CULTURAL-SMART CITY: ESTABLISHING NEW DATA-INFORMED PRACTICES TO PLAN CULTURE IN CITIES

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Abstract. The idea of the Creative City has encouraged planners to develop cultural policies to support creative economies, city branding, urban identity and urban quality. On the other side, the concept of Smart City introduced the possibility to create, collect and analyse data to inform decisions on cities. The two city agendas overlap in different ways, creating a Smart cultural city nexus, that propose similar goals and mixed methodologies, like the possibility to inform planning processes with big data-based technologies. In line with this direction, we introduced conceptual and methodological tools: the first tool is the definition of Hybrid Art Spaces, the second tool is the Singapore Art Maps (SAM), which uses social media data to locate art venues in cities (Tomarchio et al. 2016); the third tool is the Social Media Art Model, which establishes a relationship between social media production and art venues features. While these tools have already shown interesting analytics outcomes (Tomarchio et al. 2016), it is important to validate their utility among practitioners and to set protocols of practices. This paper presents results from semi-structured interviews and a focus group, as a first step towards assessing the usefulness of our three tools for cultural planning practice.

Keywords. Social media; art; cultural planning; urban planning.

With the introduction of social media, the production and consumption of art are changing significantly. It has resulted in the emergence of Hybrid Art Spaces: social spaces existing both in physical space and on social media. The actual importance of the hybrid nature of art consumption is influencing the way art and culture are conceived, almost adapting art production to the aesthetic and format necessary for social media discussion and hype (Cascone, 2019; Woon, 2019). Anyone approaching the planning of art in cities ought to consider this shifting paradigm. Besides, social media produce user-generated data able to provide information about the urban environment and support for decision-making...
processes, in line to what is advocated by the idea of Smart City (Hashem et al. 2016; Lim, Kim, and Maglio 2018). The present paper positions itself at the convergence of Smart Cities and Creative Cities, an intersection that has emerged with the advent of social media and the resulting shifting modes of cultural production in creative economies (von Richthofen, Tomarchio, & Costa, 2019).

Studying social media related to art production and consumption, with a focus on planning, is potentially beneficial for different practitioners. This sector of interest is very wide and it encompasses many different studies and contributions from a variety of disciplines. Curatorial practices tried to frame how to interpret an audience’s attitude towards picturing and sharing art in museums and art places (Stylianou-Lambert, 2016) or how to envision a shift in art production for museum institutions (Parry, 2010). The shifting of art production and consumption due to the introduction of social media has been analysed from many points of view. However, we have not encountered studies approaching this topic from a design perspective, which would be able to creatively use the definitions and tools for future case studies. In addition, there is a clear research gap when it comes to applying data analytics: a limited number of existing studies (Currid & Williams, 2010; Granpayehvaghei, Bonakdar, Zandiatashbar, & Hamidi, 2019) apply advanced data analytics on art-related user-generated data and include social media related indexes in cultural planning.

To address these gaps we introduced conceptual and methodological tools (Tomarchio et al. 2016) that include social media analysis to evaluate cultural planning strategies. More specifically, the tools we discuss are:

- The definition of Hybrid Art Spaces, which is a concept that integrates art venues and digital technologies;
- Singapore Art Maps (SAM), which uses social media data to locate art venues in cities (Tomarchio et al. 2016);
- Social Media Art Model, which establishes a relationship between social media production and art venues features (Tomarchio et al., 2020).

Those tools have already shown some promising analytical results. Nevertheless, the Smart city implementation is strictly connected with know-how development (Angelidou, 2015; Ben Letaifa, 2015); with this paper, we aim to address this need by introducing the tools to Singapore based practitioners. The research goals are to assess the perceived value of the tools, to determine their existing potentials and limits and to find current practices that could benefit from them. To pursue these goals, we organised a focus group and a series of interviews. The underlying question that drives all the interviews is: can we support cultural planning if we understand its relation with social media data?

The paper starts with a description of the methodology and some key aspects of cultural planning in Singapore. An overarching section describes the consensus on the validity of the research and then three separate paragraphs introduce the different tools. In each section, we shortly describe the tool and then we focus on the potentials, limits and future applications with reports from the conversations with practitioners.
1. Methodology

The aim of the research is to position three tools relative to the practices of different actors (cultural planners, urban planners, artists, art critics, and art managers). In this research we consider the term tool with a wide definition, which includes conceptual and operational tools (FUTURE CITIES LABORATORY, 2019). Tools support actions, like designing or thinking. The first tool is a concept, an original definition that we introduce and support through existing literature. The concept of Hybrid Art Spaces and its explanation can inspire and guide cultural practitioners in their activities. The second tool (Singapore Art Maps) is a methodological tool, to define metrics and indexes to quantify the social media activity in art venues and is also an analytical tool that users can navigate to explore art related social media data in Singapore. It is more open to different applications: we propose a way to collect, visualise and analyse social media data, but the interpretation of the data and application of the tool is open. The third tool (the social media art model) is a machine learning model (analytical tool) that correlates the media production in art venues with different attributes. The practitioners are mainly asked to comment on the results, which can inform their future work.

The methodology is based on two steps: a focus group with five people and four interviews. The people selected for both steps have been active in the context of cultural production in Singapore for the last five years, and they represent not only different disciplines but also different roles (institutional, independent, commercial). During the focus group, we asked different practitioners to do an individual presentation on the possibilities of the Smart Cultural city nexus and then through a guided discussion, focused on the points highlighted in this paper. The interviews, on the contrary, were semi-structured interviews, where the participants were shown the different tools and asked to comment on their value, possible future applications and limits and potentials. The outcomes are anonymised, but we highlighted the discipline domain to show a different perspective on similar topics. The age of the people currently interviewed ranges from 30 to 45 years old. The focus group was composed of an art manager (AM), two urban planning academics (UP), a journalist (J) and an art director (AD). So far, we have conducted the first four interviews, including an art manager (AM), two urban planners (UP) and an exhibition designer (ED). We recorded, transcribed and coded (Harding, 2015) both the interviews and the focus group. The following text proposes the recurring themes and confronts different opinions on similar topics.

2. Case study: Singapore and its context

The tools discussed in this research paper are currently applied in the context of Singapore. While the research refers to Singapore, many of the observed urban phenomena have a global scale. The dynamics between new media and art can likely be observed, perhaps at different speeds, in other cities around the world. Currently, the tools and the analytical resources have been tested and proven only in the context of Singapore and the outcomes of the interviews are strictly
connected to Singapore specific art situation. Therefore a quick overview of the specificities of the art scene in Singapore, and its planning practices is beneficial.

The art scene in Singapore is still quite dependent on government support, with limited funding from private collectors and investors (Said, 2017). This dependency on government support makes it easier to observe the studied phenomena in isolation of other types of support, and hence easier to extract knowledge to inform planning and policy. The Singapore government created data resources on the website of National Art Council (NAC) that include lists of recipients of grants and the location of art spaces, such as facilities (studios, stages, spaces for rehearsal, galleries) offered to artists. Following the renaissance city plan and the report on art and culture strategic review (National Art Council 2008a, National Art Council 2008b, National Art Council 2008c), the government provided grant schemes, but also art spaces and art facilities (S$270 million worth of programmes). The art spaces and the art facilities are designated in conversation with the Urban Redevelopment Authority (URA), with a spatial agenda.

3. Perceived relevance of the research by practitioners

The overarching questions leading all the interviews and focus group was: can we support cultural planning if we understand its relation with social media data? There are two types of reactions to the above question: events curators and exhibition designers consider the relationship between art venues and social media as very relevant (“I think it is beyond relevant. I think it is inevitable.” (ED) and “It’s mandatory. It’s compulsory.” (AM). On the contrary, urban planners do not view social media as something that affects the way they think of art spaces. Social media rather represent side information that can be useful, together with another source of data, to frame and understand a place.

“I think a lot of social media information can complement other things that we might get from places to put some kind of picture together of the full of places.” (UP)

In the context of curators or art practitioners in Singapore, there is, among governmental clients, the introduction of specific requirements linked to the use of social media; the concept of ‘Instagrammable’ is a requirement that demands physical locations and works of art to instil in audiences the desire to make a picture though digital cameras and share it on social media. While the term is officially used in institutional tenders, the idea of Instagrammable is still very vague.

"There has been this shift towards creating memorable experiences. In the daily vocabulary its Instagrammable. [...] And there has been a shift for example in the requirement of institutions client where more and more the word that comes is Instagrammable. It should be Instagrammable. Ten years ago, it wasn’t [...] Any kind of cultural event should be Instagrammable because it can be shared. So, it’s the aim of sharing to attract more people.” (ED) or “They always ask for Instagramm-able moments”. (AM)
4. First tool: the concept of Hybrid Art Spaces

Hybrid Art Spaces are art venues existing both in physical space and on social media, resulting in various forms of hybrid consumption and production of art taking place in merged physical and non-physical social spaces. The term draws on the concept of Hybrid Space (de Souza e Silva, 2006) where space is intended primarily as social space (Lefebvre & Nicholson-Smith, 2011). Social space is constructed by situated social practices in the space; the innovation of hybrid (art) spaces is that (art-related) social practices can be situated in social media.

Different practitioners validate the definition, stressing specific aspects:

- the impression that production and consumption of art is shifting due to the introduction of social media, where sharing becomes a way to consume art: "artwork today is something to be shared and that's it because it is a way of consuming." (ED)
- the mutual interdependence between the physical world and the digital world, mainly happening through social practices that navigate between the two spheres: "there is always this idea of the online to offline to online again. You see something online, on Instagram, on Twitter, one Facebook and so on. It attracts you so you will go online to find that information. You can see the design hints: the graphic design, pictures. It excites you. You want to go there. You go there. You are there because you saw others taking pictures. You do the same. And then to show that you did the same, you share it" (ED); "people coming earlier, start taking photos that are mostly stories and videos (to be shared on Instagram) because then it attracts more people.” (AM)

The term practitioners directly use to indicate that a physical space behaves as a Hybrid Art Space is Instagrammable. This term refers to the potentials of the physical spaces to attract pictures and shares and it became a client requirement in Singapore. How can we deconstruct the term Instagrammable, and explore what aesthetic, process, practice support the idea of Instagrammable in spaces and art? According to the different practitioners the nature of Instagrammable is to create an object (art, space, social interactions, practical items) that is:

- iconic and visually attractive: "when there is something iconic, when there is something that will draw attention. It can be light, it can be material, it can be an infinity effect. If it's not extravagant enough, if it's not strong enough or exhibition colours or exhibitions light, if it is too muted, they know that only certain kind of people will be taking pictures and that will not create the buzz.” (ED)
- immersive for the audience: "Something that will make you looking good inside.” (ED)
- encompassing different aspects: "So there has been this shift towards creating memorable experiences. In the daily vocabulary its Instagrammable. I use the word experiential because when we think of experiential we think of multimedia, big lights, big music, your body, the five senses.” (ED).
- digitalised: "Digitalised as part of the experience [...] you must provide something that is also digitalised, in a way. AI experience. It has to be something that is bridging the digital and physical world.” (AM)
The overall call for Instagrammability is a call for numbers, as the phenomena of picture taking and sharing are driving more and more people to art venues. Many practitioners question whether the requirement to produce Hybrid Art Spaces favours quantity over quality: “Now, it is becoming that nobody cares if it is intellectual or not as long people absorb it. So, there is content becoming more and more stupid just because it is easy to absorb because it is easy to see on a small screen and that is it. [...] We can have amazing artists, very spiritually, philosophically, aesthetically and artistically, historically strong but if they aren’t Instagrammable then that’s it. That’s the most important thing.” (ED)

5. Second tool: Singapore Art Maps

The second tool is the Singapore Art Maps (SAM), which is introduced in Tomarchio et al (2020). The SAM consists of a set of geographical data, derived from social media (Twitter) analysed with machine learning. This data is accessible in multiple forms of visualization:

- Singapore Views, a 3D visualisation developed by the Future Cities Laboratory (Fig 2);
- GIS based maps.

![Singapore Views](image)

Figure 1. Singapore Views in a 3d environment to navigate across the social media data about art venues.

The tool comprises several sub-tools, to use in the different stages of the analysis. The overall process of SAM is:

- collection of Twitter data, with a crawler component in a Java environment to gather data from the Twitter API (Application Programming Interface). We collected a set of 8,035,207 tweets within Singapore covering a period of 615 days (from 25/04/2016 to 31/12/2017).
Social Media Art Classifier: a machine learning feature able to depict art-related tweets in Singapore and its main topic.

Topic Diversity and Sentiment analysis: machine learning features to determine the main topics of the art tweets (clustering analysis), and quantify the main sentiment of a tweet (sentiment analysis).

Social media metrics: a combination of cultural planning data and social media data, resulting in the classification of different art venues in cities in three categories: Confirmation, Negation and Emergence. The Confirmations derive from planning practices in Singapore: they represent venues which benefit from grants and other forms of support. They meet a certain threshold of media production, derived from the general distribution of social media in Singapore. Negations are, on the contrary, planned locations, which do not meet the threshold. Emergences represent alternative art venues, locations not supported by planning policies, which still have a relevant media contribution.

The different practitioners comment on the tools and define a part of their activity or a general goal which would likely be supported by the use of the tools. One main criticism is the current lack of diversification both of the type of art production and the type of audiences. There are different urges to produce art, and while commercial art strives to attract wider audiences and therefore to be visible in maps, other productions are only limited to smaller audiences and minority communities that often do not wish to appear on social media. There is a subtle threshold between visibility and need for invisibility, where social media and social maps play an unknown role which might not be auspicious. “Some artists don’t want to be called artists. Then those who want to be seen and called artists are interested in making art for everyone and selling.” (UP)

Art practitioners and curators recognise SAM’s potential to research alternative locations and venues, which is supported by the tool’s Emergences. Singapore’s art scene lacks a variety of venues, besides official ones, and the tool can offer alternatives. “For much of the past 15 years these sites, especially independent artists’ initiatives, diminish in the wake of large-scale institutionalisations, including the development of the National Gallery, the Art Stage Fair, the Art Science Museum and Gillman Barracks.” (AM)

“I think it is very useful. Not necessarily for big institutions but for art planners, art event companies that are looking for other attendants. But what is important is to ensure that it is reachable. If it is not reachable, and you are targeting families, they will not come because it is too complicated. If it is to target for the young people, they are pretty mobile, they can easily move then that is okay.” (ED)

Other activities to be supported by the tools would be Museum Planning (ED), which is the planning activity to support the foundation of a new museum, including establishing the museum vision, in reference to existing ones. Other practitioners (AM) consider the tools useful to calculate cultural events impact, to gather further support from stakeholders and investors.

Urban planners acknowledge the potentials of the tools for cultural assets mapping, but they question the sustainability of the emergences, meaning the art venues that show interesting media contribution and that currently do not benefit from planning support.” When you see emergences, is it concentrations that last
over time? Or are they quite transient? Is a location slowly becoming a centre of life?” (UP).

6. Third tool: the Social Media Art Model

Finally, the interviewers judged the construction of a machine learning model which is able to understand what features mainly influence the social media outcome in art venues. The machine learning model correlates features of art tweets in particular art locations to their art-related social media production, labelled as Negation and Confirmation (Fig 2). The aim of this model is to understand the relative importance of different features in the generation of art-related social media communication (Confirmation or Negation).

The interviewers commented on how to integrate the model or to make it better based on their experiences. The first criticism is the lack of festivals and events as separate art venues. Festivals and events are becoming the main asset in Singapore’s cultural scene, and while they usually take place in locations generally used as museums or galleries, festivals transform those venues, making them accessible during a different time of the day, proving food or not, etcetera. In the current model, there is no specific focus on festivals and events. “it is suddenly to transform an art venue that is known, the National Gallery, the National Museum, Singapore Museum into a destination for a special event. And people go because it goes with an empirical system. You have food, you have retail, the streets are closed so there is this idea of suddenly you own the space as a community.” (ED);

“But once in a while, they have these festivals or something that suddenly becomes a big draw for people. Whether there are food and beverage nearby, at least in the Singapore context, would influence media production.” (UP)
Other comments suggest data to further integrate into the model, including rent prices (ED), visibility from the road (UP) or accessibility of the location (UP). Moreover, some practitioners express the need for an audience division, where the model is subdivided in multiple models targeting specifically tourists, locals, or art enthusiastic audiences. While such profiling using social media data is possible and has been done in many studies (Blanford, Huang, Savelyev, & MacEachren, 2015; Fisher, 2010), it implies gathering and evaluating people’s social media profiles, which is not considered a desirable outcome for the current research.

7. Conclusion and current limits

With the current study, we aimed to position three tools within the broad context of cultural planning practice in order to explore their limits and potentials. The interviews validated that different cultural planning-related fields are interested in this topic of research and the tools developed to study it. Their feedback was very valuable in mapping potential applications of these tools. The general feedback on the value of the research was very positive and it points out the direction of future work, like museum planning and events impact calculation. The general definition of Hybrid Art Spaces is well accepted and it encompasses the idea of "Instagrammable", which is widely used by institutional and commercial clients. The idea of Instagrammable encompasses visual identity, with multimedia and digital experiences. Currently, the interviews and the focus group include practitioners aged between 30 and 40 years old; future iterations of the research would benefit from the inclusion of younger practitioners, as there is a generational gap of the use and approach to social media (Venter, 2017).

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