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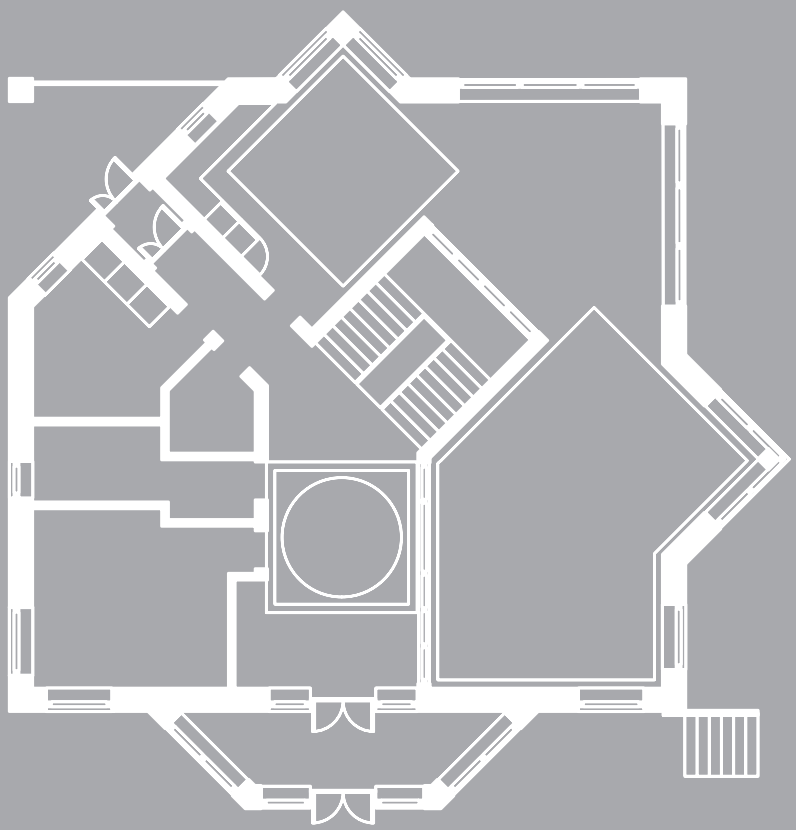
EDITORS **ÖZDEN ŞAHİN**, **JONATHAN MUNRO** AND **CATHERINE M. WEIR**

This LEA publication has a simple goal: surveying the current trends in augmented reality artistic interventions. There is no other substantive academic collection currently available, and it is with a certain pride that LEA presents this volume which provides a snapshot of current trends as well as a moment of reflection on the future of AR interventions.



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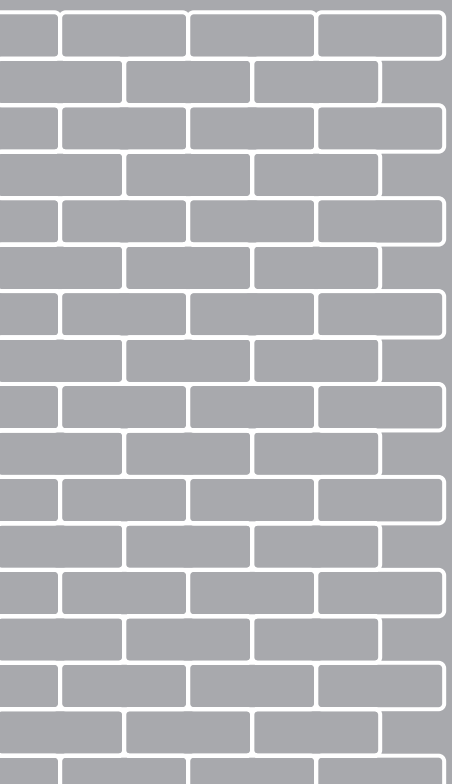

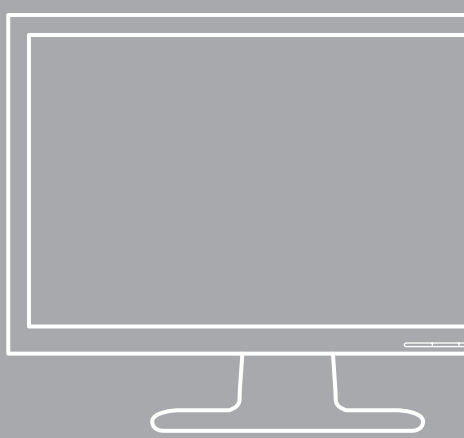

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Not Here Not There

VOLUME EDITORS
LANFRANCO ACETI AND RICHARD RINEHART

EDITORS
ÖZDEN ŞAHİN, JONATHAN MUNRO AND CATHERINE M. WEIR

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KASA GALERİ

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Operational & Curatorial Research in Contemporary Art, Design, Science & Technology

Not Here, Not There: An Analysis Of An International Collaboration To Survey Augmented Reality Art

Every published volume has a reason, a history, a conceptual underpinning as well as an aim that ultimately the editor or editors wish to achieve. There is also something else in the creation of a volume; that is the larger goal shared by the community of authors, artists and critics that take part in it.

This volume of LEA titled *Not Here, Not There* had a simple goal: surveying the current trends in augmented reality artistic interventions. There is no other substantive academic collection currently available, and it is with a certain pride that both, Richard Rinehart and myself, look at this endeavor. Collecting papers and images, answers to interviews as well as images and artists' statements and putting it all together is perhaps a small milestone; nevertheless I believe that this will be a seminal collection which will showcase the trends and dangers that augmented reality as an art form faces in the second decade of the XXIst century.

As editor, I did not want to shy away from more critical essays and opinion pieces, in order to create a documentation that reflects the status of the current thinking. That these different tendencies may or may not be proved right in the future is not the reason for the collection, instead what I believe is important and relevant is to create a historical snapshot by focusing on the artists and authors developing artistic practices and writing on augmented reality. For this reason, Richard and I posed to the contributors a series of questions that in the variegated responses of the artists and authors will evidence and stress similarities and differences, contradictions and behavioral approaches. The interviews add a further layer of documentation which, linked to the artists' statements, provides an overall understanding of the hopes for this new artistic playground or new media extension. What I personally wanted to give relevance to in this volume is the artistic creative process. I also wanted to evidence the challenges faced by the artists in creating artworks and attempting to develop new thinking and innovative aesthetic approaches.

The whole volume started from a conversation that I had with Tamiko Thiel – that was recorded in Istanbul at Kasa Gallery and that lead to a curatorial collaboration with Richard. The first exhibition *Not Here* at the Samek Art Gallery, curated by Richard Reinhart, was juxtaposed to a response from Kasa Gallery with the exhibition *Not There*, in Istanbul. The conversations between Richard and myself produced this final volume – *Not Here, Not There* – which we both envisaged as a collection of authored papers, artists' statements, artworks, documentation and answers to some of the questions that we had as curators. This is the reason why we kept the same questions for all of the interviews – in order to create the basis for a comparative analysis of different aesthetics, approaches and processes of the artists that work in augmented reality.

When creating the conceptual structures for this collection my main personal goal was to develop a link – or better to create the basis for a link – between ear-

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lier artistic interventions in the 1960s and the current artistic interventions of artists that use augmented reality.

My historical artist of reference was Yayoi Kusama and the piece that she realized for the Venice Biennial in 1966 titled *Narcissus Garden*. The artwork was a happening and intervention at the Venice Biennial; Kusama was obliged to stop selling her work by the biennial's organizers for 'selling art too cheaply.'

"In 1966 [...] she went uninvited to the Venice Biennale. There, dressed in a golden kimono, she filled the lawn outside the Italian pavilion with 1,500 mirrored balls, which she offered for sale for 1,200 lire apiece. The authorities ordered her to stop, deeming it unacceptable to 'sell art like hot dogs or ice cream cones.'" [1]

The conceptualization and interpretation of this gesture by critics and art historians is that of a guerrilla action that challenged the commercialization of the art system and that involved the audience in a process that revealed the complicit nature and behaviors of the viewers as well as use controversy and publicity as an integral part of the artistic practice.

Kusama's artistic legacy can perhaps be resumed in these four aspects: a) engagement with audience's behaviors, b) issues of art economy and commercialization, c) rogue interventions in public spaces and d) publicity and notoriety.

These are four elements that characterize the work practices and artistic approaches – in a variety of combinations and levels of importance – of contemporary artists that use augmented reality as a medium. Here, is not perhaps the place to focus on the role of 'publicity' in art history and artistic practices, but a few words have to be spent in order to explain that publicity for AR artworks is not solely a way for the artist to gain notoriety, but an integral part of the artwork, which in order to come into existence and generate interactions and engagements with the public has to be communicated to the largest possible audience.

"By then, Kusama was widely assumed to be a publicity hound, who used performance mainly as a way of gaining media exposure." [2] The publicity obsession, or the accusation of being a 'publicity hound' could be easily moved to the contemporary group of artists that use augmented reality. Their invasions of spaces, juxtapositions, infringements could be defined as nothing more than publicity stunts that have little to do with art. These accusations would not be just irrelevant but biased – since – as in the case of Sander Veenhof's analysis in this collection – the linkage between the existence of the artwork as an invisible presence and its physical manifestation and engagement with the audience can only happen through knowledge, through the audience's awareness of the existence of the art piece itself that in order to achieve its impact as an artwork necessitates to be publicized.

Even if, I do not necessarily agree with the idea of a 'necessary manifestation' and audience's knowledge of the artwork – I believe that an artistic practice that is unknown is equally valid – I can nevertheless understand the process, function and relations that have to be established in order to develop a form of engagement and interaction between the AR artwork and the audience. To condemn the artists who seek publicity in order to gather audiences to make the artworks come alive is perhaps a shortsighted approach that does not take into consideration the audience's necessity of knowing that interaction is possible in order for that interaction to take place.

What perhaps should be analyzed in different terms is the evolution of art in the second part of the XXth century, as an activity that is no longer and can no longer be rescinded from publicity, since audience engagement requires audience attendance and attendance can be obtained only through communication / publicity. The existence of the artwork – in particular of the successful AR artwork – is strictly measured in numbers: numbers of visitors, numbers of interviews, numbers of news items, numbers of talks, numbers of interactions, numbers of clicks, and, perhaps in a not too distant future, numbers of coins gained. The issue of being a 'publicity hound' is not a problem that applies to artists alone, from Andy Warhol to Damien Hirst from Banksy to Maurizio Cattelan, it is also a method of evaluation that affects art institutions and museums alike. The accusation moved to AR artists of being media whores – is perhaps contradictory when arriving from institutional art forms, as well as galleries and museums that have celebrated publicity as an element of the performative character of both artists and artworks and an essential element instrumental to the institutions' very survival.

The publicity stunts of the augmented reality interventions today are nothing more than an acquired methodology borrowed from the second part of the XXth century. This is a stable methodology that has already been widely implemented by public and private art institutions in order to promote themselves and their artists.

Publicity and community building have become an artistic methodology that AR artists are playing with by making use of their better knowledge of the AR media. Nevertheless, this is knowledge born out of necessity and scarcity of means, and at times appears to be more effective than the institutional messages arriving from well-established art organizations. I should also add that publicity is functional in AR interventions to the construction of a community – a community of aficionados, similar to the community of 'nudists' that follows Spencer Tunic for his art events / human installation.

I think what is important to remember in the analysis of the effectiveness both in aesthetic and participatory terms of augmented reality artworks – is not their publicity element, not even their sheer numbers (which, by the way, are what has made these artworks successful) but their quality of disruption.

The ability to use – in Marshall McLuhan's terms – the medium as a message in order to impose content bypassing institutional control is the most exciting element of these artworks. It is certainly a victory that a group of artists – by using alternative methodological approaches to what are the structures of the capitalistic system, is able to enter into that very capitalistic system in order to become institutionalized and perhaps – in the near future – be able to make money in order to make art.

Much could be said about the artist's need of fitting within a capitalist system or the artist's moral obligation to reject the basic necessities to ensure an operational professional existence within contemporary capitalistic structures. This becomes, in my opinion, a question of personal ethics, artistic choices and existential social dramas. Let's not forget that the vast majority of artists – and AR artists in particular – do not have large sums and do not impinge upon national budgets as much as banks, financial institutions, militaries and corrupt politicians. They work for years

1. David Pilling, "The World According to Yayoi Kusama," *The Financial Times*, January 20, 2012, http://www.ft.com/cms/s/2/52ab168a-4188-11e1-8c33-00144feab49a.html#axzz1kDck8rzm (accessed March 1, 2013).

2. Isabelle Loring Wallace and Jennie Hirsh, *Contemporary Art & Classical Myth* (Farnham; Burlington, VT: Ashgate, 2011), 94.

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with small salaries, holding multiple jobs and making personal sacrifices; and the vast majority of them does not end up with golden parachutes or golden handshakes upon retirement nor causes billions of damage to society.

The current success of augmented reality interventions is due in small part to the nature of the medium. Museums and galleries are always on the lookout for 'cheap' and efficient systems that deliver art engagement, numbers to satisfy the donors and the national institutions that support them, artworks that deliver visibility for the gallery and the museum, all of it without requiring large production budgets. Forgetting that art is also about business, that curating is also about managing money, it means to gloss over an important element – if not the major element – that an artist has to face in order to deliver a vision.

Augmented reality artworks bypass these financial challenges, like daguerreotypes did by delivering a cheaper form of portraiture than oil painting in the first part of the XIXth century, or like video did in the 1970s and like digital screens and projectors have done in the 1990s until now, offering cheaper systems to display moving as well as static images. AR in this sense has a further advantage from the point of view of the gallery – the gallery has no longer a need to purchase hardware because audiences bring their own hardware: their mobile phones.

The materiality of the medium, its technological revolutionary value, in the case of early augmented reality artworks plays a pivotal role in order to understand its success. It is ubiquitous, can be replicated everywhere in the world, can be installed with minimal hassle and can exist, independently from the audience, institutions and governmental permissions. Capital costs for AR installations are minimal, in the order of a few hundred dollars, and they lend themselves to collaborations based on global networks.

Problems though remain for the continued success of augmented reality interventions. Future challenges are in the materialization of the artworks for sale, to name an important one. Unfortunately, unless the relationship between collectors and the 'object' collected changes in favor of immaterial objects, the problem to overcome for artists that use augmented reality intervention is how and in what modalities to link the AR installations with the process of production of an object to be sold.

Personally I believe that there are enough precedents that AR artists could refer to, from Christo to Marina Abramovich, in order develop methods and frameworks to present AR artworks as collectable and sellable material objects. The artists' ability to do so, to move beyond the fractures and barriers of institutional vs. revolutionary, retaining the edge of their aesthetics and artworks, is what will determine their future success.

These are the reasons why I believe that this collection of essays will prove to be a piece, perhaps a small piece, of future art history, and why in the end it was worth the effort.

Lanfranco Aceti
Editor in Chief, Leonardo Electronic Almanac
Director, Kasa Gallery

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Site, Non-site, and Website

In the 1960's, artist Robert Smithson articulated the strategy of representation summarized by "site vs. non-site" whereby certain artworks were simultaneously abstract and representational and could be site-specific without being sited. A pile of rocks in a gallery is an "abstract" way to represent their site of origin. In the 1990's net.art re-de-materialized the art object and found new ways to suspend the artwork online between website and non-site. In the 21st century, new technologies suggest a reconsideration of the relationship between the virtual and the real. "Hardlinks" such as QR codes attempt to bind a virtual link to our physical environment.

Throughout the 1970's, institutional critique brought political awareness and social intervention to the site of the museum. In the 1980's and 90's, street artist such as Banksy went in the opposite direction, critiquing the museum by siting their art beyond its walls.

Sited art and intervention art meet in the art of the trespass. What is our current relationship to the sites we live in? What representational strategies are contemporary artists using to engage sites? How are sites politically activated? And how are new media framing our consideration of these questions? The contemporary art collective ManifestAR offers one answer,

> *"Whereas the public square was once the quintessential place to air grievances, display solidarity, express difference, celebrate similarity, remember, mourn, and reinforce shared values of right and wrong, it is no longer the only anchor for interactions in the public realm. That geography has been relocated to a novel terrain, one that encourages exploration of mobile location based monuments, and virtual memorials. Moreover, public space is now truly open, as artworks can be placed anywhere in the world, without prior permission from government or private authorities – with profound implications for art in the public sphere and the discourse that surrounds it."*

ManifestAR develops projects using Augmented Reality (AR), a new technology that – like photography before it – allows artists to consider questions like those above in new ways. Unlike Virtual Reality, Augmented Reality is the art of overlaying virtual content on top of physical reality. Using AR apps on smart phones, iPads, and other devices, viewers look at the real world around them through their phone's camera lens, while the app inserts additional images or 3D objects into the scene. For instance, in the work *Signs over Semiconductors* by Will Pappenheimer, a blue sky above a Silicon Valley company that is "in reality" empty contains messages from viewers in skywriting smoke when viewed through an AR-enabled Smartphone.

AR is being used to activate sites ranging from Occupy Wall Street to the art exhibition ManifestAR @ ZERO1 Biennial 2012 – presented by the Samek Art Gallery simultaneously at Bucknell University in Lewisburg, PA and at Silicon Valley in San Jose, CA. From these contemporary non-sites, and through the papers included in this special issue of LEA, artists ask you to reconsider the implications of the simple question *wayn* (where are you now?)

Richard Rinehart
Director, Samek Art Gallery, Bucknell University

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Hacking: A new political and cultural practice

by

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"Hackers create the possibility of new things entering the world. [..] In art, in science, in philosophy and culture, in any production of knowledge where data can be gathered, where information can be extracted from it, and where in that information new possibilities for the world are produced, there are hackers hacking the new out of the old."

— McKenzie Wark, *A Hacker Manifesto* [1]

INTRODUCTION

The era that started with the massive revelations of classified documents by Wikileaks culminated in the Arab spring and has since caused multiple social and political vibrations. It revealed the potential of the Internet as a revolutionary tool and prepared the ground for the subsequent outburst of a guerilla information war between Internet activists and multinational companies or governments over freedom on the Internet. In this context a range of initiatives in social networks to raise awareness and to motivate people politically have marked a period of constant political and cultural change.

From the shady depths of the web and the complex world of programming, hacking has risen to the surface as an everyday practice that is awakening a new sense of citizenship; instead of following the news passively, people gather in online groups, share information and take substantial political action. Any individual can become part of these groups, from any part of the world, without any particular skills or 'weapons,' simply by expressing ideas online and participating

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ABSTRACT

Hacking and file sharing are daily acts that have come to constitute cultural practices. *There is a significant political dimension in downloading and transforming files, joining virtual communities and online protests, that is easily detectible in recent developments regarding government transparency and open access to information. This mentality is reflected on contemporary culture, where the participation of the public in the creative act and the 'remixing' of existing forms are standard practices. As examples that substantiate the concept of cultural hacking, the article presents the works of artists that focus on hacking, hacktivism and piracy, either as acts that bring the artwork into existence or as ways of initiating the public into these practices. Through the examples of artworks that belong in different spheres –the virtual, the hybrid or the urban space- hacking emerges as the common thread that links software-based art, augmented reality art and street art.*

in collaborative actions. Hacking and hacktivism have thus gained the force of cultural and political phenomena; and these two aspects will be the main focus of this paper, following an interdisciplinary analysis that expands through the fields of art, Internet and politics.

Contemporary artistic practice often encourages people to undertake political action online or to expand their cultural knowledge by hacking. This is evident in diverse artworks that are based on hacking as an artistic medium, as a cultural practice or a subject; these examples reflect the emergence of alternative ways of (re)acting within the social frame and outline a different future for art and politics.

Beyond art spaces, the idea of 'hacking' as a means of intervening in a space and expanding the experience of reality has gained the force of a cultural phenomenon. Street art, artistic actions in the urban space, as well as artworks based on augmented reality, could be considered as a form of hacking in the urban matrix. It is, therefore, interesting to see how the idea of intervening in a system has changed the perception of reality and art. By looking into a range of examples of 'cultural hacking' –street art and augmented reality art- one can track the evolution of these phenomena and see how the interest has shifted from the 'sacred art object' to art as an everyday experience and from the 'solid world' to an immaterial and fluid space, where the intervention of the public is a vital element of the process.

In this paper we shall focus on how the discourse about free information flow has had an impact on artistic practices, and how artists, in turn, have sought to initiate the public in this ideology through specific artworks and actions. Therefore, after noting how the public is initiated into the process of file sharing, hacking and hacktivism on an everyday level, we shall see how these actions are used as artistic tools within the virtual and the real space.

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Deeply politicized but inherently playful, the artistic practices described here can easily grab the attention of the people and stimulate their intention to protest and intervene on a political level.

HACKING AND INFORMATION SHARING AS COMMON AND REVOLUTIONARY PRACTICES

During the past decades, the advent of information technologies has changed drastically the 'materiality' of everyday life. Communication, entertainment and education are continually being distanced from their previous connection to paper, celluloid, vinyl and other materials. Turning into digital files, that can be easily shared, altered, copied or erased. [2] A digital file is based on matter as well: tiny particles, electrodes. However, this minimal matter needs to go through a set of complex codes and technologies in order to be transformed into a world of fleeting images, words and sounds, which have a different impact than their 'solid' counterparts. Hence, an interdisciplinary discourse about this phenomenon has arisen to analyze multiple aspects –sociological, artistic, psychological and other- of what is being called 'immaterial,' 'dematerialized' or 'hypermaterialized' space. [3] The point of convergence among the different analyses and definitions is that within this space, matter is an ensemble of information, interaction and perception.

This state of minimal matter loaded with data creates a fluid environment, where a new socio-political balance is created as new controversies take place. Although these controversies reflect already existent competitive forces, they are further intensified by the dynamic introduced of an information society, which constantly changes the coordinates of contemporary reality.

One of the important parameters of this new balance is a significant differentiation in the traditional roles of the consumer and the producer, the public and the artist, which has shaken the foundations of the financial, political and cultural system. Nowadays, such dipoles are being rendered meaningless since the public takes part in the creative process, whereas the producers or artists base a significant part of their work on crowdsourcing and participation. In other words, we are dealing with two-way interactions. On one hand, the actions of the Internet users –their preferences, their emails and their networks- are being registered and analysed in order to maximise the impact of advertisement campaigns or product launches; on the other hand, the users share, alter and download content, participating thus actively in the dissemination of information and playing a decisive role in the reception of cultural products. [4]

Within a reality where personal pages and networks allow any user to produce and disseminate data, information is becoming disassociated from the established cultural and media networks, such as museums, official institutions and newspapers, whereas the public becomes an active agent in artistic and political developments. The doctrine beneath this development is "information wants to be free." [5] People defend the right to freedom on the Internet by reacting against any law or technical implementation that tries to restrict it; their counteractions frequently include hacking, hacktivism and piracy.

Although the three terms are often used within the same breath or interchangeably, there are certain differences between them. Originally used for journalism based on unorthodox methods, the term 'hack' was adopted by the early programmers to describe a creative solution reached through detours and reworking of existing systems. [6] In this sense, hacking is synonymous with evolution in information technologies since each development is based on the hacking of previous ones. A hacker is someone who enters a system, explores and manipulates its tools, so as to learn how it works and alter it. When this method is used as part of a political action, in order to increase political transparency and raise awareness, we are talking about hacktivism (a neologism created from the words 'hack' and 'activism'). Although piracy simply refers to the act of leaking and sharing content illegally, the motives can also be political.

Despite the differences between the terms, they often imply one another –for example, 'hacktivism' could include entering a system and disseminating information illegally.

From the controversy of the trial of the Pirate Bay, to the foundation of the Pirate Party International, which defends the right to free distribution of information online, from the protests against laws that enforce copyright to the Wikileaks case and the Arab spring, one can see that the discourse about hacking, hacktivism and piracy expands beyond the limits of the Internet. This is mainly because these acts question the existing distribution of information and power.

Hence, under the same political umbrella of freedom online, one can find diverse ideologies, with elements from libertarianism, anarchist thought, the free culture movement –rebaptized nowadays into 'open source,' so as to remove any political connotations- and hacker culture. In all, these political currents are described as "information age ideologies." [7]

People that share the information age ideologies "talk about Internet as communication" [8] –whereas for the entertainment industry and other producers, online data are copyrighted or protected content. Additionally, they defend their right to have access to any kind of information, whether it is relevant to culture or political actions.

During the past two years the information age ideologies have contributed significantly to the shaping of political events. The United States diplomatic cables leak by Wikileaks and the Arab Spring are examples that illustrate how political awareness can be raised online and how technological development can lead to political changes. These developments presupposed an online fight for freedom of information that went through blogs and social networks, media networks that are controlled by people. Moreover, when the authorities tried to confront this digital revolution by cutting access to the Internet –in the case of the Arab world-, or blocking funds sustaining the whistleblowers –in the case of Wikileaks-, hackers and online communities counterattacked. Their means of defence and the attack were providing numbers of international Internet Service Providers, in the first case, to enable Internet access for the Egyptian protesters, and unleash denial of service attacks against the websites of the enterprises that supported the blockage of Wikileaks funds in the second case. [9]

One should note that the conflicts mentioned above still have the same roots as the ones in the pre-Internet age. What is more, the 'digital revolution' still needed to be combined with traditional forms of protest in the streets; as Athina Karatzogianni notes, "the groups engaging in cyberconflicts are still fighting for power, participation, democracy but are using an accelerated process and a postmodern medium that enables asymmetries, empowering the previously marginalised or repressed [...] to foster unprecedented social and political change." [10] An old battle with new, downloadable weapons.

The public can easily become involved in the online battle, since they are already used to the idea of acquiring, altering and sharing data. One could say that, after Beuys' affirmation "every person is an artist" and Warhol's promise that "anyone can be famous," the current revelation is that *anyone can become a hacker.*

The 'information age ideologies' are not always aimed directly at political causes; they encompass different manifestations of our lives, including contemporary

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art. The idea of 'hacking' is transferred onto the cultural field as a medium of creation and as an autonomous artistic practice.

CULTURAL HACKING: CREATION AS AN ACT OF TRANSFORMATION

In order to see how the idea of hacking has fostered a new cultural paradigm, it is useful to have a look into the artistic and ideological background that preceded this evolution.

During the twentieth century artists began to expand their vision beyond the creation of the one and only *sanctified* art object. By engaging in time-specific actions and counting on the interaction with the public, they opened up a new road, where the public was called upon to form part of the artistic *ritual,* and to take part in the creative process.

In a way, the public has always had a substantial role in the creation of an artwork; for receiving is also a form of producing. According to Michel de Certeau, daily life is a collective production of all the people that use cultural products, ideas, spaces; a reader 'inhabits' a text, in a similar way to someone who inhabits a room. [11] In this sense, those who receive an artwork can be viewed as active producers, not as passive consumers.

Their role is even more crucial in interactive art. The idea of interaction, although it's nowadays primarily linked to digital art, began with Dadaism and its 1960s offsprings, like the Fluxus movement. Thus the public became gradually accustomed to the notion that they could contribute to an open artwork by acting and deciding.

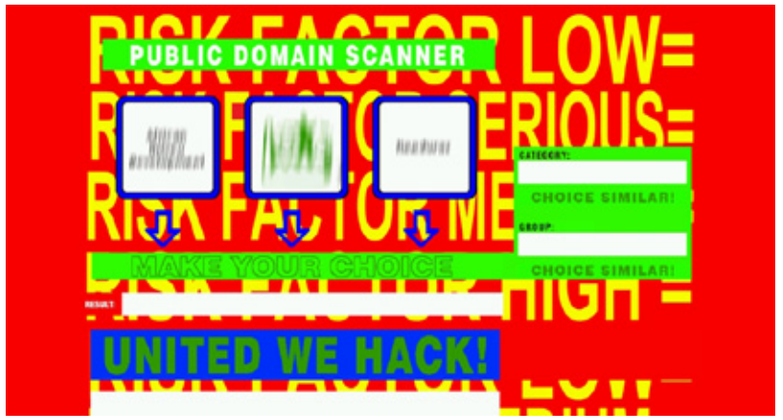
With the advent of digital technology, the interactive dimension of art came to the fore in a more prominent way. The "distributed authorship" [12] of the artwork is a realization of Roy Ascott's vision that technology would enable the cooperation among different authors and the collaboration between the author and the audience. [13]

This implies not only participating during the creative process, but also reusing already existing cultural forms as 'prime matter' for the artwork. Dadaist actions like drawing a moustache over Mona Lisa –as well as most of Duchamp's art- are a way of remixing and reusing known images in a new context: they are a form of 'cultural hacking.' Similarly, the Situationist concept of 'détournement,' which encouraged a subversive attitude towards the capitalist system, by reinterpreting and decontextualizing its logos and images, [14] as well as the appropriation and alteration of marketing strategies by the culture jammers of the 1980s could also be viewed as forms of 'hacking.' [15]

These ideas prevailed once the 'tyranny' of originality was rejected –the modernist notion that one needs to start with a blank canvas or a raw material, and create something unique. Instead, nowadays "the artistic question is no longer: "what can we make that is new?" but "how can we make do with what we have?" [16]

Rather than seeking to create new images, artists take ready ones and rework on them; the act of reworking on digital files, subverting previous uses of an object or injecting images arbitrarily on the surface of the city via augmented reality and street art could be viewed as a hacking of cultural forms.

Even though artists have always had a wide range of forms to work with –images from art history or everyday objects- information technologies have multiplied these sources and their transformative potential. Within the Internet, one can find an endless array of images and sounds, which can be digitally transformed



Minds of Concern, 2002, Knowbotic Research, (screen print). Software Installation. Variable dimensions. Installation at the Museum of Contemporary Art of New York, Exhibition 'Open Source Art Hack.' Image courtesy of Knowbotic Research. © Knowbotic Research, 2002.

Minds of Concern, 2002, Knowbotic Research, (installation view). Software Installation. Variable dimensions. Installation at the Museum of Contemporary Art of New York, Exhibition 'Open Source Art Hack.' Image courtesy of Knowbotic Research. © Knowbotic Research, 2002.

through software by the artist or the public –roles that are interchangeable and shared.

The act of downloading is a means of producing culture; by browsing, selecting, downloading and sharing one creates a 'digital footprint' and a new association between the items selected, a personal viewpoint that constitutes a 'profile' of one's cultural preferences. So, downloading is not about appropriating –defying ownership or taking something someone else owns- but about helping ideas and cultural objects circulate. As Bourriaud notes, "artists' intuitive relationship with art history is now going beyond what we call 'the art of appropriation', which naturally infers an ideology of ownership, and moving toward a culture of the use of forms, a culture of constant activity of signs based on a collective ideal: sharing." [17]

'Cultural hacking,' in parallel to the generalized use of the term, implies entering a system, understanding how it works and creating something new out of it. Summing up its features, Franz Liebl, Thomas Düllo and Martin Kiel noted that it is about orientation and deorientation, seriousness and playfulness, bricolage and experimentation, radicalization of the original idea, intervention onto a system and dissemination. [18]

These features will be illustrated more analytically below, through the examples mentioned as forms of cultural hacking, within three different dimensions: artworks of hacking online, where the public is initiated into information age ideologies and subversive actions, hacking within a hybrid space –the real space viewed through augmented reality- and hacking within the urban matrix by means of street art.

SPREADING HACKER ETHICS AND DATA SHARING IDEALS THROUGH ART

Hacking has recently become a significant source of inspiration for artists who use software and the Internet as a basic element of their work. By using hacker methods, piracy and hacktivism, these artists not only reflect the political events and social currents of our time, but also create an environment where the public can get personal experience of these processes.

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The Pirate Bay at the Venice Biennale, 2009 (logo). Image courtesy of Miltos Manetas. © Miltos Manetas, 2009.

Untitled (Pirate Painting), 2009, Miltos Manetas. Oil on canvas and hard drive. 30 × 40 cm. Image courtesy of Miltos Manetas. © Miltos Manetas, 2009.

In *Minds of Concern: Breaking News* (2002) by Knowbotic Research, [19] presented in the Museum of Contemporary Art of New York, the public is initiated into 'white hat' hacker ethics; this type of hacking involves breaking into a system to check for possible security flaws, without altering it. Within a similar mindset, the artwork invited the visitors to choose one target among websites of groups, movements and non-governmental organizations, triggering a port scan of the selected webpage. After a while, the participants could see whether the security of the website could be breached and how vulnerable the site was against possible hacker attacks.

Although the intentions of the artists were benign –to warn the interested parties and the viewers about the vital issue of security- the artwork was shut down after a few days, with the justification that port scanning, even though legal, went against the Internet provider's acceptable use policy. Therefore, this artwork illustrates not only how hackers act –by encouraging the viewers to adopt such a role- but also how these acts are usually confronted –in a restrictive way, even if the action performed is not illegal.

The reaction against cultural hacking left its mark on the Internet Pavilion of the 2009 Venice Biennale as well. The curator of the Pavilion Miltos Manetas, known for his Internet art, created an *Embassy of Piracy*, where he invited the Pirate Bay. [20] This invitation was an eloquent way of showing that the act of sharing and downloading files can constitute a cultural act, as was mentioned above. Additionally, the visitors of the *Embassy* were offered tutorials on piracy and were informed about the significance of sharing as a cultural act. The Pirate Bay, a website bringing community together dedicated to file sharing, was received as a community of artists; this recognition was in the same line as the awarding of the operating system Linux with a prestigious art prize, the 'Prix Ars Electronica' (1999). However, the presence of the Pirates in the Venice Biennale was met with hostility from the Italian authorities, who raided the *Embassy* claiming that "you cannot have the Pirate Bay here." [21]

One can view the *Embassy of Piracy* controversy as the meeting point of three different "territories": a state with laws that protect author rights, an artistic place where new ideas are being explored and the

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The Transparency Grenade, 2012, Julian Oliver, (interface). Computer, microphone, wireless antenna, resin, silver. Variable dimensions. Image courtesy of Julian Oliver. © Julian Oliver, 2012.

Internet as a territory of information. In regard to the last, Miltos Manetas declared in his "Piracy Manifesto": "We all live in the Internet, this is our new country, the only territory that makes sense to defend and protect." [22] The Internet is presented as an immaterial world of information that runs in parallel with the real world, often intersecting with it, as we shall see in the case of augmented reality.

Julian Oliver also defends free information sharing through his work; in the aftermath of the Wikileaks case he created a *Transparency Grenade* (2012) [23]

The Transparency Grenade, 2012, Julian Oliver, (overview). Computer, microphone, wireless antenna, software, resin, silver. 11,7 × 5,5 × 5,5 cm. Image courtesy of Julian Oliver. © Julian Oliver, 2012.

that served this purpose. In the shape of a deadly weapon, the artwork is equipped with advanced technological software that allows the capturing of data from closed meetings. A tiny processor, a microphone and a wireless antenna are put into function once someone pulls the pin, capturing audio and network traffic and streaming it live to a dedicated server. This means that any data captured; e-mail fragments, pages, images, voices can be instantly presented online.

Thus the artist goes against the laws that encourage opacity in governing and control in information sharing –laws based on the pretext of public security and loss of revenue for content producers. Regarding the latter, he stated that, "with the *Transparency Grenade* I wanted to capture those important tensions in an iconic, hand-held package." [24] By creating a downloadable smartphone application with similar features as the *Transparency Grenade*, the artist provided the public with a digital, yet powerful weapon, which can easily turn anyone into a 'whistleblower' –following the example of Wikileaks and other organizations that are dedicated to revealing dishonest activities.

In all the cases mentioned above, the artwork is a participatory experience, with the potential to initiate the public into hacking methods and ethics. It is easy to observe that although we are dealing with art that exists in the immaterial sphere of the digital, there is a strong connection to politics *off*-line. The interconnection between the real and virtual space via artistic

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actions will be further examined with examples of augmented reality art and street art, which show a new way of acting within the urban space.

HACKING THE URBAN SPACE: AUGMENTED REALITY AND STREET ART

As a substrate for artistic action, the city is a place with already structured symbolic values, which influence people and their actions. The artists who work within the urban space seem to be aware of this fact; thus the artworks of augmented reality and street art are intrinsically linked to their environment, creating a dialogue with the city and its inhabitants.

Nowadays, it is becoming more evident than ever before, that the invisible and immaterial space is being oversaturated with information, flowing through the air, waiting to be processed and displayed with the right device. In fact, we are dealing with a hybrid sphere of action, that keeps growing: the Google glasses [25] that add a layer of virtual reality onto the real world with nonstop information flow, Quick Response codes that can be scanned through mobile devices and lead directly to a website, smartphones that provide constant Internet connection are some examples of this growing trend. Within this context, it is interesting to have a look onto augmented reality art that is based on these developments, often preceding them.

Julian Oliver's *Artvertiser* (2008) [26] runs the distance between the data-saturated air and the surface of the city, trying to alter its aspect via augmented reality. Through a software platform, advertisement images in the street are replaced with art images in real time. These artworks, created in advance by a multitude of artists –sometimes as a parody or a response to the original advertisement- become visible when someone looks at the advertisement billboards through special glasses or a mobile device.

As the artwork is based on an open-source code, which can be downloaded and modified by any user, it highlights the ethos of collaborative effort underneath technological evolution. Moreover, it questions the established network of visibility within the city and the hierarchical distribution of space, by visualizing a flow of data that come from an independent source, and not the authorities, advertisement companies or Internet 'giants' –the websites with the most traffic and impact.

The Artvertiser, 2008–2010, Julian Oliver. Software platform. Variable dimensions. Image courtesy of Julian Oliver. © Julian Oliver, 2008–2010.

The Artvertiser, 2008–2010, Julian Oliver. Software platform. Variable dimensions. Image courtesy of Julian Oliver. © Julian Oliver, 2008–2010.

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A similar 'hacker's' approach to urban space is adopted by artists who work with street art, invading the city and changing its predetermined appearance. Street art seizes the 'non-places' of the city –massive housing blocks, crumbling walls, decadent neighbourhoods, chain stores and highways- and de-anonymizes them, making the invisible visible again. Like hackers, these artists alter the established rules of the urban matrix and find 'detours' for changing it, by creating new nodes of meaning in space.

Even though, street art came before the expansion of information technologies, Internet gave it a significant boost: in fact, Street Art has been described as "the first truly post-Internet art movement, equally at home in real and digital spaces as an ongoing continuum." [27]

Street art is the first massive artistic movement that has flourished because of the Internet; its inherent ephemerality is counterbalanced by the extensive documentation of street art images online, through digital files that enable the preservation and growth of the movement. What is equally relevant here is the fact that the public has acted as a catalyst to the popularity and omnipresence of Street Art. As it is accessible to everyone, people take pictures and disseminate them through the web, making them visible to a large audience and thus motivating more artists to get involved in the movement.

This development illustrates how downloading and sharing information contributes to the creation of culture, as was mentioned above. It is "the work of art in the age of instant digital dissemination." [28]

There, numerous artists involved in street art that could be mentioned as examples of 'hacking' in the urban space; among them, Banksy is one of the most prolific ones. The artist takes ready images and messages from art history, popular culture, advertisements and incorporates them into a subversive work, filtered through a Duchampesque irony; it is a solid example of Bourriaud's postproduction theory of how images readily become the prime matter to create new artworks. [29]

Apart from his street art images, Banksy is often involved in guerrilla acts, raiding spaces in order to disrupt the flows of meaning and to create alterations within their system –just like a hacker.

In his *'attack' against Disneyland* (2006) [30] Banksy entered the entertainment park and installed an inflatable figure representing a Guantanamo prisoner. The artist manipulated the elements of a system with

Installation of an inflatable figure representing a Guantanamo prisoner in Disneyland, 2006, Banksy. Video still from the video of the action on YouTube.

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Peckham Rock (Early Man Goes To Market), 2005, Banksy. Concrete. 15 × 23 cm. Photograph by Alexander de Querzen. Image courtesy of Alexander de Querzen.

established values –in this case Disneyland- in order to awaken the visitors from their oblivious state and to make them face reality. Like the hacking of a website –where the content is taken down and replaced by a text of protest- or the 'leakage' of disclosed information, Banksy reminds the public of Disneyland of what is going on behind the colourful curtain of consumerism. At the same time, he compares an entertainment park to a detention camp, adding a very dark hue to mainstream culture. [31]

Although there is certain playfulness to Banksy's actions, a closer look into the images he installs reveals a profound criticism of contemporary culture. In *Peckham Rock* (*Early man goes to market,* 2005) he placed an artefact that resembled a prehistoric painting of a man with a shopping trolley onto the walls of the British museum, with a caption that credited the work to Banksymus Maximus and described is as art from the "post catatonic era." [32] The work blended so well with the rest of the exhibits in the room that it went unnoticed for a few days. Although the British Museum received the action with a sense of humour, adding the artwork to its permanent collection, Banksy's arbitrary presence is not always so welcome. Other 'attacks' against cultural institutions –installations of artworks that mix harmonically with the style of the collection and the exhibition space, but with a subversive element that introduces distraction in the flow of meaning- were perceived as disrespectful acts by the officials of the institutions.

The reception of Banksy's actions ultimately reveals the attempt to control culture, by limiting it to established cultural sites –a control that the 'cultural hackers' of the real or virtual space seek to override.

CONCLUSION

As solidity gives way to the immaterial world of code and the everyday life becomes more and more dependent on a constant flow of information, new dynamics have arisen in politics and culture. The role of Internet users becomes vital; as they download, share and alter files, new nodes of communication and meaning are created that often override existing laws regarding information exchange.

While the issue of free information becomes the starting point of diverse cultural and political movements, "the hacker emerges as the new leading figure of the intellectual," [33] a catalyst that allows technological and ideological developments to happen. Hacking, hacktivism and piracy, are fermenting a multitude of changes in the social tissue. Providing people with the tools to form groups, make their demands and trigger cultural and political evolutions, acting beyond the conventional networks of distribution of information. It is true that these 'tools" can often be used in a harmful way; however, our main focus here has been the cultural aspect of the phenomenon: how people are being encouraged to take initiative, get a better understanding of technology and participate in the creation of culture.

Without doubt, these acts can have a prominent political character, since the 'information age ideologies' that inspire them challenge the political and financial status quo. This is reflected in 'hack' art, particularly works that highlight the underlying conflicts and stimulate the people to take an active part in them, by learning, participating and making a contribution. Artists and viewers equally share the roles of consumers and producers of cultural objects that are based on the recycling and 'remixing' of already existent pictorial forms, subject to incessant change.

Hacker and pirate practices, like port scans, security breaches, downloading of copyrighted material, entering systems, dissemination of information, become the prime ways through which the artworks analysed here come into existence. These actions take place either in the virtual space, the urban matrix or an in-between state of augmented reality, where the two worlds intersect.

'Cultural hacking,' the tendency to remix existing cultural forms and to alter systems, introducing new elements that foment cultural and social evolution, is becoming a growing cultural and political practice. In a world where anyone can be a hacker, political and cultural change is only a matter of a few mouse-clicks. ■

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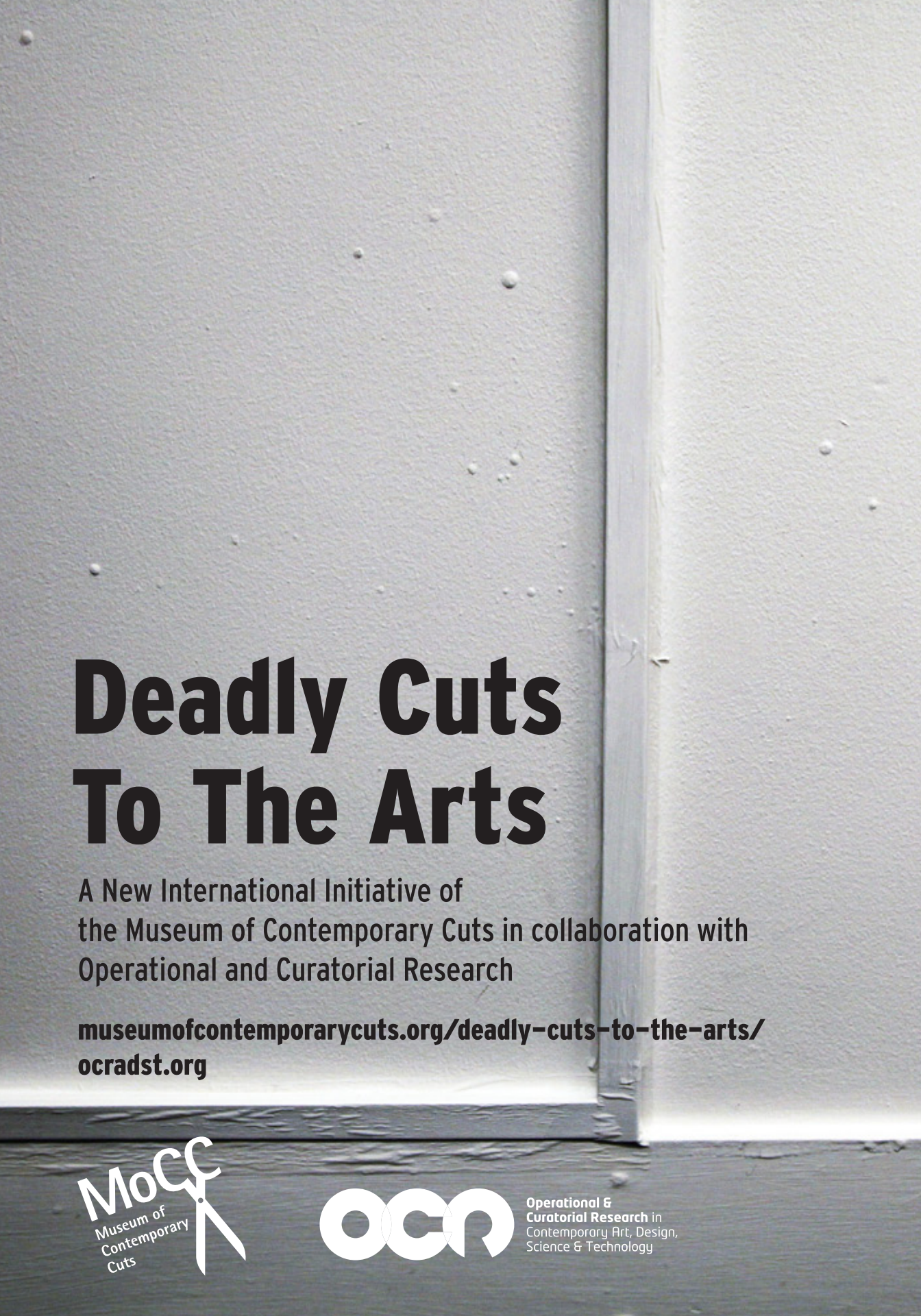

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