58 min. Stavanger, *Oljemuseet*, Screen City Biennial 2019. Images (screenshots): <https://www.tovekommedal.com/>.



9. Norman Wilson, Andrew. *Ode to Seekers*, 2012 (2016). HD video. 8.3 min. Stavanger, *Oljemuseet*, Screen City Biennial 2019. Image: <http://2019.screencitybiennial.org/artists/andrew-norman-wilson>.





10. Letelier, Michelle-Marie. *The Bone*, 2019. VR installation. Approx. 15 min. Stavanger, *Fiskepiren*, Screen City Biennial 2019. First image: Oddbjørn Erland Aarstand, <https://www.artrepublic.no/screencitybiennial2019/br0yiw11o1m4e2h1k7hgek4xfqb200>. Following images (screenshots from VR experience): <http://michellemarieletelier.net/work/the-bone/>.



11. Škarnulytė, Emilja and Jokūbas Čižikas. *Deep Point Cloud*, 2019. Performance. Stavanger, *Domkirken*, Screen City Biennial 2019. Upper photo to the left: Own. Upper photo to the right: Vlad Lunin. Lower photo: Oddbjørn Erland Aarstad, both professional images are from <https://www.artrepublic.no/screencitybiennial2019/1sekwzsrn7dsomd4wldjus16mtzsw>.



12. Ressler, Oliver. Upper image: *The ZAD*, 2017. 4K video. 36 min. Image: [http://www.ressler.at/everythings\\_coming\\_together/](http://www.ressler.at/everythings_coming_together/). Lower image: *Limity Jsme My*, 2019. 4K video. 10 min. Both artworks were seen in Stavanger, *Odeon Cinema*, Screen City Biennial 2019. Image: Oddbjørn Erlands Aarstad, <https://www.artrepublic.no/screencitybiennial2019/xyi0ve8k84hu9q3z7eu7y62asr442v>.



13. A. Laitinen, Tuomas. *Tentacle Tongue*, 2019. AR installation. Variable length. Stavanger, *Torget*, Screen City Biennial 2019. Own. First image: Oddbjørn Erland Aarstad, <https://www.artrepublic.no/screencitybiennial2019/ru29a9flvufho6crs2y35f20tmmxz8>. Last three images (screenshots from smartphone): Own.

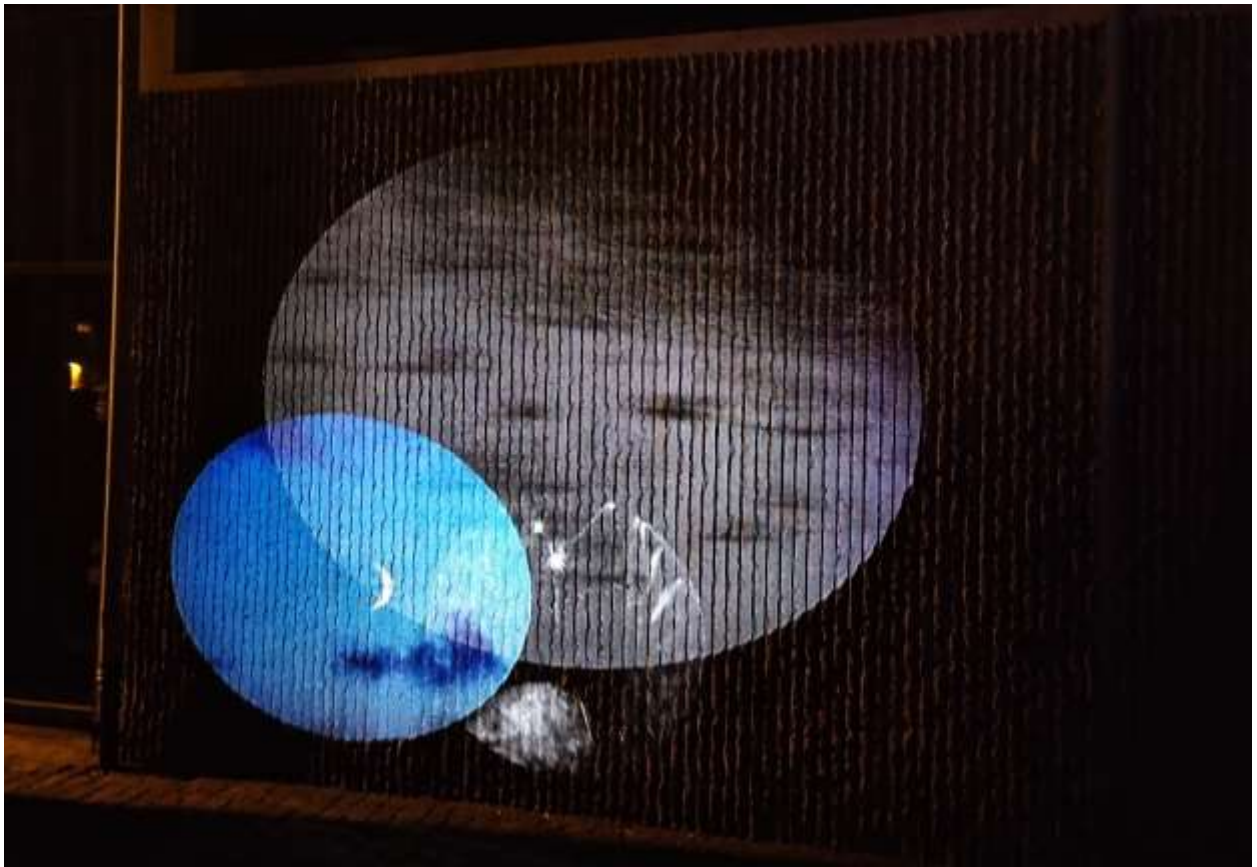




14. Andrade, Jonathas. *O Peixe*, 2016. 16 mm film transferred to 2K video. 37 min. Stavanger, *Domkirken kapell*, Screen City Biennial 2019. Image: Own.



15. Band of Weeds. *The Greenhouse Phenomenon*, 2019. Sound performance. 2 h 15 min. Stavanger, *Stavanger Kunstmuseum*, Screen City Biennial 2019. Image: Own.



16. Saara Ekström, *Beacon*, 2019. 8 mm film transferred to HD video. Approx. 30 min. Stavanger, near the boat *MS Sandnes*, Screen City Biennial 2019. Images: Own.



17. Karikis, Mikhail, *Children of the Unquiet*, 2014. HD video. 15.38 min. Upper image to the left: Own.  
Karikis, Mikhail, *No Ordinary Protest*, 2018. HD video. 7.48 min. Upper image to the right:  
<http://2019.screencitybiennial.org/artists/mikhail-karikis>.  
Biemann, Ursula. *Subatlantic*, 2015. Video essay. 11.43 min. Second lowest image to the left:  
<http://2019.screencitybiennial.org/artists/ursula-biemann>.  
Kudsk Steensen, Jakob. *RE-WILDLING*, 2018. 4K, 11.56 min. Lower image to the right:  
<http://2019.screencitybiennial.org/artists/jakob-kudsk-steensen>.  
Roque, Luiz. *ZERO*, 2019. HD video. 5.30 min. Lowest image to the left:  
<http://2019.screencitybiennial.org/artists/luiz-roque>.

All artworks were seen in Stavanger, *Odeon Cinema*, Screen City Biennial 2019.



18. MS Sandnes, exhibition venue for the following artworks. Upper image to the left: Own. Alexandersson, Richard. *Pod*, 2017. 3D animation. 10 min. Upper and lower image to the right: Own. M. Bergh, Sissel. *#Tjaetsie Knowhowknow*, 2018. HD video. 18.03 min. Lower image to the left: Own. Other artists shown: Seto, Momoko. *PLANET ∞*, 2017. VR work. 7 min. Hofstad Gunnes, Mai. *Wave. Whip. Fan.*, 2017. HD video. 11.22 min. All artworks were seen in Stavanger onboard *MS Sandnes*, Screen City Biennial 2019.





19. Ramirez, Enrique. *Tidal Pulse II*, 2019. Sound performance. 3 h. Stavanger, *Rødne Fjord Cruise*, Screen City Biennial 2019. Images: Own.



20. Öllek, Kristina. *Nautilus New Era*, 2018. Installation. Variable dimensions. Images: <http://www.kristinaollek.com/>. Stavanger, *Utenriksterminalen*, Screen City Biennial 2019. Images: Own.



21. Plattform. *That Which is to Come is Just a Promise*, 2019. 2K video. 22.20 min. Stavanger, *Utenriksterminalen*, Screen City Biennial 2019. Images: Own.







22. Letelier, Michelle-Marie and Kalma. *Crystals*, 2019. Live performance, video mapping projection, microscope. Approx. 20 min. Stavanger, *Konserthallen*, Screen City Biennial 2019. Images: Own.





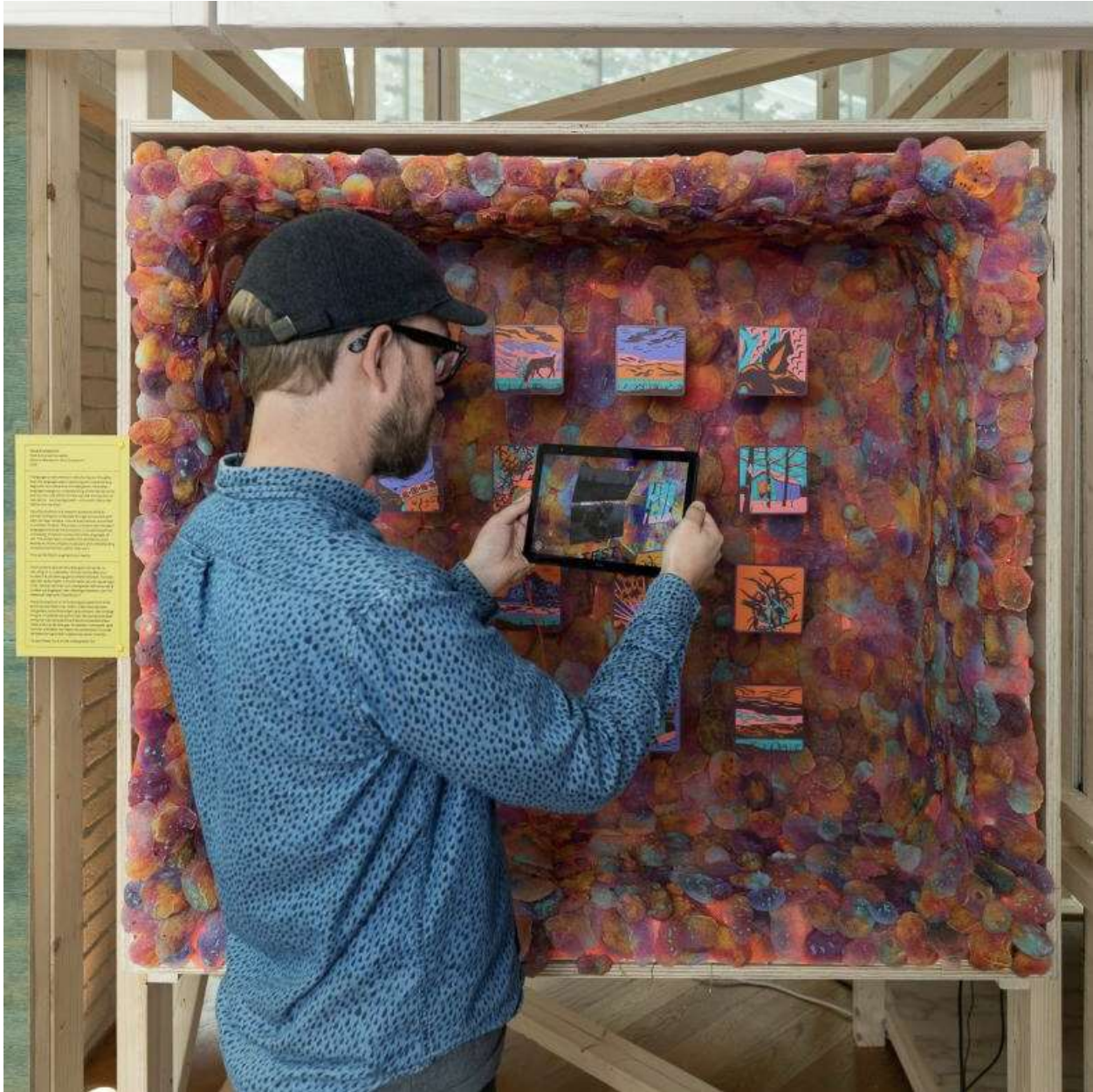
23. Johannesen, Toril, and Marolijn Dijkmann. *Reclaiming vision*, 2018. HD video, live performance. 26.37 min. Stavanger, *Konserthallen*, Screen City Biennial 2019. Upper image: Own. Lower image: Oddbjørn Erland Aarstad, <https://www.artrepublic.no/screencitybiennial2019/xyi0ve8k84hu9q3z7eu7y62asr442v>.



24. Bedoya, Andres. *Jugando*, 2015. Video. 11.02 min. Stavanger, *Odeon Cinema*, Screen City Biennial 2019. Image: Own.



25. Schofield et al. Upper image: “Pre-lit characters in the vignettes.” Screenshot from VR experience. Lower image: “A finished headset.” Digital image. York, *Viking: The Revival of the Legend*, Yorkshire Museum. *Viking VR: Designing a Virtual Reality Experience for a Museum*. June 9-13, 2018. Accessed June 8, 2020. [http://eprints.whiterose.ac.uk/129158/1/vikingvr\\_preprint.pdf](http://eprints.whiterose.ac.uk/129158/1/vikingvr_preprint.pdf).



26. Bernacchi, Antonio and Alicia Lazzaroni. *Visual Ecoiophonic*, 2019. AR installation. Oslo, *Enough: The Architecture of Degrowth*, The National Museum of Architecture. Image: <https://animalidomestici.eu/Visual-Ecolophonic>.



27. Upper image: Spears integrated in timeline display. Lower image: Glass case with coins integrated in timeline display. Leiden, *The Archeology of the Netherlands*, The National Museum of Antiquities. Images: Own.



28. Studiolo of Federico da Montefeltro. Urbino, Italy. Photo: <https://tuttoggi.info/lo-studiolo-di-federico-da-montefeltro-rinascere-a-palazzo-ducale/517683/>.

## B. Interview Guides

### B.1 Visitors

#### Screen City Biennial Interview

How would you describe your experience of the biennial?

Optional follow up:

Was there a particular exhibition that made a lasting impression?

How did you orient yourself around the exhibition grounds?

Optional follow up:

Did you use the Son.AR app, and if so, how did you experience it?

What source of information at the exhibition did you find the most useful?

Did you interact with or see anything at biennial that you would call a sort of interface or something?

#### *The Bone*, VR artwork

How did you experience the VR work *the Bone* at the exhibition by the Ferry Terminal?

What did you find the most special about it?

Optional follow up:

How was your experience of the work affected by its location?

How was it to be inside the virtual world?

Optional follow up:

Would you have preferred there to be more or less interaction?

#### *Tentacle Tongue*, AR artwork

How did you experience the AR work *Tentacle Tongue* that was placed at the façade of a shopping mall at the city square?

What did you find the most special about it?

How did you experience interacting with the work in a hybrid space, which is not quite virtual or physical?

Optional follow ups:

How did you experience using your smartphone to see the work?

How was your experience of the work affected by its location?

Did the work change your perception of the city square and its surrounding architecture in some way?

Would you have preferred there to be more or less interaction?

### *Tidal Pulse II*, sound performance

How did you experience the sound performance *Tidal Pulse II* that took place on board the Rødne Fjord Cruise?

What did you find the most special about it?

Optional follow up:

How did you interact with this artwork?

Did the surrounding landscape affect your interpretation or experience of the work, if so, in what way?

Did the fact that the performance lasted three hours affect your experience of the work, if so then how?

What source of information about this artwork did you find the most useful?

How did the experience of this *Tidal Pulse II* differ from the other artworks?

## B.2 Producers

### Screen City Biennial Interview

#### Background

How did your professional background influence how the exhibition was curated?

#### Navigation



What was the motivation behind developing the app Son.AR?

Optional follow up:

In what way was the app meant to influence visitors' navigation and movement in physical and virtual space?

### Visitor Experience

What strategies did you use to create good visitor experiences at the biennial?

Optional follow up:

Could you think of an exhibition at the biennial where creating a good visitor experience was a challenge?

### Dialogue between Virtual and Real Space

What methods did you use to create a dialogue between the virtual, hybrid and real spaces at the biennial?

How did you do this at the exhibition showing the VR work *the Bone*?

How did you do this at the exhibition showing the AR work *Tentacle Tongue*?

How did you do this at the exhibition showing the sound performance *Tidal Pulse II*?

Optional follow up:

Which exhibition did you think achieved the most cohesive dialogue between virtual and real space and why?

### Interfaces

Are the virtual and textual information platforms or interfaces used at the biennial connected? If so, what was the motivation behind that decision?

Optional follow up:

Do you see the text panels at the different exhibitions as integrated in the general 'interface program'? If so, how?

### Interpretive Experience

Do you think VR and AR installations and sound performances could be used as tools for dissemination in museums?

What does the word 'interpretive experience' make you think of?

## B.3 Producer-Visitor

### Screen City Biennial Interview

How would you describe your experience of the biennial?

Optional follow up:

Was there a particular exhibition that made a lasting impression?

#### Navigation

What was the motivation behind developing the app Son.AR?

Optional follow up:

In what way was the app meant to influence visitors' navigation and movement in physical and virtual space?

#### Visitor Experience

What strategies did you use to create good visitor experiences at the biennial?

Optional follow up:

Could you think of an exhibition at the biennial where creating a good visitor experience was a challenge?

#### *The Bone*, VR artwork

How did you experience the VR work *the Bone* at the exhibition by the Ferry Terminal?

What did you find the most special about it?

Optional follow up:

How was your experience of the work affected by its location?

How was it to be inside the virtual world?

Optional follow up:

Would you have preferred there to be more or less interaction?

### *Tentacle Tongue*, AR artwork

How did you experience the AR work *Tentacle Tongue* that was placed at the façade of a shopping mall at the city square?

What did you find the most special about it?

How did you experience interacting with the work in a hybrid space, which is not quite virtual or physical?

Optional follow ups:

How did you experience using your smartphone to see the work?

How was your experience of the work affected by its location?

Did the work change your perception of the city square and its surrounding architecture in some way?

Would you have preferred there to be more or less interaction?

### *Tidal Pulse II*, sound performance

How did you experience the sound performance *Tidal Pulse II* that took place on board the Rødne Fjord Cruise?

What did you find the most special about it?

Optional follow up:

How did you interact with this artwork?

Did the surrounding landscape affect your interpretation or experience of the work, if so, in what way?

Did the fact that the performance lasted three hours affect your experience of the work, if so then how?

What source of information about this artwork did you find the most useful?

How did the experience of this *Tidal Pulse II* differ from the other artworks?

## C. Interview Excerpts with Producer and Visitor Perspectives

### C.1 Mediation

#### C.1.1 Producers

Interview: Daniela Arriado

**D. A.: Q. 1.** The Son.AR app added another layer to these meeting points and the biennial. Would you like to say something about the motivation behind developing the app Son.AR?

Daniela: Yeah, so Son.AR was born from the need that we saw from trying to find a format that could help us mediate these works on site, more or less. Not only as a move away from the original posters, but also the apps that were there, the guiding apps, the typical festival and biennial apps, they're great for information. But I needed this extra layer of experience that was creating navigation between the different artworks and creating an experience as you were navigating between the different artworks, without taking too much attention away from the actual experience of the artwork.

This wouldn't have happened if I didn't have these amazing colleges Mote Studio, Davide Luciani and Fabio Berletta. Not only did they do the communication and the visual design for the whole biennial, but these are not only designers, they are sound artists. And this is exactly the reason we were spinning into this, you know we always called it a Pandora box of the aura we were working in together, because we were going deeper and deeper into the things. But a lot of good things happened, and Son.AR is one of them. And because they're sound artists they were looking to bring the augmented sonic navigation, it's called. They also had these new innovative technologies, that were sonic technologies, but also if we move more into the nerdy world, they were quite innovative and it had not been explored [before]. It was this 3D aural and spatial sound experience that Son.AR is really touching upon. It was almost creating a sonic sculpture around yourself if you can envision it. That was exactly the point when we said; this is actually unique. This is not only bringing mediation of art and public space to another level, it also creating a unique experience that is interactive. It's connecting the people that are experiencing this to their spatial environment and obviously to the artwork, or the passage to the artwork. So, the digital and aural layer you experience was what we achieved. That was a pilot, and we were very excited, and now we're going to develop a section version, a 2.0 version, and bring it to other cities, that's the idea.

There are two extra people working on the project too, a sound engineer and a programmer, who coded the app from scratch. That is one part where this becomes almost like a craft. I see this almost like

a work of art. The app and the way it's been developed, and the way it's being in a dialogue with the spaces and the artworks.

**D. A.: Q. 2.** So how what way was the app meant to influence visitors' navigation and movement through the biennial?

Daniela: You can envision having the map right there and of course you decide where to go, so it's supposed to guide you through the navigation that you choose to depart from. So, how it was supposed to influence, I mean it is space in a sonic landscape that obviously it guides you, but you're also the one interacting with it. So, if you move, it also starts moving with you, so you kind of merge in a way. It was also very important to us that you could do this without having to look at your phone, to actually connect to the space, and you could also only put on the audio-guide. Some of them have voices of the artists, so you could start getting closer to the artist. That was a very beautiful take. Otherwise, if you wanted to go back you could do that as well, as the content was generated automatically or it was automatically connected to the website. As it was a pilot, there was no need to apart from the sound and navigation, it was not necessary to build up any new information. As a viewer, the audience could also what they wanted to read more about. You're kind of free, but you could also be taken by it.

**D. A.: Q. 3.** What kind of strategies did you use to create effective and good visitor experiences at the biennial?

Daniela: I believe that an experience is something that happens with you, so you have to interact with it. For an experience to be solid or deeper, it requires that you interact with it. So this interaction part, you mentioned earlier how important it is to introducing you to the experience to come. In a way it's bridging. The experience is happening, before you start experiencing the artworks, in this sense. Curatorially, that is very interesting, as curators we are creating a framework for the biennial; for the city, the biennial, the room, around the artwork, and then the artwork. You see these rings, I think that by having an application, if it's well integrated in these spaces, can have so many layers. If you manage to succeed, or of course it depends on the audience, but for us it was very important to try to connect as many layers as possible. But again, it was a pilot so for the next step. Maybe Davide said something about where we're going to go now, because that will lead us into a further exploration. What is technically possible s one thing, but the other this is that we can actually work on a larger scale, on relations and architectural surfaces. You can do so much. I don't know if I'm answering you question, but the idea I had as a mediator thinking; okay, we have this artwork, this space and this context, how can we help create a deeper experience for people in these layers, and in their journeys. I like the word journey here, and the journey is quite in and out, but you invite, yeah.

Interview: Vanina Saracino

**V. S.: Q. 1.** Did you see the text panels at the different exhibitions connected to app and the catalogue?

Vanina: Well, yes, I guess, because the graphic design that was used and the information used was the same. There was the possibility of diving deeper into the work by connecting to app or by referring to the catalogue, so yes absolutely, everything was connected, as much as possible.

Interview: Davide Luciani

**D. L.: Q. 1.** What was the motivation behind developing the app Son.AR, and did you find that you had a lot of freedom with the design and development?

Davide: The general answer to that question is yes. We had the incredible luck of funding curators that were able to step on the right place, to know when was time to intervene. And I say this with a little bit of surprise, because in this world it's not always the case. Like when people are funding, they know their boundaries and they respect other people's boundaries. And I think it's a sign of great professionalism, overall. The app was begun with a different kind of intent, it turned into a more utilitarian, let's say, a more useful kind of app. The navigation element was implemented a bit more straightforwardly, toward the second phase of the development of the app. And the really beginning, the idea of Daniela Arriado, the curator of the biennial, was to create an augmented reality app. And the things that we proposed at the really beginning was an app that was working on the axioms of the augmented reality definition, but that worked rather sonically and not visually. This was an attempt to differentiate the offer of experiences that you propose [present] in a pretty visual biennial. This is a biennial that is mostly devoted to moving images, but Arriado has been developing throughout several editions also a special place for sound. And me and Fabio Berletta, the second director of Mote Studio, we are both sound artists and we are both musicians ourselves, and therefore we do as well have quite a sensibility for the sound topic. It was becoming a sort of hybrid kind of application, an application where you could be drove by places uniquely and possibly by sound ques, and I think as a visual response a visual screen that would turn in different kinds of color tonality based on the tonality of the places. So you would get to know that you would have been in a certain proximity of a location, just [by] staring at the screen, but without delivering any other information, rather [other] than, sound poetry and colors, and this was quite an exciting concept, because it would have created an entanglement with all the visual campaign that we were designing, and the idea was to create an aesthetic experience that then connected to a more practical information, to retrieve on the visual realm. Everything that is around the city in your personal guide, and the various

elements we spread around, rather would have been flat, or working path and banners so on, and so forth. Nonetheless, we had to find compromises with all the team of the biennial and some of the concern was rather to create something more useful for the visitors. So, we literally created a twofold application, one in which you can have access to the digital version of the catalogue, where you can retrieve all the information textually, visually, and also sonically, because you could hear all the artist talking about their texts. But eventually you could have turned it into one of the sides of the initial concepts, meaning the augmented sonic map, with a plus that could guide you to all the places and connect the spots. It's really hybrid kind of application, and it's the first of its kind. For the research we have done, there was not anything like that around. There are a lot of soundwalk applications, but none of them are actually working with spatial localization, and it turned to be one of the most interesting of the features that we developed. That created the framework to think about the work and the research, so I would say it's a bit of the story about the app, from the origin to how it turned out to be in the end.

**D. L.: Q. 2.** What do you think about how the app was meant to influence visitors' navigation and movement in physical and virtual space?

Davide: It's an interesting question. First of all, the app does indeed create a virtual space. That has been the most of the experimental part of the app. Experimental, because it's really a field in which the material you are entering is not supposed to be met with the same analysis that you usually engage when you come across such a sound cue, this meaning that it's not straightly a signal of location. It's not strictly a piece to listen to. How do you create virtual space that has enough information for your sense to understand where it's coming from? And at the same time, what is the emotional engagement that you have with something that need to deliver a sort of aesthetic experience. Each location needs to have a characteristic, which is the characteristic? Which are the elements that characterize the sound of that specific location, and why that and not others? So, this was the quest for the virtuality.

And we did a lot of counterpoints with the visual side of virtuality somehow. How much you can exacerbate, how much you can bring in consistency in a virtual realm. Because [of what] you can justify with a visual sphere somehow. How rather complicated it is to reach that kind of impact on an audio level, a sonic level or composition level. For instance, from a certain point we had to go back to a traditional kind of sonar sounds. There are some sonar sounds in several tracks that are playing with the augmented sonic map. For others we did an analysis of the frequency that work better in the spaces, so we were literally impulsive responses of rooms, and understanding how big the room should be like in a virtual world. In order also for the visitors to understand that you are getting into a kind of a room, that is different from another kind of the room with a different frequency.

On a physical level we worked a lot with harmonizing GPS datas, and live processing of sound cues around your head. To use a few words, we literally had to ping in many position data, in order for the processing of your telephone to try to locate the best as it could the positioning of your head, based on the position of your telephone. The movement of your telephone would have followed also your ability to perceive a sound in a certain direction. So, we literally worked at the same time in this cue-based scenario, because when you work with this kind of data you need to take into consideration the real world, which is a bit different than virtual reality for instance. For example the concert house in Stavanger, this is a technical detail, but it's interesting to know that you have this kind of limitation when you are trying to push technology a bit further. The building is full of glass, and glass is renowned for bounce off GPS signals, so your position in the space is affected by the presence of physical material around you. And therefore, you need even more calculation to try to be as precise as possible.

We stopped certain features, because we had really short of budgeting, time and so forth. But, one of the interesting discoveries was that the possibility to implement this application for accessibility of even many artworks and experiences. To many of the people that do not have access to virtuality to some degree, because if you imagine visually impaired people, blind people or simply people cannot use virtual devices as their main access point, they have a really little production of sonic artworks, and this tool can enable and contribute to the auditive culture at the largest amount. So that was a little bit of the struggle between the real and the virtuality, and what is actually the quest for this to work.

**D. L.: Q. 3.** Now we're already moving a bit into the visitor experience part of this, so what other than thinking about accessibility and the direction of your phone, what were the concrete strategies did you use to create good visitor experiences?

Davide: The fact that it was quite unknown, as there were no studies that we could use when it comes to multidimensional sounds. I guess the only thing we could refer to was sound works, and the research we did on the sound works can help to understand how people engage with sound works and how much this is connected to storytelling to some degree. But in this case it was quite complex to integrate a discourse into the audio-sphere, because the difficulties you might have in coordinating the contribution and connection of each single artwork, and to the artwork itself. Because many works were not directly produced by the biennial, there was not firstly an idea or a concept to attach a certain kind of sonic description to the artwork.

We didn't want to make something scalic, repeating the name of the artwork, or other information that was already delivered by the catalogue on in the places already. And therefore, what would have been the content of this information, that would already have been conveyed textually? The traditional form



was entering in context with the experimental form, and I guess the biennial was actually the first place to test how the visitors would respond to a non-informational, at the same time informational, cue. Because it does give you some information if you're attentive to that kind of cue, but it doesn't deliver any rational information. It leaves the visitor's other senses to orientate into a space, and that was the main focus. It would have been extremely redundant to all the information in every single form. So, this answers, as much as possible, the concrete form of our approach. It's a very empirical approach.

Silje A.: The technology becomes kind of invisible, because it becomes all about your senses and being present.

Davide: Yes, exactly.

### **C.1.2 Visitors**

Interview: Saara Ekström

**S. E.: Q. 1.** I was wondering, if you had some time to walk around the exhibitions yourself - how did you orient yourself around the exhibition grounds?

Saara: It wasn't really difficult, because Stavanger is quite small and it was quite easy to navigate just with a normal map. Sometimes I used the app, it was fun to see and really well made, and quite an elegant app. So, it was fun to test it, I know that they put lots of work into it. But you were sort of finding your way around the city quite easily, and with the app as well.

Silje A.: Yeah, it's quite a small city.

**S. E.: Q. 2.** How did you experience the app?

Saara: I thought it was quite elegant, and easy to use. It worked well, I think. How did you find it?

Silje A.: Well, obviously I tried to use it quite a bit just to understand how it worked and why it was developed. But I did use it just as much as the catalogue. I changed in between the catalogue and the app.

Saara: Yeah, it was a little bit fifty fifty, but you could also just use the map, it would have been sort of sufficient in a way, because the distances were not big, which was quite handy.

Interview: Nuno Sacramento

**N. S.: Q. 1.** Do you remember how you oriented yourself around the exhibition grounds?

Nuno: It was with this little map, [lifting up the SCB brochure]. It's very worn down; it's also got some written notes in it. I usually make the most out of the brochure, so all the artists I'm interested in are there [showing the SCB catalogue] and I put their business cards in the middle and this just stays in a folder. So if in two years I need to remember an artist, I'll just go back to this Norway folder.

Silje A.: That's clever.

Nuno: Yeah, so that's how I moved around.

Silje A.: So, you didn't use the Son.AR app then?

Nuno: I tried to use it a couple of times. I downloaded it, but it didn't always work, the sound didn't always work. So, it was this kind of locative media, where it senses that your GPS is close to it and then it activates some sound, or something like that. If it would work, maybe it worked for other people, if it worked well it could be a really interesting experience, but for me it didn't work so well. Also, if you're getting kind of lost in the city, just being guided by the audio that could be quite nice, but I was only there for a few days and I was really trying to see as much as I could. So, I didn't lose myself so much in it.

Silje A.: And it is quite a small city Stavanger, so it's not too difficult to navigate.

**N. S.: Q. 2.** What source of information at the exhibition did you find the most useful in the end?

Nuno: The little brochure, the little map, that helped me out. And to get deeper into it the little book.

Silje A.: Yeah, I liked the catalogue.

Nuno: Yeah, I wasn't so much guided by the website, for instance.

## C.2 Visitor Experience: *The Bone*

### C.2.1 Producers

Interview: Daniela Arriado.

**D. A.: Q. 4.** What methods did you use to create a dialogue between the virtual, hybrid and real spaces at the biennial?

Daniela: So, this is where it feels natural to speak about the artworks. I think that the one that comes to mind, maybe the best example would be the Bone, the VR. Which as you remember is in a ferry terminal, which is a very public space, where you never see art or at least very little, especially not VR. It was

something about being in a space that you did not expect to create this sublimity, this contrast. But also, the topic was related to navigation, to water, of course to the marine ecologies, and the relation to water was very important there. You could sit there, go into this boat, that was made of wood, to create this tactile environment. The material wood became very important for the artist, and we agreed that this is a good entry point. This in between, from the specific context, through a material, and then through to the virtual. I think to be able to sit in a boat, touch the wood, and put on your glasses, and then be taken away by this surreal landscape with the salmon voices. So I think that comes to mind, with the dialogue between the virtual and the real. It was very special, also we had the sound, the Joik sound, at the entry of the façade. It was not very visible sonically, but if you did come in from that side, meaning the left side when you enter. When you get in the boat you will hear Joik too, and it was very important to start the dialogue early. To introduce this environment, Joik is kind of special. It was supposed to spark some kind of magic there, and sometimes it's very little you have to do to just create this entry point, this dialogue.

Interview: Vanina Saracino

**V. S.: Q. 2.** I'm wondering strategies did you use to create good visitor experiences at the biennial?

Vanina: When you say good visitor experience, what do you mean? Good and bad for me is difficult to evaluate, it becomes very personal evaluation, that depends on a very personal experience. Maybe 'good' was not what we were looking for, but creating a meaningful experience. How do you bring the world inside, or how do you merge the architecture with the work, or even more, how do you create a dialogue with what is around you, like you see at the Oil Museum, and what the work is saying? These two elements have to empower each other, but they don't have to delete each other. The places must be chosen very carefully, in order to create this dialogue for this place to be more than some of its parts, but really there is two parts; the artwork and the space itself. The physical space itself really interacts to create a new layer of experience. So mainly our method was choosing very carefully the space in which we were including in the biennial, and conversely, we selected certain works knowing that in Stavanger there would be a place to show them.

**V. S.: Q. 3.** Would you like to talk a bit about *The Bone*, the VR work? How did you create a dialogue between the virtual and the real space?

Vanina: *The Bone* was a very, very interesting experience for all of us, especially for Michelle, I think. *The Bone* was a huge production that we undertook within the biennial, with a budget that was super limited, but we could find one private company that could help us with the production. Because you know virtual reality works are very difficult to be previewed, you need a very good and extensive technology for that. But Michelle-Marie Letelier, had a very precise vision of what she wanted to view, and the video was created already thinking about where we could show it, because we knew that we wanted to show it in Stavanger. And we were already thinking which place could offer the strongest dialogue with this work. Because when you work with public space, the city cannot just be a background. The place you choose needs to be something extra to the work. Otherwise it becomes just a beautiful context, outside the idea, so the options we had thought of at the beginning was either the cruise terminal or the ferry terminal. In a way the ferry terminal, became more interesting to use because of this idea of the passage of people travelling. And, at the beginning we didn't know exactly how to present the work in the space, you know the work is a virtual reality work, so the only thing you present in the space apart from the work [the VR experience], is technology, a computer and goggles. And usually these are very boring objects, they're not objects that would attract the visitor or any passer-by to see the work.

So, Michelle had this very good idea to take this old boat, and somehow making this spatial translation, from bringing the boat from the outside, inside the terminal, which is a space where people wait to travel on the boat. So, in a way there was this inversion of the outside and inside space. So the passer-by's and the people that were seeing this boat, and immediately you had a disruption, in your daily experience of Stavanger, because you don't see a boat there usually. So, people were coming closer, attracted by the installation and wanted to know more, and they stayed to see it.

The VR experience was extremely related to the outside space, because when you jump on the boat and wear you goggles, you were immediately underwater [in the VR experience]. You were sitting, but you were underwater, and when you took off the goggles you saw the horizon and the sea. It offered a very open view on the context of the work itself, and we thought that these two spaces would empower each other.

Silje A.: Yeah, I think they really did. You really brought with you the perspective from the outside inside [the VR experience], and when you entered the physical space again, it kind of changed, because of your experience, and I really liked that.

Vanina: I think the key to think about this is the transformative experience. The fact that you literally go through a transformation with the artwork that makes you look at the physical space in a different way.

Silje A.: Yeah, you're kind of creating a new space, in a way.

Vanina: In a way, yes. Diverging the physical and virtual space, you are creating an extra space, a third layer, that doesn't really exist, but it exists with the encounter.

### C.2.2 Visitors

Interview: Davide Luciani

**D. L.: Q. 4.** How did you experience the VR work *The Bone* at the exhibition by the Ferry Terminal?

Davide: It was exciting, to be honest, it was my first virtual reality experience. I worked for another artist who worked with virtual reality, developing virtual reality material, but really briefly. My encounter was really short with it. I've never been a big fan of virtual reality, even though I study and work in the field of virtuality. So, it was extremely entertaining, I would say, and quite shocking to realise that everything I've been reading about is actually true. You do have the possibility of expressing [experiencing] a higher degree of consciousness, or to trigger the kind of attachment from the physical realm.

For the work itself, I actually really enjoyed more the audio-part of it, the storytelling, the narration. You can see that the artwork is in motion to a certain kind of point, and for the art part of it was just laying still for a really long time. I found that as a sort of incomplete work, but I think that completeness of the work, if not realised visually, funny enough, was completely accomplished sonically. It was really accomplished for its audio-part. The story kept me engaged, the sound kept me engaged, despite the lack of action. And I think this brings back the fact that we are still so much attached to stories, somehow. And we still need to hear stories that can have these little pieces of the sublimity and humanity, like out of us [experience], that's what I like.

**D. L.: Q. 5.** Would you have preferred there to be more or less interaction?

Davide: No, I think the least as possible. I remember that you had to point your head towards some trigger points, in order for the story to move onward, and that was unnecessary, as my personal comment. I think in general even for this kind of work, it resembles an extended possibility of a cinematic experience, and I don't see the necessity to create an interaction for the viewer to be apart of it themselves. I believe that the cinematic experience is already happening inside the viewer themselves, that is the greatest true love of interaction that you have in movies and in cinematic experiences, that is happening already inside you yourself.

I find interaction, rather than a way to implement this experience, it's a way to distract the experience. It's a way to block the way I'm already processing and interacting with the imaginary that the

artwork is providing. And this makes no difference with the virtual world, it's just a different kind of format, with the kind of engagement that is already happening on such a high level of sublimation of all this imaginary, that each time somebody is asking me to do something in that moment, it can completely disrupt my immersion.

Silje A.: Because, suddenly your ego has to be present and you have to make a decision. I sometimes skipped forward the monologue, but it was just to try out the only form of interaction, and afterwards I kind of regretted it. I should have just listened to all the monologues.

Davide: Yes, same! It's totally true, I had the same. I thought; I have to listen to all the monologues again and remember when the monologues got interrupted, because I want to listen to them.

Silje A.: It's kind of like a big red button being placed in front of you, and you're told you can press this whenever, but then you'll miss out.

Davide: Hahaha, yes, you think; don't press the button, and then you do it anyways, oh damnit! Don't press it! Oh no, I did it again, oh no. It's terrible, terrible, I really don't get the interactivity, it tricked me all the time. What do you want with me, you know? You already have it; you get all the imagination you can. Don't put a fucking red button in front of me, you know.

Silje A.: Maybe if you looked at the point, but then some fish appeared instead, just something visual so the monologue would go on.

Davide: Yeah, it would still go on.

Silje A.: But then you would be distracted by the fish.

Davide: Yes, exactly, it is never a good idea to let people interact with something you have already put in place. It's like the experiment with the rats, they put rats in cages, and they put two bottles in there, one with something sweet and one with water, and the rats are just going for the sugar. Stop pushing the button, just let it be, you know. Hahaha, behave yourself.

**D. L.: Q. 6.** How was your experience of the work affected by its location?

Davide: But nonetheless, to say something about the location, I've said it before, I think the setting and the place for you to experience that artwork was interesting. The sculptural element of it, it was not solely putting some oculars there. The context was extremely well thought, like to be on the verge of being anyhow minimal, and not artificial, for it not to be too much fake. So I think, still I could balance.

Silje A.: I feel like you're kind of tapping into the dialogue between the physical and the virtual space. It seemed like the curators were really thoughtful about the space interacts with the virtual work.

Davide: Yeah.

Silje A.: Sometimes you go into a dark corner of a museum and there is a virtual reality experience, and then when it's over, you're entering a museum and spaces that don't relate to one another. But there, I walked into the room and I thought; okay, the experience has already started, how are the real scenes, for example the coastal landscape, brought into the experience.

Davide: I think it's kind of a necessary step. I was not involved much in thinking about the spaces, that was left to the curators and artists. But I could just express my personal opinion on the necessity of creating a connection between the spaces. You said it pretty well, my answer, would be your question. It's important to already engage the space from the real beginning, which does create a connection with the virtuality of the work. It's really much about that, setting the visitors into a setting in which an artwork is placed, and that is exactly as important as the picture into a white space, the frame that you're using, and the design of it within a given space. It is important to never forget the spaces around, in order to correlate the virtual experience to some degree of physicality. Otherwise, it would be blindly devoted to the virtual world, and forgetting our capacity of sensing or believing it. I think that is one of the difficulties of the connection between the physicality and the virtuality of the work is the matter of trust towards the virtual elements. I guess that helping with the plasticity of materials enables the viewers to believe in it, even the virtuality. To make it more plausible

Silje A.: Also, in all museum exhibitions that's also the most important thing, that people come in and they believe in the authenticity of the objects they see there and the stories that are being told.

Davide: Yes, exactly. The suspension of disbelief, to use an academic term. But I think that's necessary for the experiences, somehow. That you need to give them the possibility to put apart [ignore], the rationality of the act of putting a plastic thing on your head, and just go with the content of it, and then removing it and separate it from the experience you just had. Like saying, you know a dream is just a dream, and now I'm awake and I'm rational. The rationality is unnecessary for this kind of work.

Interview: Saara Ekström

**S. E.: Q. 3.** So, should we talk a bit about the VR work?

Saara: Oh yeah, I really loved it! Yeah, it was Michelle-Marie Letelier's *the Bone*, if you're talking about that one?

Silje A.: Yes.

Saara: Yeah, I actually checked it twice. I was really fascinated, I really liked how – I'm not very fond of VR works in general, I have not seen very many VR art pieces either, so I didn't really have so much to compare with – but this was a very beautiful and profound work. And the text part, it was very poetic, and it was touching on so many subjects in a very poetic way, which I really really liked. Because quite often, when you have this kind of environmental, political messages in the work, the art tends to be very documentarist type of a thing, and this was not like that. So, I felt very close to this beast and that's something that I try to strive for myself as well - approaching this challenging and difficult, and even sort of ugly subject, in a way that sort of lures you in, instead of pushing you out. The amount of data that we see every day, and the amount of depressing data, that we encounter every day is massive, and this gave you the same amount, but it gave a kind of identity to the salmon. And, it was mesmerizing. I thought it was really beautiful, and I really liked that it was not flashy and that it was not overfed with images. It was in a way a still and quiet work. Yeah, I was really fond of the piece, and very moved and touched by it.

**S. E.: Q. 4.** Would you say the location that it was in affected your experience in any way?

Saara: Yeah, I liked that it was everyday surroundings. It was very sort of no-frills space in which you were encountering the work in. The contrast was enough to completely take you into another world. If it would have been somewhere by the sea, or somewhere beautiful and exceptional, I don't think that would have contributed to the work. I think it was nice that it was in a place where people are passing through. I liked it, I don't know if the boat was necessary, but I think it was good to isolate it somehow from its surroundings, so I guess that worked quite well.

**S. E.: Q. 5.** How did it feel to be inside the virtual world?

Saara: I liked it, more than I would've thought. I really wanted to see it straight away, because the beginning of the work where you were pulled away from the jaw bone really high in the air, I really loved this change of perspective. It's so funny that you put on these googles and you are in the middle of the sort of monumental and sculptural space, I really liked it. Also losing yourself was quite nice, you were



in a way disintegrated and became part of this jaw bone. You were losing you're the edges of you own body and that was quite nice, haha.

Interview: Nuno Sacramento

**N. S.: Q. 3.** Do you remember the VR work *the Bone* at the exhibition by the Ferry Terminal? How did you experience it?

Nuno: Yeah, I was very tired, after walking quite a lot, and then I had to wait quite a lot as well, because there was lots of people waiting. Yeah, I've seen a lot of this stuff, which is this kind of immersive reality, and it's very playful, though it's quite disorientating, but I can't really engage with it so well. It has this boat, which was kind of a prop. I don't really have a strong opinion about it, to be honest. If you didn't ask about it, maybe I wouldn't have thought about it.

I'm always interested in seeing how artists can use new technologies, but I'm still going back to the artists that were working with very simple text based, quite 20<sup>th</sup> century Avant Garde conceptualism. So, I keep going back to that, those practices, post-conceptualism and stuff, rather than engaging very directly with the technology, because the technology seems to me to be too present. When you're trying to engage with the work, there is a kind of novelty about the headset and the actual immersive experience, that independently of what you do with it, you end up experiencing something quite different.

I can't remember very well, but I saw some work at the Berlin biennale, maybe three years ago. I can't remember what it was, but I remember thinking this is quite interesting. There was a slightly different way of using it, but you know it's in many exhibitions and it's more like a toy in the exhibition.

**N. S.: Q. 4.** Did you find the location it was put in interesting though, in relation to the work?

Nuno: I mean it was a nice location. This big glass box, in a ferry terminal. It was completely empty, I don't know why, it was a Sunday, I think. I didn't see anyone working for the ferry, it was empty, and there was no cash register open, either. So it was more like a museum, than a ferry terminal.

### C.3 Visitor Experience: *Tentacle Tongue*

#### C.3.1 Producers

Interview: Daniela Arriado.

**D. A.: Q. 5.** How did you do this at the exhibition showing the AR work *Tentacle Tongue*?

Daniela: The other one with Tuomas Laitinen, that was even more in a public space, that was outside with different people, and also a very difficult space to mediate, to be honest. There is so much noise visually there. The poster or the big canvas, it was huge, so you could in a way not miss it, but you know that this is art and you know that this is something you should activate, that is the thing. If you have the app then you know how to activate it, otherwise you would look at it and continue. So, we had some posters and some information there, because we had to do something physical there, and then people would go into the app and download and then see, and you know navigate as they stand in front of it. And once you have it there, once you're entering the work through your phone, or your iPad or whatever you choose, it also creates interaction, you're able to move and you are a part of the layer. I think that after Pokemon Go, a few years ago, it has always been related to gaming, but now it's entering museums, we can speak about that later. I think that now, not only does artists have more control over the medium, but it's more common to see it and people are much more used to it, they know what it is. They have it in their hand, and they know that they need to move, and they know that they need to react. And, of course it helps us, because we don't have to tell people what to do, we just have to inform them that it is an AR work. Every day we are advancing more and more in this sense of mediation, but there's yet a lot to do. I think at the airport, it was also the same work, but it was more like a video, and that was not interactive.

Interview: Vanina Saracino

**V. S.: Q. 4.** How would you say you created a dialogue between the virtual and the real space with the AR work *Tentacle Tongue*, as that is even more of a public space?

Vanina: Yeah, that was a more challenging work, in my opinion, for many reasons. For the part in the square we didn't know what Tuomas would come up with. We thought initially that he wanted to use the octopus as well in the public space, but he decided not to. Because, he didn't want to be too graphic. What he wanted to do was to create a very, very abstract image on a poster, in which you usually see figurative images, because it is a billboard for advertisement. So you visually see either words or images, and in this case the image that you saw was a complete abstraction of something that looked like an alien alphabet or something weird, with no information whatsoever, except for the way you could interpret this. You need to decode this message, it was on the panel there, and on the app, and the other material of the biennial.

The thing with the work, and not just with the *Tentacle Tongue*, but by extension the issue with all augmented reality today, is that there is not one app for all of them with a QR code for example. Every

time you want to experience a new augmented reality artwork, you have to download a new app. So extra step of downloading another app, I think it can sometimes be an obstacle for people. Because they don't feel like it. I don't know how we can include this in the future, but I think that if at some point, we will have one app, you would be able to interpret different augmented reality works, and there would be another way of accessing that's more immediate. That was important the immediacy of the work, but nevertheless, even if people didn't see the video connected to the augmented reality work, I still think was in a way creating some sort of disruption within the daily routine.

Silje A.: It would be great to have an app that everyone knows; this is the AR app, because the possibility of creating really monumental, I find this to be a very monumental sculpture in a way. Because it's taking up the whole space, it's interacting with the architecture, with the space over the visitors, but it doesn't make any physical interference. And just that in itself I find almost poetic in a way.

Vanina: It is, and more and more museums are using these kinds of strategies.

### **C.3.2 Visitors**

Interview: Davide Luciani

**D. L.: Q. 7.** How did you experience the AR work *Tentacle Tongue* that was placed at the façade of a shopping mall at the city square?

Davide: I had fewer experiences with it. My telephone was making a little bit of a beat during the day, it was just boiling all the time. Sometimes the app didn't work, it was just a technical issue. I had the chance a couple of times, to watch it through some friends' telephones and iPads, and it was really interesting. Meaning that I couldn't spend enough time to immerse myself with it, but I'm not a big fan of visual augmented reality works. It's hard to contextualise, and I guess that is the limit of the augmented reality applications when it comes to aesthetic artworks. It's a technological limit, and it's a media limitation it faces, and the fact that the screen of your mobile telephone becomes the only canvas to experience it. So, the bigger the canvas, the better the experience. I did it with an iPad and that was a completely different reaction. So, this is one of the cases in which one cannot obstruct itself from the media that will be utilised on it. And that creates a serious thought about what you can actually deliver considering the span of devices that you are allowing to be used and seen on.

Regarding the content of the artwork, I could really lose myself in the representation, meaning that it was extremely well done. I really liked the production of Tuomas, and also the stories of Tuomas. But because of the limitation of the screen of my smartphone, I couldn't really get very connected to it.

Probably also the location was not allowing you to feel enough safe to engage with the artwork, and this is also a limitation, but it's also a kind of intimate relationship with the space and the public space around. It was needed for the artwork to be in such a central space in order to change the way people would have always perceived the square. It may affect the artwork, the depth to which you can connect to an artwork, the experience you can have on an individual level. But it definitely changes the way you perceive the square on a collective understanding, on a collective basis. So you know it is something that changes the way you experience the space itself, or already by allowing the people see on your telephone that something is happening on the façade on the building. And that I find more exciting, the engagement in between individuals in the square. The possibility that many little windows of screens can all point at an invisible artwork, allowing people present over there to see this kind of action. Because this is obliging people to have some action in a public space, that it's changing the attention of the space itself. So, that creates another kind of virtual space. That was the biggest surprise for me. But on a personal perception, the limitations are due to technology, and that affects your possibility of engaging with it or not.

Silje A.: Yeah, it's kind of the limitation of hybrid space, as it is now.

Davide: Yes, exactly. You can push it forward and try to implement your own digital tool in order to experience it the best as you could. But it's an experience that requires quite some preparation on your end, I would say. I you want to have it as unique as possible experience.

**D. L.: Q. 8.** So, for this work would you have preferred there to be more or less interaction?

Davide: No, I think the act of rising your telephone towards a walls is really a huge interaction action, hahaha. Further interaction, would be throw your telephone at the other screen. I think that it's really within the DNA of augmented reality work to require this kind of interaction. I think it was enough, because the artwork was just happening it didn't require further gamification, because that is also one problem of work. Sometimes they go toward a gaming kind of experiences, as we say, point here, point there, click this, click there. Which is appealing for the average kind of masses, but wasn't necessary for the biennial, so I'm glad Tuomas didn't put any kind of these elements in his artwork.

Silje A.: Yes, no game play elements in it.

Davide: Yes, no game play elements. It was one of the most important topic when we came to developing Son.AR. We initially started working with the developer, and one of the many ideas was this word,

gamification experience, being used frequently. It was usual in practice with interfaces and user experience design and I find it extremely disapproving to hear this kind of word when you're talking about user experience design. If you want you can make a game, but I think it's using semantics that is completely perverted from the kind of output that is required at the end. So, no gamification.

Silje A.: It seems to be applied sometimes just to make a game play entertainment point.

Davide: Yes, exactly, just as an entertainment part. I think it's really easy for people to engage with it. Let's just put something game-like in it, yes for sure.

Silje A.: It's the same debate going on in museum studies now, lots of curators seem to be very positive to put computer game aesthetics, because they think it will appeal to all the younger audiences. I think it's important to integrate the new interfaces with the traditional ones, not just to create little gimmicks that doesn't have any connection to the research.

Davide: Yes, absolutely. Even some steps before this app, we tried to seek consultancy from other professionals, because we as a studio we as a studio we are mostly delivering concepts and not really much technical framework. We always rely on outsiders. One of the studios we were talking with, we started first researching space design. I have been studying scenography for museums, experiences in spaces and stage design, so museum design and exhibition design, these are topics I've been dealing with for some while. And, I've been seeing many, many projects of museums and interactive experiences, and it's exactly as you were saying. The vast majority of the projects that are funded for the museums are relying on these extremely silly ways of delivering gamification for people, to the verge of offending the artwork. To overstep the limits of curation for the circumference of an artwork, and you need to give people the freedom to engage with it, even in silence with calm. There is too much technological excitement around these things. People think that for the sake of creating a technological experience, your experience towards an artwork has to be implemented or augmented, rather than thinking the way around is the way we conceive an artwork and a space, that then defines which kinds of technologies need to have access to it, and to which distance.

Interview: Saara Ekström

**S. E.: Q. 6.** Did you try the AR work *Tentacle Tongue* that was in the city square?

Saara: Actually, I'm very sorry to say, but I was always running into other directions when I was going to the square. I always forgot to check it out, so I didn't actually see it, I'm really ashamed to admit this. Did it work, or was it nice?

Silje A.: I completely understand you though, because I tried to see this work many times. I was really actively searching for it in the city square.

Saara: I was doing that actually at one point, I was, and I couldn't find it, and then I sort of gave up. There was this one moment where I thought this is my last chance to see this work, and I was super determined to find out where it was and I just didn't. It was too bad

Interview: Nuno Sacramento

**N. S.: Q. 5.** Do you remember the AR work Tentacle Tongue, where you had to put the phone up to animate it?

Nuno: I remember the still on the side of the building, but I don't remember the animated thing. Was it done through the app of the festival or what?

Saara: It was a separate app.

Nuno: Right, I can't remember having engaged with that.

Silje A.: It was very difficult to find the poster itself. I thought it was a commercial thing, so I walked past it four times.

Nuno: I also thought it was some commercial thing, in the beginning, for the shopping centre.

## C.4 Visitor Experience:: *Tidal Pulse II*

### C.4.1 Producers

Interview: Daniela Arriado

**D. A.: Q. 6.** How did you connect the surroundings to artwork at the exhibition showing the sound performance *Tidal Pulse II*?

Daniela: But also, you have the work of Enrique, which is really touching upon the expanded moving image. This was part two Tidal Pulse was a project that started in Harstad, and was a part of Harstad film festival. I've been working with Enrique for many years, so this was the third piece I commissioned from him. He's also been at the biennial before, he had a work that we projected on the side of the concert hall. But back to the work. He comes from sound, but most of his practice has been dedicated to movies.

Lately, the last years he has gone back to sound, or at least to merge these two genres and formats. So, we started to discuss if we could do a second version, but go deeper into creating a longer piece, the live element is very important here and going deeper into exploring the expanded. And the expanded I often see it very simple in his work, he's actually still making a video, but through sound, and what you see and perceive is the film. You are the protagonist, you are envisioning the whole world around you as a moving image, and he's just guiding you through the sound, or the story being told; the script is the sound in a way. And that is a very simple, but extremely poetic and beautiful fact. The actual text and the sound elements, and the combination of all of these elements, is what the piece is about.

But I think that format and expanded experience there is something that both Vanina and I were very much wanting to have, and that was the experience we wanted to give the audience, in an unusual context, you don't usually experience art on a boat, especially not on a ferry on the fjord. I think that another element is time which is also very important in that piece, which is something we didn't do with the other works. It was very present here, to take time, you were forced to really be there over three hours. You can sit in theatres and other types of art formats, but in sound or at least not in live cinema [it is not common to spend so much time]. So we wanted to challenge the visitors a bit in terms of their own perception, their own perception of time and space.

Interview: Vanina Saracino

**V. S.: Q. 5.** Do you want to talk a bit about the sound performance *Tidal Pulse II*, and how it created a dialogue between the virtual and real space?

Vanina: So, this exhibition space had no video, there was no moving image, because what we decided to do with Enrique Ramirez, he's a filmmaker, we decided to 'film' without moving images, in a way that the moving image would be a landscape – all the surroundings would be the image that is moving, because the human being visitors are the object that are moving through space. So, when we speak about the virtual of *Tidal Pulse II* we speak about the sound, the sound work. This work was very interesting, because all the sounds that you hear is taken from the boat, all of it, there is nothing that is coming outside, all of this is taken by small microphones that are installed on different parts of the boat, and also underneath the boat on the water. What happens is that the artist, Enrique, merges and transforms the sound into a different audible version of them, and that accompanies you around the travel [journey].

And on top of this all the work is merged with voices, of the interviews that we have been doing in Harstad and in Stavanger, to different people, people in the oil business, people in activism, to worker's in

the oil business, also to science people, because we thought the immediate epistemologies were very relevant and interesting to for understanding the environment and the space that we are so actively changing. So, all these voices were merging and while you were going across the ocean, you were seeing the aquaculture-spaces, so the boat passed places where the fish is cultivated, and how it's separated from the wild life, from the walker. So practically everything we had seen before as visitors, including *the Bone*, with *Tidal Pulse II* you got a direct vision of what we were talking about with the production of fish in the water, and how this affects the natural landscape.

With *Tidal Pulse II* the relationship between the physical and the virtual experience, I think it's also important to think that for both of us, for both Enrique and me, when we thought about this work in 2018, it was important that the work would not exist, unless the visitor would decide to opt in, so the visitor could also decide to opt out. This is why we decided to introduce wireless headphones, with these you have the freedom to be inside or outside the work. And you have freedom of movement, that enables you to stay inside the boat and to go outside, to feel the air to be more involved in the sensorial experience. Becomes it becomes, in a way, a sensory experience.

Another thing we find amazing with this artwork is the length, because as you know in the contemporary art world, we are more and more subjected to this hurried experience of art. While there are some works of art that you cannot understand, unless you give enough time to them. So, the moment you jump on the boat, you know that for three hours of your life you're dedicating them to this work, and to this thing. The extension and duration of this work is the deeply tied to the possibility of understanding it. Especially to connect to the surrounding, sensing the surrounding and sensing the nature.

Silje A.: It's also a very transformative experience, and you're putting a lot of responsibility on the visitor to actively create the work internally.

Vanina: There was also an important contrast in the dialogue that you heard in the voices of the people. The questions we asked in the interviews were very, very broad, for example; how do you see the future. We weren't asking directly about oil extraction, or this topic, also because people don't really want to talk about that. Even with very general questions, people started talking about that, and they had very different speeches about it. The speech of a scientist, is not the same of an activist. So, bringing these two speeches together you also somehow have a view into the interpolation of the opposites.

## **C.4.2 Visitors**

Interview: Davide Luciani



**D. L.: Q. 9.** Let's talk about the last artwork. I think it kind of rounds up everything, because now we've talked about virtual and augmented reality, but we've kept the discussion of sound throughout the whole talk. So, as *Tidal Pulse II* is a sound performance, how did you experience it?

Davide: It was the artwork I experienced with much calm. I think it was toward the end of the opening days that I had the possibility to step on the boat and I already visited the fjord some months before, which I extremely and deeply felt in love with. So, I would have not missed the chance to go for a second round on the fjords. I was also really curious of the work of Enrique. I gave me a lot to think about the artwork itself, for the combination of location and the way it was decided to be. But, with some comments on the music side that are more concerning my taste might be less positive, but what really worked and was important was the extension of the work. The length of it created a possibility to have that kind of immersiveness and that sort of cybernetic feeling; of hearing many of the sounds from sensors around the boat that were sensing the water and sounds that were conveyed to your ears in a completely different way. The thinking that you're experiencing it's a cybernetic one, it's not pure, and it contrasts with what you're looking at; that is the most natural poetry you can have in front of your eyes. That kind of disruption between the two senses that is actually the most interesting, and to be purchased [absorbed] for so long, it brings out a lot of thinking. For the good and the bad. There were some of the parts I loved really less, how it was disconnecting me from what I was looking at. And perhaps the composition could have turned a bit more minimal, letting a bit more of the transduction from the outside to the inside, and helping connecting in a different way. So, it's fair enough to have so many different feelings within a three-hour long artwork. It would be impossible to have three hours of pure bliss.

**D. L.: Q. 9.** It becomes a very internal journey, for sure. So, how did you specifically interact with the artwork?

Davide: Not much I would say, but the same time a lot. All my interaction was on rendering all the inputs from Enrique to what I had to contextualise with my eyes, and that was extremely tiring in a good way and a bad way at the same time. Because it required a performance from my side that had to last for three hours, because neither when I'm playing, I'm wearing my headphones for three hours in a row.

Silje A.: Yes, it was very intense.

Davide: Yes, it was very intense, for me and for him and for everybody who kept the headphones for three hours.

**D. L.: Q. 10.** How did the surrounding landscape affect your experience of the work and how you reflected on it?

Davide: You put it down quite well. The effort was a lot on me thinking about what I was looking at, at that specific moment. I wouldn't put it differently. That was it really much.

**D. L.: Q. 11.** Can you remember any kind of concluding reflection you had after the experience, when you thought about what was this really about?

Davide: Yeah, it doesn't help that I'm quite critical toward sound in general. So, I tend to create a general analysis of the scape of the sound and the quality of the sounds. And, unfortunately, I'm aware of compositional elements in the track, the arrangement of the track and the way it was developed. And, this sometimes doesn't allow me to reflect on the experience of listening; not to have a emotional listening, but rather having an analytical listening. So that already creates a certain layering of answer into the question; what are your thoughts of the work. I wouldn't judge the music, using a critique of rather not having used the kick there. I liked the sound really much, I liked how it connected with that specific moment of mine.

So, I decide to suspend my judgement, because I think that the most important experience was the way I was connecting the visuals to the sound. A lot of the information with the speaking voices [monologues] they were an interesting informational tool to frame a little bit the topic, of what we were engaging with, and what was the realm of the subject we had to deal with. I think that solely the element of sound in context, could help to think about all the things to think about such places of isolation. But I understood the political approach of the art, and the fact that the politics need to be manifested in this place as a statement of his work. So, I acknowledge the political frame, and I had to deal with it within the whole artwork itself. But many of the moments left exclusively to the listening, you were anyhow able to escape from the political contexts. You could see three storylines, the politics, the surrounding, and the listening to the music at the same time. So, it was a threefold experience, that could for me be remembered as quite separated from each other, on a more intimate level, a more political level, and a rational and intimate level at the same time.

Interview: Saara Ekström

**S. E.: Q. 7.** Let's talk a bit about *Tidal Pulse*. I remember we had a really nice at *Tidal Pulse* about the artwork itself. So, how did you experience the sound performance?

Saara: I thought it was really connected to the landscape itself, and to the experience of being out there in the fjord. And, it's also like a physical thing as well. I can't exactly remember, you can remind me, of what we talked about, I can't remember exactly what we talked about. I remember also that our

discussion was upper interesting and nice. It was like when you're getting pulled away from the harbor, you gradually leave some bits and pieces of yourself behind in a way and you get more and more immersed into the work itself.

I did the boat trip twice. We were meeting each other on the second time. So, I think it was a really interesting work, also because I think that probably the interviews were made earlier in the previous version of the work. So, they were not connected to Stavanger itself. It was still a reflection of Norwegian people and the oil industry, so the program or the issues must have been quite the same in Stavanger and in the other location where the original interviews were done.

Being out there in the landscape itself, well it was so overwhelming that it was it almost wiped out the discussions themselves in a way. It was so massively overwhelming beautiful and strong and dramatic, and it was also something that I've never seen before, because I've never been up the fjord before. So, that was sort of making my mind clean in a way - the meditational quality. But nevertheless, the fact that we were taken out there and inside into this landscape, these surroundings, that was one of the most beautiful experiences of the whole biennial. If I missed that one, I would have missed out on something really huge, I think.

**S. E.: Q. 8.** What did you find the most special about the artwork, if you had to name one thing?

Saara: I remember we were talking a lot about the significance of landscape and the importance of encountering nature as nature itself, as not serving for any other purpose than itself. That when you are as a human being a part of nature, when it surrounds you, I think this was also something that we were talking about. We also talked about your trips or hikes, and how I'm just now returning from the islands again, and I'm really hoping to go back really soon.

There was something about this very meditative quality of these fjords. And it was really cold and the wind was really chilling, and humid and it was raining occasionally, so I felt kind of clenched by this experience of being onboard. What was also really nice was that everybody else on the boat were also really immersed in this, people were really quiet. There was almost some kind of sacral thing around this whole process. And if you would have been sitting in a gallery space with these earphones and listening to these personal narratives of people talking about their connections to the environmental issues and stuff like that, it would have been very different. So, it was very important that it was presented in this way, and that the artist was present, that was also something I felt was very important. I don't know how much of the recordings were actually made on board the boat, but still seeing the wires, that in itself became also something else and was also an important actor in the sound that was created onboard.

Silje A.: I think all the sounds, apart from the interviews, were apparently taken on the boat, but they were remixed heavily to make the kind of music sounds.

**S. E.: Q. 9.** Do you remember in what ways you interacted with this artwork yourself?

Saara: I don't know exactly how you can interact; you sort of open up for the different voices and the stories that people are telling. So, you sort of open up and let yourself go. When I was participating in this work, I took off the earphones, you know you make your own choices between the boat's sounds and the nature sounds around you. The wind was something that I really wanted to hear. I got this terrible urge to listen to the wind around the boat and all the sounds of nature around it. Which were in a way drowned by the mechanical noises of the boat, which were enhanced by the speakers [earphones]. So this was something that you wanted to leave behind, and especially when you've already heard them once before, so I got the urge to just immerse myself with the landscape itself as much as possible, on the short journey that we were making.

It was so beautiful to get deeper and deeper, and I sort of wished at it was some allegorical journey into somewhere unknown, haha. Because the hills [mountains] they were disappearing into the mist, so you always thought that you would see something emerge from there, but it never did, so it seemed they would continue forever. There was this magnetic pull into the parts of the fjord and around and so leaving the fjords behind was almost painful. But, yeah it was in many ways a profound and beautiful experience, and dramatic as well.

Silje A.: Also, because you were all in this experience together in a way.

Saara: Yeah.

Silje A.: For me going on a ferry in a fjord, that's the most normal thing since I almost grew up in a fjord. At some point and I had to take a ferry over the fjord twice a day to go to school. The fact that everyone else were so mesmerised and many had this experience for the first time. I empathised so much with that, which changed my perspective as well.

Saara: Yeah, you have these endorphins flying around people. You could see when you watched people's faces that they were very immersed in this thing. It was not a superficial kind of experience. I think it went quite deep, at least for me it did.

**S. E.: Q. 10.** So, when you were heading on your way back with the boat, do you feel like you saw the landscape differently than before the sound performance?

Saara: Yeah, I think so, yes. For instance, it was really important that I had this last walk when I was leaving the same day, to the one beach that I found where I could be alone with the landscape for a little while before returning back. It certainly made a difference yes, it did. I'm very much hoping to see some more of Norway.

Something I also wanted to say about Tidal Pulse was that this landscape around it really put you in this kind of important perspective, because we are so we think so hugely of ourselves, and when you are in this kinds of landscape it makes you really acknowledge the size of things, and that's when it really hits you home quite concretely how small you are, and you feel really small, and I think that's quite a healthy feeling as well. So, I enjoyed this a lot, or maybe enjoyed is the wrong word, I was sort of taken by and overwhelmed by this scale of things, and you in connection to this scale – you put into this scale. I think that's super healthy and I'd like to keep that in mind.

Interview: Nuno Sacramento

**N. S.: Q. 6.** You were on the Fjord Cruise with the sound performance, right? How did you experience that?

Nuno: That was one of my favourite ones. First it worked well with the technology, so if you put the headphones on it was working. You could take them off and disengage with it, but it wasn't one of those hard things where the technology becomes quite prominent. It was almost like a silent disco kind of type. It was very strong in the sense that the sound was beautifully put together from the interviews to the actual sounds. It would interact with the sounds of the engine and the sounds that were happening in real life. There was a lot of stimuli in the fjord and the way the guys were getting the boat so close to the rocks, and being quite playful with the boat as well. I thought that was the best thing. Probably the best thing in the whole yeah, I thought it was fascinating.

Silje A.: Yeah, the technology becomes a bit invisible in a way.

Nuno: Yeah, and the technology of the boat becomes the technology of it [the artwork] as well. So, you know in a white cube with some speakers, you know you're in a lived place. And also people already have these tours with headphones on, and then you've got someone talking about local history or really often some quite bland description of the city and the landscape. Whereas this one was very subtle, and it was artistic. It was aesthetically rich, and I thought that from all the technological artworks that one functioned really well. You could go outside, you could stay inside, you could eat or drink something, you could sit by the window. You had plenty of space, there wasn't chock-a-block people, it was the right

quantity of people. It was very luxurious. To be able to get one of those boats out with a number of people, with an artist, it was quite a privilege, even in comparison to other set ups.

**N. S.: Q. 7.** Do you remember specifically how you interacted with the artwork?

Nuno: Yeah, you kind of go in and out between listening deeply to the interviews, and they were interesting, because the people that were asked things were often people that worked in the oil industry, but also had a view of climate change as a potential catastrophe. They were divided in how they made money and earned their salary, and in their preoccupation as citizens. It came across quite nuanced. So going in and out of that, alternating between site-seeing and listening to an interesting conversation was how I interacted with it mostly. But also the times when it was just the sounds, the silences of it and the sounds, really transported you into a different place.

**N. S.: Q. 8.** I think that is it for the artworks, but would you like to add something about how the landscape affected your interpretation?

Nuno: I've never really been out to the fjords in Norway, so it was that experience of having looked at photos, but actually being in it was brilliant. So I almost felt like it was bonus, you get an artwork and some really quite incredible site-seeing. I have this memory of the guy trying to get the boat really close to the waterfalls, which is quite a playful thing.

