Producing place atmospheres digitally: architecture, digital visualisation practices and the experience economy

Abstract

Computer generated images have become the common means for architects and developers to visualise and market future urban developments. This article examines within the context of the experience economy how these digital images aim to evoke and manipulate specific place atmospheres to emphasize the experiential qualities of new buildings and urban environments. In particular, we argue that CGIs are far from 'just' glossy representations but are a new form of visualising the urban that captures and markets particular embodied sensations. Drawing on a two year qualitative study of architects' practices that worked on the Msheireb project, a large scale redevelopment project in Doha (Qatar), we examine how digital visualisation technology enables the virtual engineering of sensory experiences using a wide range of graphic effects. We show how these CGIs are laboriously materialised in order to depict and present specific sensory, embodied regimes and affective experiences to appeal to clients and consumers. Such development has two key implications. Firstly, we demonstrate the importance of digital technologies in framing the 'expressive infrastructure' (Thrift 2012) of the experience economy. Secondly, we argue that although the Msheireb CGIs open up a field of negotiation between producers and the Qatari client, and work quite hard at being culturally specific, they ultimately draw "on a Westnocentric literary and sensory palette" (Tolia-Kelly 2006) that highlights the continuing influence of colonial sensibilities in supposedly postcolonial urban processes.

Keywords: architecture, experience economy, computer generated image, senses, atmosphere, digital visualisation, Doha, Qatar

Introduction

The tools through which architects imagine and produce future cities have drastically changed in the 21st century. Since the 1970s architects have steadily moved from hand drawn images to computer generated visualisations. Digital technology has further transformed architects offices and working practices, so that what was once 'computer-aided architectural design' has become 'computer-mediated design' (Krauel 2010). The use of visualizing software applications such as SketchUp, Rhino and Studio Max to create particular place atmospheres in architects' visualisations has become an essential part of designing buildings and their envisaged social occupation. Indeed, CGIs have now become *the* most common type of image media used to visualise and market future urban redevelopments. They have become such an ubiquitous part of producing and marketing urban landscapes in contemporary consumer culture that we could claim that they are one way in which cities "are being beckoned into existence by code" (Thrift & French 2002:311).

At the same time as digital visualization technologies have expanded rapidly in architecture studios, architecture has become increasingly focused on questions of atmosphere and sensory affects (Pallasmaa 1996; Zumthor 2006 a, 2006b). Once associated with a phenomenological strand of architectural theory, a concern with 'atmosphere' has entered the commercial mainstream as a practice of architectural and urban branding and marketing within the context of the 'experience economy' (Lonsway 2009). As public life has become increasingly commercialised since the 1980s, new developments are promoted by developers through 'place marketing' with an emphasis on the sensory, experiential qualities and atmospheres of places (Ashworth and Voogd 1990; Howes 2005; Julier 2008; Degen 2010). In this paper we suggest that the use of visualising technologies has become central to articulating an increasingly prominent concern with atmosphere in architecture, due to the increasing sophistication and affective capacity of digital images. However, as several critics have pointed out in a range of disciplines from marketing, computing studies to human geography (Biel-Missal & Sarren 2012; Ash 2009), little empirical research has been conducted on the ways in which atmospheres "can be actively

manipulated for commercial and economic ends in the design and production of consumer services and goods" (Ash 2010:654).

Klingman in her discussion of 'brandscapes' describes how architecture's focus has moved from a more functional role, in other words "the formal properties of the object", to a more experiential role, namely "the effects it generates for the subject" (2007:11). Architects' ability to use digital technologies in their techniques of representation has led to a conscious virtual engineering of sensory experiences using a wide range of graphic effects as we can see in the prominence of CGIs. So far however, CGIs have been given relatively little attention as new and distinctive forms of visualising and marketing the urban. When CGIs have been examined, their digitality has been understood only as increasing the images' ability to represent ever more fantastical and seductive imagined spaces as Jackson and Della Dora claim: "they are destined to remain unrealised 'aterritorial' projects, flimsy icons of a global geographical imaginations, disembodied texts travelling through complex worldwide networks" (Jackson and Della Dora 2009:2092). While they are certainly part of various networks (Rose, Degen & Melhuish 2014), we argue here that they are far from "disembodied texts" and instead, as we will show through our case study, they are laboriously materialised in order to depict and present specific embodied regimes and affective sensory experiences to appeal to clients and consumers. We further demonstrate that despite living now in supposedly 'postcolonial urban times' (Sheller 2009; Edensor & Jayne 2012; Melhuish, Degen & Rose forthcoming) and despite being underpinned by a great deal of locally-specific research and negotiations with the Qatari client, the digital-sensory fabrications that produce these atmospheres are shaped by a universalism that assumes a singular western sensibility.

This paper is structured as follows. In the following section, the concept of 'place atmosphere' is theorised in relation to the digital and developments in the contemporary economy. Drawing on the work by Tolia-Kelly (2006), we highlight the ethnocentric focus that frames much of the recent theorising around the concept of atmosphere and assumes a universal way of 'feeling'. We then describe in the next section our case study, the Msheireb development in Qatar and its particular use of CGIs. In the third section we discuss three key aspects of the Msheireb CGIs. We start by examining how they are produced; then analyse how their digitality allows for particular sensory modalities to emerge, and lastly we discuss how these affective

embodiments are based on a restricted 'somatic norm' (Puwar 2004). Finally, in our conclusion we discuss the implications of the commercial production of atmospheres for the ways in which urban places are conceived and represented.

1.Theorising digital place atmospheres

The rise of the experience economy (Lonsway 2009) has fuelled an increased concern with the notion of atmosphere. A range of writers such as Bőhme (1993, 2003), Lash & Urry (1994), Thrift (2009, 2012), Featherstone (1991, 2010) and more recently Biehl-Missal (2013) point out that a key feature of the transformation of capitalist economies since the 1950s is the increased role that 'aesthetization' plays in the production and consumption of goods. To re-evaluate the relationship between the economy and aesthetics, Bőhme suggests recovering the concept of aesthetics from its Kantian-artistic connotations towards a more ecological and sensory dimension. In Bőhme's view one needs to reclaim the original Greek meaning of aesthetics, namely aesthesis which meant 'to sense' (see also Degen 2008, 2010; Howes 2005) to examine current changes in the economy. As several critics are pointing out, since the 1990s there has been a clear trend across various industries to target consumers' senses: from supermarkets creating the illusion of daylight through special lighting to advertising at bus stops spraying the product's smell onto unaware travellers (Howes 2005; Lindstrom 2005; Swedberg 2011). For Bőhme, "[t]he new resulting aesthetics is concerned with the relation between environmental qualities and human states. This 'and', this in-between, by means of which environmental qualities and states are related, is atmosphere" (Bőhme 1993:114).

Recent discussion of atmospheres has focused on their intangible qualities and their ambiguity (see Anderson 2009 for an overview, Stewart 2011, Adey 2013), regarding them as elusive and ephemeral: "Atmospheres are perpetually forming and deforming, appearing and disappearing, as bodies enter into relation with one another. They are never finished, static or at rest" (Anderson 2009: 79). Atmospheres also need to be regarded as shaping very specific tangible relations as they have "a characteristic spatial form – diffusion within a sphere" (ibid 2009:80) and as Stewart (2011:452) points out, atmospheres are "not an inert context but a force field" directly palpable through the senses. While much of this discussion refers primarily to the lived and felt atmospheres of everyday life, we follow Anderson's

(2009) suggestion and examine how, within certain practices ranging from landscape gardening to stage design or architecture, atmospheres can be circumvented, circulated and intervened in (see also Bőhme 2013). As Bőhme (1993) further elaborates atmospheres should not be conceived as free floating energies but as sensory attributes that proceed from and are created by things, persons and their constellations; hence, atmospheric effects can be actively manufactured. Consequently, as the sensory-experiential impact of goods is becoming crucial in the experience economy (see also Pine and Gilmore 1999), Bőhme suggests adding to the use and exchange value of commodities what he defines as a 'staging value'. This 'staging value' refers to the unspoken *sensory values* that products stage through their experiential presence, in other words the atmosphere they create. Thrift (2012) further argues that this change has required the construction of what he terms an 'expressive infrastructure', technologies and practices that allow affect and imaginations to be channelled between consumers and products. Similar to Bőhme he argues that this leads to an emphasis on atmosphere in contemporary consumption exchanges and, as he explains, "[...] all manner of sensory registers are pressed into service, which can serve as the walls and furniture of these worlds, so producing from moment to moment a whole, indistinct, animated, chaotic even, but a whole nonetheless. Form gives way to something auratic" (2012: 153). While this paper aims to further Thrift's and Bőhme's arguments around the construction of sensory atmospheres in the experience economy by focusing on the digital, we also want to align ourselves with Tolia-Kelly's critique that much of the literature on affective experiences is "particularly inattentive to issues of power; negated is a focus on geometries of power and historical memory that figure and drive affective flows and rhythms" (2006:213). In other words, neither Thrift's or Bőhme's theorising on the experiential qualities of social life addresses the question of cultural difference, but adopts (unconsciously) a universalist sensibility that assumes a singularity of registers (Thrift 2004, 2009, 2012; Bőhme 2003, 2013). By paying particular attention to the aesthetic power relations underpinning the production of atmospheric aesthetics in CGIs we hope to address this vacuum.

Digital technologies, we argue in this article, are a key element of Thrift's expressive infrastructure and especially suited to producing atmospheric place images. While we explore the specific qualities of the digital in CGIs elsewhere (Rose, Degen &

Melhuish 2014), we would like to highlight the following features of digital atmospheres. Comparable to computer game environments, which share similar characteristics to CGIs in that they are code constructed virtual environments, CGIs are highly stylised and polished representations. As Ash further explains they can be regarded as 'affective designs' which refers to "the process of attempting to indirectly generate particular kinds of affects or responses through the material and aesthetic design of products in order to capture and hold users' attention" (2012:2). While CGIs are static images (as opposed to interactive computer games) we argue throughout our case study that the digital qualities of these images lend themselves to the production of particular atmospheric evocations in a way that differentiates them from earlier architectural representations such as watercolours or photographs. Firstly, they are anthological (Doueihi 2011) meaning that CGIs are constructed through a process of cutting and pasting, typical of digital media, from a variety of sources and thereby offer a complex layering of evocations of sensory experiences (for an in depth discussion see Rose, Degen & Melhuish 2014). Secondly, their capacity for rapid digital modification results in the production of images which are endlessly malleable. Hence every CGI has many iterations, its atmosphere being constantly re-worked as each image passes through many stages of development, mark-up and revision as it travels around a global network of people (architects, visualisers, clients). Thirdly, CGIs are characterised by a particular luminous intensity. Indeed, Dorrian argues that a unique feature of CGIs is their visual luminescence in which the objects, buildings, landscapes depicted offer a "heightened definition and visual closure" (2008:47). Their digitality allows for the creation of new chromatic scales to produce colour schemes of jewel like intensity.

The importance of atmosphere as an economic value informing the production and consumption of consumer goods means that the boundaries between artistic work and industrial work are progressively blurring. Bőhme therefore suggests paying more attention to the development of what he describes as aesthetic labour, referring to "[...] the totality of those activities which aim to give an appearance to things and people, cities and landscapes, to endow them with aura, to lend them atmosphere, or to generate an atmosphere in ensembles" (Bőhme 2003:72). Architects, we argue in this paper, are a prominent professional group involved in developing and anchoring this aesthetic labour in contemporary urban environments. As Bőhme

points out, architecture is reliant on the production of atmospheres because buildings (and public spaces) play multiple roles: they are functional entities, objects of art and branded consumer objects: "Architecture does not only have to be useful, fulfil a function, it should also be an artistic object – moreover, architecture needs to be paid for and therefore appeal to a market. That's why advertising and brand design are part of the process, that's why you need to stage architecture, and that's why architecture nowadays has a tendency to stage itself" (Bőhme 2013:109; translation by author).

So while the concept of 'atmosphere' is certainly back in vogue to make sense of contemporary consumption habits, limited research has considered how particular atmospheres are conjured through images and how power relations are embedded in them. One of the few exceptions is Biehl-Missal (2013) who has analysed visual imagery of the Frankfurt Stock Exchange to suggest that the traditional semiotic approach to image analysis needs to be accompanied by an analysis of the aesthetic impact of images. Drawing on the work of Bőhme, she suggests examining "the aesthetic impact of images as sensually stimulating atmospheres, rather than merely representational systems" (2013:365). We want to follow her lead and further analyse how the digital makes this possible.

In the next section we turn to our case study and discuss first the key features of the Msheireb urban redevelopment in Doha, Qatar, and then the role the CGIs have played in this particular development.

2.The case study: The Msheireb development

Our research project led us to work with an architectural office based in London: Allies and Morrison, who (along with Aecom and Arups) are masterplanners for the Msheireb project in Doha, Qatar. The aim of the project is to redevelop a large area of 31 ha adjacent to the government palace and offices, and thus to revitalise the historic city centre, see figure 1. The area to be developed was demolished in 2005 and is being replaced by a 4.18 billion Euros (USD 5.5 billion), dense mixed use development to be completed in 2022. The development will provide residential accommodation for 25.000 people and incorporates around 100 different buildings which have been designed by six London-based architectural practices and two US-based ones. Funded by Msheireb Properties, a real estate company and subsidiary

of Qatar Foundation, the aim of the project is to encourage families (both expats and Qatari nationals) back into the heart of the city (Law & Underwood 2012). While some critics might regard this as the creation of an 'instant city', experts spent three years researching Qatari architecture and numerous approaches to urban planning all over the world in order to develop a distinct architectural language for Msheireb that would distance itself from earlier processes of Dubaization in the Middle East and resulting in the design guideline document, The Seven Steps (Msheireb Properties 2011).

What is unique about this project is that there has been a strong investment in image production and it has been 'visually-led' from the start. The CGIs are key visualisation tools for project presentations, where they become the focus and platform for discussion and decision-making about the scope and course of the design process, work stages, and payment (or not) of fees. In this particular project, CGIs are also important instruments to develop Qatar's new architectural language, both to give the Msheireb development a "clear cultural identity expressed through planning and architecture" (Law & Underwood 2012:131) and to market globally a new 'urban model':

"Although the Qatar Foundation undoubtly sees the project as an act of cultural philanthropy, it is nonetheless seeking to make a profit.[...] it wants to build a model that other developers will seek to emulate. [...] to create a market for a form of urbanity for which there is currently no demand [in the Gulf]". (Woodman 2012, bdonline)

Hence early on, the client appointed an Architectural Language Advisor (ALA) to the project from Allies and Morrison, whose role it was to ensure that all architectural practices involved would adhere to the design principles specified in these design guidelines. He has been a key advocate of the project's CGIs as *"something one wants on the cover of a magazine"* (ALA), comparing at times architectural design to stage design.

The Msheireb development is characterized by a strong art direction behind the creation of atmospheres through the crucial role the ALA has played. All

presentations to the client were required to be made exclusively through the medium of CGIs, and architects were clearly briefed on precisely the number of visuals that should be included as deliverables with their proposals and interim submissions along the way. One architect referred to it as a process of *"design by CGI"*, or *"designing buildings in the view"* - which has resulted in the generation of literally thousands of digital images. Particular to the Msheireb project has been the importance of camera control from the pre-design stage, meaning that every visualisation of the project is taken from a realistic position and angle in the future development, because, as the ALA specifies, *"one wants to create those images before they ever existed"*.

From our nine month workplace ethnography in various architectural practices, visualiser studios and client's office, content analysis of documentation related to the project, an image archive of the project and over 40 interviews with both architects and visualisers, it has emerged that CGIs have a dual role to play. Firstly, for architects themselves CGIs are key tools for thinking through, representing, developing and testing design ideas: *"[...] I think one of the useful things that CGIs can do is to show how the building proposal fits into its context"* (architect). Secondly, they are also crucial in presenting and communicating a design to the client and others. Hence, CGIs are both design tools for the architects and communication tools to sell the idea of place to the client:

"I suppose that's why people put people on benches drinking coffee, happy scenes, because you can't really know how the project is going to have the impact but you're just trying to sell it. You're trying to convince the client that what you're proposing is going to work. I think that's one of the roles. You can draw elevations and plans and sections and CAD drawings and they have to be right, but at the end of the day I suppose what convinces the client, I'm guessing, is the sales images." (architect)

Producing particular affective atmospheres in these images that engage the viewer (the client) with an appealing spectrum of sensory modalities has been central to this project. In this paper we explicitly focus on this role that CGIs play as communication rather than design devices: that is, on their role in telling clients or planners what it would feel like to be in these future places. Visualisers interpret and execute digitally

the place atmospheres suggested by the ALA . Our interviews reveal that architects want to depict their buildings accurately while the visualisers' role is to evoke the "life" or "mood" of a future place as one architect explains:

"There's a huge portion of visualisation which architects don't find so interesting, which is everything that is out of our control really - we can design the building but we cannot say who's going to sit on the bench, for example. And we can't say if there's a bird flying and how blue the sky's going to be. So for us, this is the applied [material] almost like an advertisement on top. We are aware of the power of these things, that's why we have to do it, because we need to communicate with other people ...." (architect)

For the remainder of the paper we examine how atmosphere is produced digitally by explicitly focusing on the role that visualisers play in this process.

3. Producing place atmospheres digitally

Over the life of the Msheireb project several thousand CGI images have been produced, many of them discarded, and only around 42 highly polished CGIs were used for the Special Design Review meeting where a cohesive picture of the whole site was presented to the client for the first time, see figures 2 and 3. Similarly only a selected few make it to websites, brochures or hoardings at the Msheireb building site. While visual technologies have always been an important process of architectural design and marketing, we argue that digitally-produced CGIs intensify existing forms of architectural representation in particular ways. For example a recent study of the impact of the introduction of new software in the daily practice of architects argues that with the use of digital design technologies, the "artistic flair mediated through the artist's expressiveness disappeared, to be replaced by a new realistic-looking aesthetic resulting from the intern's use of form Z and other software programs" (Groleau et al 2012:662; see also Ash 2009). While Groleau's et al (2012) study examines primarily the role of technology in organizational change, our study analyses instead how CGIs permit the assemblage of coded sensory registers that can actually enhance artistry and generate distinct place atmospheres. So, let us examine closer three key aspects of the CGIs produced for the Msheireb

development. First, we will discuss the actual process involved in making CGIs and illustrate the tensions that the subjective qualities of atmosphere engender. Second, we analyse how a particular place atmosphere was commercially manufactured and staged particular affective sensations. Third, we argue that although these CGIs opened up a field of negotiation and interaction between producers and receivers, and worked quite hard to be culturally specific, they remain ultimately strongly shaped by Western experiential registers.

3.1. The process of production

The visualisers import the plans and massing studies created in Microstation or AutoCAD by the architects for indvidual buildings, into the visualisation software 3DS Max. The visualisers may be in-house (part of the architectural team) or part of a visualisation studio that has been contracted to produce the CGIs. Once the visualisers obtain the 3D models from the architects, they follow a given script and particular steps need to be taken to construct the CGI image. This involves stripping a lot of the design detail out from the technical drawings and building a digital 3D model of the building made up of a number of layers. Then, light, materials, and texture are added via the software's layer manager – the image still does not look realistic at this stage. The visualiser then 'renders' the 3D model, translating it into a 2D image, that is to be converted from a working picture to something that looks more like a photographic 'picture': "[r]endering, then, consists of allocating "texture" (a colour, a density, a nature or function) to computerised objects" (Houdart 2008:52). The last step is for the visualiser to import these renders into Photoshop, and to add more detail: subtle light effects, clouds, people, trees, what the ALA calls *"life"* or *"entourage"*. This can be done either by 'painting in' effects using the software, or by pasting in photographic images from elsewhere (sourced either from online digital image banks or from the visualiser's own collection) as our observations reveal:

"This afternoon [the visualiser] is working on [...] images – he's altering the way the sunlight falls, make it more of an evening shot, with longer shadows. [...] He also needs to re-arrange the trees, and to insert some people with umbrellas to make it look more of a wet weather shot. [...] He's sourced some people from a 19th century impressionist painting and inserted them – but they won't be actually be

used, they'll use modern people. They are to set the tone." *(ethnographic fieldnotes 25/07/12)*

This cutting and pasting of visual fragments and references derived from a variety of online resources such as art libraries, holiday photographs, promotional websites, or urban development projects elsewhere, described by Doueihi (2011) as an anthological practice, works towards staging specific affective atmospheres and to make the images culture-specific and to respond to Qatari sensibilities. The skill of the visualiser then, lies in being able to understand both the needs of the architect – helping to understand the relation between buildings in the conception phase for example - and the requirements of the client where often digital imagery helps its representatives *"to understand what they are buying"* (development manager). The ALA and others on the team recognized that some CGIs failed because, as Ash describes in relation to computer games, "they don't get the atmosphere right" (Ash, VA conference 2013). As he explains in relation to computer games, they need to produce "attentive captivation" through the relationship between body, eye and screen and the atmospheres created by the architecture and embedded in the spatial structure of each level of the game. He highlights the importance of the screen in this process as it "fosters a presentness, an affective shifting ground of what is made visible…it presents time as a duration, or a passing and flowing movement that is closer to the phenomenon of lived experience" (2009:471). Furthermore, the image "rises up from its horizontal paper form to a verticality", and reshapes the visual as a "sensory and, material and wordly process of relation and co-constitution" (2009:472). In the same way, we suggest, the experiential qualities of the CGI images on the Msheireb project derive from their compositional and art-directed atmospheric visual qualities but are also embedded in the working practices and relationships involved in making them.

So on first sight we could describe these CGIs as 'simulacral' in Baudrillard's sense of "a world constructed out of models or simulacra which have no referent or ground in any 'reality' except their own" (1988:6). However, while CGIs are invented worlds like computer games, the architects and visualisers we interviewed made a lot of effort to understand the location so as to be able to represent the sensory

experiences of place accurately (despite not having been to Doha), as this exchange illustrates:

"But this time it was like "No you can't use the sun from the north. You won't see the sun" you know, we said "Right, fine". So then we have to go "Right, we'll use a sun system. This will be a Doha sun. This date at this time" But then of course the architect will still go "Whoa, the stone's not shiny enough". If we turn round and go "Well the stone wouldn't be shiny at that time of day" they'll still stamp their feet and say they want the stone to be shiny. So you can't win, to be honest. […] there's certain things, I suppose, which you can bend the rules on but changing the sun probably isn't one of them. [laughing]" (visualiser)

CGIs repeatedly get sent to and fro between the architects, visualisers and client representatives, their digitality allowing them to be highly malleable. They are analysed according to a 'comment system' as the image circulates around the different actors involved in the project. Specific instructions for visualisers are written on a CGI printout with a red pen, or typed as comments on a pdf file: "more light", "more people", "bicycle out", "magic please" – mainly referring to the affective moods conjured in the images. This process might happen several times, and through each modification and added or altered layer of texture, colour, light and detail, objective criteria and consensus about decisions becomes more elusive as "[a]tmosphere is something that is in a certain sense indeterminate, a spatially extended quality of feeling" (Biehl-Missal & Saren 2012:170). Indeed, the whole process is fraught with tensions due to the inherent ambivalence of atmosphere (Anderson 2009) and the subjective interpretations it evokes:

""[the in house visualiser] just kept looking at me going: 'I don't understand. What does he (ALA) mean 'more magic'? He wants like a man flipping cards? I don't know!" (ethnographic fieldnotes July 2012)

Hence we can see a constant push and pull between objectivity and subjectivity in the production of atmosphere in the images.

3.2. Digital place atmospheres: a formulaic process?

The ALA produced a document for all the visualisers and architects involved in the Msheireb Downtown project called 'The Seven Golden Rules for CGI Views', which gives seven step by step instructions on how to compose and what to depict, showing that creating atmospheres in CGIs can be described as a rule-driven, formulaic process; as one visualiser told us *"architectural atmospheres are not rocket science, there is quite a basic formulae involved in constructing images"* (ethnographic diary May 2012). Simultaneously, as discussed above, the subjective nature of atmosphere opens up a wide field of negotiation, tension and ambivalence.

A crucial rule for the making of place atmosphere in the CGI, according to the Seven Golden Rules, is for it to depict a *"Memorable Moment"*: the CGI should be *"a slice of life which carries a story and also a resonance"*; certain items or events add integrity to the picture such as *"a bike, blurred, in motion"*, or a *"Child, running or smiling, towards the camera"*. As the ALA further explains*:*

"[...] You know on the Memorable Moment front, terribly simple, complete spin-doctoring, but there's nothing like a smile! – if you can get a smile in the foreground of a picture you're onto a good thing. Not always, you don't always want a balloon and an ice-ream and a smile, but they're great, smiles are good!"

The importance of the Memorable Moment resonates with Pine & Gilmore's arguments of how businesses in the experience economy need to engage customers: "an experience occurs when a company *intentionally* uses services as the stage, and goods and props, to engage individual customers in a way that creates a memorable event" (1998:98, our emphasis).

Producing the right sensory atmospheres to "punctuate the significance of sounds, textures and movements" (Stewart 2011:448) is an essential part of staging these 'Memorable Moments' in places. To do so, visualisers and architects collate mood-referencing imagery, as they told us, to capture *"the story, the feeling"*. Indeed as the ALA tells us: *"Story-boards are very important"*. The architectural critic Jeremy Till explains that of all modes of communication used in architecture storytelling is the most productive, as "stories collapse the barriers between expert architect and non-

expert client and user" (2009:114). As he further elaborates, because stories are founded in everyday experiences – both by the client and architect – the envisaged future environments are not impossibly idealistic but knowledge and imagination are shared and externalised, indeed "the role of the architect becomes to understand and draw out the spatial implications of urban storytelling" (Till 2009:114).

The Msheireb CGIs tell personal, everyday-life stories by staging smaller, more intimate views, carefully composed to suggest an embodied experience of being immersed in the space, taking a journey through the site, not just looking at it from a distance as a spectator or consumer. As an evocation of lived, haptic experience, it is therefore an anti-spectacular approach which privileges the idea of the mobile, embodied nature of vision itself, unlike the more familiar CGI culture of glossy, sharp-edged, over-focused 'hero shots'. Outdoor CGIs tend to depict lots of people, often in groups which creates a sociable environment and you almost feel you can hear them talk; and this distances the images from architectural photography, which rarely includes any people. By presenting the site through more intimate views, the CGIs mediate the scale and impersonality of the planned transformation of the urban landscape and re-frame it as a more manageable concept of 'felt' place. This is made even more clear through the ways CGIs are used on the Msheireb building site: blown up to a large size and mounted on the hoardings inside the site, with physical mock-ups of the landscaping materials in front of them such as stones, paving, trees (this display was set up as a presentation to Her Royal Highness and the board of Msheireb Properties to aid the decision-making process). As one architect points out *"we use CGI imagery but we need to touch and feel it in the end"*, see figure 4.

What we are emphasizing here, then, is that digital technology (comprising different types of software for design or visualization) has not only been instrumental in allowing a new generation of 'morphogenic' architecture most famously espoused by Hadid or Gehry (such as Form Z), but also has allowed the production of life-like simulations of materials, light effects, and temporal changes in representations of projected architectural environments. This supports Thrift's point that in an experience economy, text becomes more and more redundant and "[t]he practices of worlding demand the use of a much greater sensory palette in order to produce

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ambience as well as message [...] The intention is to produce atmospheres – tropic or frozen, cramped or spacious, busy or still but atmospheres all the same" (2012: 153). Thus, as visualisers told us, their role is to paint a more holistic sensory experience, or as one architect explained: *"[CGI] images have an instant feeling".* Let's examine the atmospheric qualities more closely by looking at two distinct graphic effects of CGIs: the use of colour and the evocation of mobility.

Thrift suggests that in contemporary capitalism light and colour are key to the creation of new place experiences, thus luminosity and hue become more important as they heighten and extend colour discrimination "[w]hat has been produced is what might be called a spirited sense of colour, which goes beyond colour as such in that it incorporates tactile movement – wheelings and pivotings and splicings – into its effect […]" (2012:154). When looking at the final 42 CGIs that were presented at the Special Design Review meeting, it is their luminosity and colours which are particularly striking. The outdoor day images are designed in smooth, warm tones: beige, sand-coloured buildings against intense blue skies and soft green trees often lifted with some red. They try to depict the Qatari light which often contains some dust and makes everything look more hazy. Some images depict some glare from the sun. What is striking about the interior daytime images is the fall of light, sunbeams are deliberately emphasized (known as 'god rays') and give the picture and the individuals depicted a glowing atmosphere.

As Dorrian explains in relation to digital visualizations, the extreme definition of objects and colours is due to:

"[The sun that] does not really cast light onto virtual objects but rather is used to calibrate the way in which the emission of light directly to the eye is modulated across the screen. Light is not cast upon, but emerges out of the virtual object, which it at the same time constitutes. Under these conditions, even when rendered with degrees of transparency, the virtual object seems taut, more than present" (2008:47).

Night shots tend to play with artificial lighting and depict mostly lit-up streets, shops but also fireworks, evoking celebratory moments. The outcome is a "splintered,

refracted city compromised of a constantly shifting pattern of ambient textures, ephemeral shimmering shapes, glittering colours, and incandescent lights" (Edensor 2012:1107). Similar to Edensor's description of the Blackpool illuminations we witness a radical theatricalisation of space, where the images try to draw the viewer in through staging a sparkling, 'jewel-like' intensity, emphasized through the crafted CGI images, where "crucial to the hyperdefiniton of the object is the scintellation and emissivity of the image on the computer screen" (Dorrian 2008:47).

The second aspect of these CGIs – their evocation of mobility – refers to how CGIs in this particular project are developed from particular embodied camera viewpoints, and it is not unusual to have five versions per viewpoint. Thus, eye-level, as opposed to bird's eye, camera angles are chosen and the picture is then developed to give a particular feel of the area as experienced by the particular viewer. Indeed one of the ALA's favourite images is taken from a child's perspective:

" [...] this is a nice view, and this view is from child's eye height, and if you think of being a photographer, you often do this, everyone does that (crouching down), you get a completely different perspective, it's remarkably different."

Adopting first person perspectives is immersive and draws the viewer into the CGI, helping him or her to imagine sensorially what it would feel like being there, as Shaw and Wharf point out:

"With this perspective, designers of video games [or CGIs] remove the on-screen character altogether transforming the television or computer screen into the eyes and ears of the player. This removal of an on-screen object facilitates the player's unmediated encounter with virtual space" (2009:1336).

The CGIs are constructed so they also evoke a kinetic embodied encounter of place. Most people or groups of people are depicted in motion, often walking, some blurring through their movement across the picture. Similar to what Ash describes about videogames we can see that those making CGIs "actively manipulate spatiotemporal aspects of the [CGI] to produce positively affective encounters for users (by which I mean encounters which increase the body's capacity to act and produce associated

positive senses of intensity)" (2010: 654). There is a feeling of constant activity, of movement, the images never feel static, fixed, immobile or frozen.

So our analysis so far reveals that the CGIs created for the Msheireb project differ from more mainstream CGIs in that they move away from so-called 'hero shots' that emphasize buildings, to shots that contextualize the buildings within future social settings by creating intimate views that stage an embodied choreography of movement and embodied sensations. We have further argued that their digitality differentiates them from past traditions of architectural representation in that they are endlessly mutable and are constructed through an anthological practice. Lastly, digital skills and tools, including softwares such as 3DS Max used to produce CGIs, present possibilities for exploring the visual, spatial and sensory dimensions of images that draw the viewer into a virtual urban experience of high definition and luminescence, what Dorrian (2008:45) describes as an 'hyperobjecthood'. These embodied camerashots create images that immerse the viewer in a sensual representation of lived spaces. Overall, we have shown that what characterizes the production of these digital atmospheres is an inherent ambivalence between formulaic design and subjective interpretations. Hence, while there is a formulaic script to follow, responses to images are often emotive and subjective, demanding a nuanced understanding of verbal descriptions that is not always possible across the large numbers of actors and languages involved in the making of CGIs.

3.3. A universal atmosphere?

A particular problem for the Msheireb CGIs has been to visualize the anticipated future social life of the development. The aim of the project is to offer an alternative form of urban living for Arab Gulf countries, distancing itself from recent concepts of Middle Eastern "energy- intensive urban-centres with concrete and glass…[and focus] on technologies and materials that are geared towards the environment and local climatic conditions" (Sharfenort 2013:6). Guided by the views of her Royal Highness Sheikha Mozza bint Nasser, the Chair of the Qatar Foundation which owns Msheireb Properties, the aim is to find a new architectural identity for the Gulf region and "[strike] a balance between creating modern, innovative developments and rediscovering local heritage and culture" (Chairperson message,

www.msheireb.com; see also Melhuish, Degen & Rose forthcoming). Hence, the high-density, mid-rise development aims to be explicitly pedestrian-focused, with a rich mix of commercial, retail, cultural and business services that will attract Doha's residents back into the old city centre and evoke memory and tradition in a Qatari context. Yet, among the mainly western visualisers, few have been to Doha, meaning that most of those working day-to-day on creating CGIs are not particularly knowledgeable about Qatari culture. They do know (because they were told) though, that most of the images of 'Arab' people in the online image banks used to create the CGIs are not Qatari but Saudi. The ALA therefore took pictures of Qatari residents that could be used in the CGIs. However, the limited number of photos taken created the problem of repeated use of the same 'entourage', which was noted by the client. In another instance, a visualisation studio organised a photo shot in studios in a business park in Wimbledon, south-east London, *"to give a fresher look" (visualiser)* to some of the CGIs: mostly Mediterranean-looking actors were cast and dressed up in what the costume designer thought looked like Qatari clothes bought in Southall, an area of London with a high proportion of Indian shops.

This raises an important point about the ways in which these CGIs evoke a 'somatic norm' (Puwar 2004). As Puwar explains, while there has been a theoretical acknowledgement that a "very particular embodied subject [...] has been able to masquerade as the universal" (2004:8), there has been little theoretical or empirical research that has examined how this plays out in everyday locations. Tolia-Kelly's critique of the scholarly work on affectual and emotional geographies underlines the problem of an appeal to a universal understanding of embodied experience which does not recognise raced, gendered identities and power relations in shaping that experience (Tolia-Kelly 2006). Despite the effort invested in making the CGIs culturally specific, the production of CGIs on the Msheireb project largely reproduces this concept of universal embodied experience critiqued by Tolia-Kelly as being 'based on a Westnocentric literary and sensory palette' (ibid: 214), and highlights the continuing influence of colonial sensibilities in supposedly postcolonial urban processes. Notwithstanding the efforts of the producers of the project to engage with the social and cultural world of its 'receivers', there appeared to be scant inquiry into the way in which people actually experienced space and place in Doha, or responded to atmospheres, at an embodied and relational level shaped by

fundamental differences in notions of self and individuality, gender relations, and family and tribal social structures. On the contrary, the projected occupation and experience of the new urban environment at Msheireb was strongly led by western experience of the individual body moving freely through Cartesian space, overlaid with fragments of Qatari identity, in a hybrid fusion facilitated by the affective manipulation of digital code and techniques of commercial production. While the Msheireb project is so far mainly a virtual 'reinvention' of Doha as a particular kind of place - it is still in its early construction phase - our analysis of the digitally produced atmospheres highlight how these atmospheres are informed by western sensibilities where "bodies of a specific habitus continue to be the somatic norm" (Puwar 2004:141) but simultaneously demonstrate the potential CGIs have to offer for an entanglement with the Other.

Conclusion

Architecture has become increasingly complicit in the commercialisation and branding of urban environments (Klingman 2008; Vidler 2008; McNeill 2009) and, in Easterling's words, can be understood as a form of 'spatial products' (2005:3 cited in McNeill 2009). Following Bőhme this paper has shown the importance within architectural practices of digital visualising technologies for staging and producing particular place atmospheres that will sell these spatial products. As we have shown this process is driven by a formulaic and instrumental approach, almost an 'atmosphere by numbers'. Thus, in the ALA's '7 Golden Rules for CGI Views' the notion of 'atmosphere' is included as point number seven, suggesting the use of technical software functions of 'focus, mist, blur' as 'useful tools' – but also highlighting aural experiences as key elements. In addition, 'the style of people matters 101%' – a comment that underlines the importance anchoring the stories in an appropriate social context and corporeal mannerisms. These instructions convey a clear understanding of successful urban place as being co-constituted by buildings, places, people (of a certain type) and ephemera (e.g. balloons, kites, bicycle handlebars), which can be virtually inventoried, enveloped together, much as articulated by Anderson (2009), in an 'affective atmosphere' – "a class of experience which is pre-subjective, across human and on-human materialities, in between subject/object distinction… [a] shared ground from which subjective states and their attendant feelings and emotions emerge" (Anderson 2009: 78). This reflects a

significant shift away from traditional plan- and architecture-led approaches, and towards an attempt to code for a more ambiguous, 'atmospheric' and contingent idea of place.

However, at the same time the process of defining and producing atmospheres is highly ambivalent and although many of the architects and visualisers on the project agreed that 'atmosphere' was a key component of the CGIs – '*the building is half the image. The other half is atmosphere, entourage"* (architect) – the ambiguity of the concept was underlined by the fact that few were able to define exactly what it constituted, although lighting effects, such as so-called 'god rays', were often cited. There was a general consensus that successful CGIs are the ones in which the atmosphere is 'right' - success being judged by the client's positive response and sign-off of that stage of work.

On the other hand, the perceived agency of atmosphere in the production of the project also incited distrust and anxiety, particularly on the part of architects, and by the client, both of whom had concerns that it could jeopardise the actual technical development and accuracy of the design. During our fieldwork it was acknowledged that, although the images had an evident capacity to mobilise participation in discussion and strong collective responses, these were based in a lack of objective criteria and a reliance on subjective 'feeling' which was not rational and could not be effectively justified: as one architect commented, it *"all hinged around 'resonance', and that's very personal" (architect).* Qatari members of the client team in particular expressed concerns about the seductive role of the images, while at the same time relying on their efficacy to communicate the design proposals to senior executives lacking familiarity with technical drawings.

Similar to videogames, then, CGIs can be viewed as sensorial, serially-produced commodities which *attempt* to appeal to viewers' emotions through carefully orchestrated place atmospheres. We have shown how digital technology is part of the development of an 'expressive infrastructure' in which consumers' sensory reactions are appealed to and hailed. The danger is that their digital qualities at times enables "architects, while designing, digitalising, copying and cutting and pasting images, [to] manipulate social spheres and give birth to new ones by testing

and submitting new social configurations" (Houdart 2008:48). In particular, this paper demonstrates the way in which the digital medium allows (though never guarantees) the production of powerful visceral place atmospheres, constructed by following a specific scripted 'formula'.

In conclusion, we have deconstructed the aesthetic side of capitalism and illustrate how in the experience economy atmospheres can be *actively* produced to manipulate aesthetic perceptions. The CGIs analysed in our case study sell first and foremost an idea of place; however, while they are driven by commercial imperatives in a global marketplace, we show that they do challenge normative discourses as represented by mainstream CGI culture, yet not far enough. Hence, the place atmospheres produced for Msheireb are strongly informed by western sensibilities that shape many urban redevelopments elsewhere, only partially engaged with a Qatari identity rooted in local memory fused with a cosmopolitan sensibility. If we view design as a "process of enacting the social" (Yaneva 2009:292), we need to continue to interrogate what kinds of sensory registers and place experiences are ingrained in architectural CGIs and also – a project beyond the scope of this paper – to examine what effect they will have once realised as built environments.

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