



University of Melbourne
in association with
Federation Square, Art Center Nabi &
Australia Council
June 2015

Connecting Audiences

A MANUAL FOR LARGE SCREENS



Connecting Audiences: A Manual for Large Screens

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Foreword

Large screen is a unique medium with many strengths and obstacles. This manual provides an account of the challenges and opportunities that arise from the use of large screens as a medium for public artworks.

This manual evolved from an ongoing research project investigating how artistic practice transforms when it engages with public spaces, and, in particular, as institutions and public zones become more integrated with new forms of technology and communication. Such transformations provide interesting ways to think about how art interfaces with public life.

This project came to fruition when the team was invited to be part of a workshop in South Korea. Here, we conceived the idea that one way to link arts in Asia and Australia could be through the large screen medium. South Korea is full of large screens, and Melbourne has the large screen at Federation Square.

The idea was simple: What would it be like if we commissioned an artwork that was simultaneously visible in Melbourne and South Korea? What are the implications of making an artwork that was interactive on a large screen, accessible to an audience at opposite ends of the planet, but in the same time zone?

This manual allows us to share our experience of working in this unique, transnational setting including:

- technical opportunities and limitations
- similarities and differences in setups
- requirements to make both systems compatible
- translation glitches
- curatorial strategies to make both sites accessible, understandable and acceptable
- cultural and aesthetic challenges that determine how a public would interact (or not) in two separate places

The use of large screens in public spaces is not just an extension of cinema screens. It is well known that large screens were used successfully for large-scale political, cultural or sporting events where people wanted to congregate before large screens and be part of a collective experience.

There has been a tremendous social interest in engaging with large screens, but how can artistic content be translated to this medium? Size, image resolution and light dimensions are vital to the success of large screen works, so it isn't just a matter of transferring cinema, or video made for black boxes, into open spaces on large screens.

New configurations, dimensions and issues needed to be explored. All these seemingly 'easy' things had profoundly complex challenges within them: the technical; the curatorial; public values, assumptions and interests; and artistic translations across different media.

This manual summarises our findings in three key areas – the artistic, the curatorial and the technical. As such, it will be a valuable tool for anyone undertaking a similar project in the future. It provides:

- a grounding in the use of large screen in public spaces
- a discussion of successful screen management approaches
- models for working in the large screen medium

For more news and information about this project, visit our website at <http://spatialaesthetics.unimelb.edu.au/projects/large-screens-and-the-transnational-public-sphere>

You can also visit the Research Unit in Public Cultures (RUPC) website (<http://public-cultures.unimelb.edu.au>) for projects that the University of Melbourne team is currently working on in the cross-disciplinary area of media, culture and society.

We would like to hear your thoughts about this manual and any interactive large screen projects in your local area.

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Background



[Image 1]: People relaxing & engaging with live screens in Fed Square, Melbourne.

The last decade has seen spectacular growth in the public use of large screen technologies. The success of major events such as the FIFA World Cup (Korea and Japan 2002, Germany 2006), the Olympic Games (Sydney 2000, Athens 2004, Beijing 2008) and the 'Live 8' concert across nine nations (2005), all of which used public screens as 'live sites', has undoubtedly contributed to a growing commercial interest in large screens.

Non-commercial projects are also increasing. The BBC's 'Public Space Broadcasting' project, launched in 2003, was extended to permanent installations in nine cities by 2008. Through its association with London's Olympic and Paralympic Games in 2012, the program was further extended to 23 'live sites' around the world and in regions of the United Kingdom. The program extension, funded by London 2012, has seen a further 70 cities express an interest in hosting a screen in the future.

This growth has been partly driven by technological shifts, particularly the widespread adoption of Light-Emitting Diode (LED) screens for video display. LED technology reduces operating costs and enhances design flexibility, enabling a new generation of proprietary products such as SmartSlab (a modular LED screen with structural properties) and Mediamesh (an integrated media façade system which can clad entire buildings).

Unless this level of technological innovation is matched by cultural and policy developments, the communicative potential of large screens will become subsumed by an advertising market eager for new opportunities.

Experiences in cities such as New York and Tokyo have clearly demonstrated the enormous commercial interest in using large screen technologies in public spaces. Specific localities such as Hachiko Crossing, Shibuya and Times Square, Manhattan have become world renowned for their high impact screens and dense advertising signage.

In Manhattan, municipal authorities have adopted unique planning ordinances that specify minimum brightness levels for property developers operating within the Times Square precinct. Times Square Business Improvement District analysts calculate that 38 LED screens, installed at a cost of US\$140m, have added US \$75m in taxable property value (Townsend 2004: 102).

Many cities and communities remain more concerned about the potential negative impact that screen installations may have on urban amenity. However, there is a noticeable lack of guidelines to mediate commercial ambitions and civic interests. For example, current urban planning policy in Australia treats large electronic screens in much the same way as static billboards. This is highly problematic. Not only does this ignore the distinct planning and amenity issues raised by large screens (including noise and light pollution and the impact of live and interactive content on public behaviour), it also underestimates the potential for public screens to incubate innovative artistic and communicative practices.

In general, most planning policy amendments that accommodate electronic screens relate exclusively to promotion of signage (City of Melbourne 2008). Maintaining this narrow policy definition undermines opportunities to develop innovative, cultural ways to use networked public screens that can help to revitalise public spaces and facilitate new forms of cross-cultural exchange.

The increasing popularity and availability of new technologies for rich information flows presents opportunities for large screens to:

- forge a new understanding of how people interact with media in public spaces
- provide a new platform for transnational cultural exchange
- contribute to planning policies that reflect the full spectrum of potential uses of public screens



[Image 2] Spectacular screens at Times Square in New York City.

About this project

'A strategic approach to brokering partnerships between the creative sector and the education sector to facilitate greater collaboration across the sectors and improve market research and consultation.'

Cultural Ministers Council report, Building a Creative Innovation Economy, 2008

In 2008, the Australian Research Council funded a five-year research project, 'Large Screens and the Transnational Public Sphere', to test the use of large video screens as a communication platform in a transnational context.

The project involved linking major public screens in Melbourne and Seoul for three urban media events involving specifically commissioned content. Because these cities share a near-synchronous time zone, the events used live and interactive components to simultaneously engage audiences in both places. A longitudinal analysis of the process of artistic production and the effects of public dissemination complemented the development of the original content.

The project's five-year time frame allowed a research methodology that used a series of feedback loops providing insights from different strands of research to inform the development of future phases. Drawing on expertise and resources of research partners and enabling leading academics to collaborate with key large screen operators (Federation Square P/L, Melbourne and Art Center Nabi, Seoul), peak cultural institutions (Australia Council for the Arts, AsiaLink) and John Denton (urban policy and planning expert and Victorian Government Architect), the project was uniquely placed to offer critical insight into the process of developing large screen facilities in cities.

The project had five key aims:

- To deepen regional cultural links by developing technical infrastructure for cultural exchange between Art Center Nabi and Federation Square
- To develop, commission and curate innovative interactive content, and document and evaluate the collaborative production process
- To undertake empirical investigation of public interaction with large screens in distinct urban situations and cultural contexts
- To test theoretical frameworks for understanding cultural exchange in the global context
- To establish more comprehensive grounds for regulating large screen use in urban planning and design policy

The project was facilitated by the specific resources and technical support provided by Federation Square, the Australia Council for the Arts and Arts Center Nabi, which enabled the networking of the screens, the production of original artworks, documentation of the urban media events and research into the problem of archiving audiovisual artifacts produced through the interactive and transnational collaborations.

Key findings

The Large Screens and Transnational Public Sphere project provided vital insights to understanding how to develop large screens in cities including:

- the structured curatorial support required for producing, delivering and disseminating creative digital content for large screens
- the impact of creative innovation on public engagement with large screens
- the close and sensitive understanding of the social and cultural contexts in which screens operate
- special skills, business models and resources required for the developing and maintaining large screens
- spatial location of large screens in relation to public mobility patterns and attention capture
- the need for creative sector partnerships, especially through collaboration with community members, artists and industry sectors

Who should read this manual?

Connecting Audiences is a comprehensive knowledge base for anyone working with, or interested in, large screens in public spaces. The manual is a useful guide for:

- civic organisations committed to developing a large screen facility
- artist or arts organisations interested in working with large screen media
- technology innovators investigating the market gap
- researchers specialising in media and public space

Typical readers will include:

- screen operators
- curators working with large screens
- architects, planners and local city councils developing, or planning to develop, large screen facilities
- large screen technicians and researchers
- large screen audiences

The manual focuses on a civic, not-for-profit model as opposed to a model for commercial screens. Our research suggests that commercial screens are rarely used to address civic and cultural issues. We acknowledge, however, that large screens are costly and require significant effort and resources to implement a well-planned screen strategy. This manual aims to help formulate a sustainable screen strategy with an achievable amount of investment over time.

Connecting Audiences has a strong focus on medium to long-term large screen projects that incorporate curatorial, social, cultural and technical knowledge throughout each stage of development. It aims to help individuals and their stakeholders to:

- understand the various applications of this relatively new technology in contemporary urban environments
- identify key roles and tasks for managing a large screen facility
- facilitate democratic, public participation
- develop cost-effective media content.

It also aims to identify the best solutions to address specific public needs. In this way, *Connecting Audiences* is relevant to artists, arts organisations and events companies at one end of the spectrum and city councils, public organisations and local development agencies at the other.

Connecting Audiences provides both historical and contemporary insights into large screen uses in public spaces in Australia and internationally. It explores the opportunities and challenges faced in transitioning from first to second generation technologies while presenting sustainable, community programming models and case studies of various interactive media projects piloted by the research team in collaboration with Federation Square in Melbourne and Arts Center Nabi in Seoul.

section one

understanding the large screen environment

Overview

Step 1. Scoping the site

Introduces key concepts for gathering information about your screen site and identifying stakeholders and audiences.

Tasks:

- Conduct a site review including location, ambient flow, proportion, viewing distance, stage position and shade options
- Identify key stakeholders including the host organisation, funding bodies and other interested parties
- Conduct a community survey to ascertain local audience desires and needs

Step 2. Identifying strengths and weaknesses

Discusses ways to identify, analyse and address your site's pros and cons.

Tasks:

- Define the strengths and weakness of the site
- Develop a workable model to enhance strengths and mitigate against weaknesses

Step 3. Understanding large screen legislation

Outlines the impact of legislation on the development of urban, large screen facilities

Step 1

Scoping the Large Screen Environment

Features of contemporary large screen facilities

Our research identifies the emergence of a 'second generation' of successful large screens including:

- the 'Public Space Broadcasting' project, United Kingdom
- the 'Big Screen', Federation Square, Melbourne
- the 'Contemporary Art Screen', Zuidas, Amsterdam

These second generation facilities share four distinct features:

- they are deliberately located in pedestrian plazas in city centres rather than traffic thoroughfares, sports arenas or shopping malls
- they represent a new mode of public display for cultural content, which cuts across existing avenues, such as the art gallery, the cinema or television screen
- they involve new partnerships with a range of cultural institutions and local government authorities
- they have become leading sites for experimentation with a variety of more interactive interfaces rather than the one-way communication of traditional screens
- these screens offer significant potential to host innovative digital artworks and create an unprecedented opportunity to alter the ambience of public space

Defining your screen site

Understanding your screen site is the first step in developing a large screen business plan.

Screen sites are defined by the concepts of 'assembly' (intensive gatherings of people at particular moments) and 'flow' (open access by people who just happen to be around).

Your screen site can be broken into the following aspects:

- ambient flow
- proportion
- stage
- viewing distance
- shade

Ambient flow

For screen content to be most visible, it needs to be in high-density spaces – in the heart of the city. But finding appropriate, high profile spaces is not easy.

For example, screens on top of buildings are aimed at intersections and not where people want to relax. The only function of the large screen in this context is broadcasting and advertising, and people only view it while they are stuck in traffic.

A good screen site is:

- a place where people are, and
- a place where people want to be

Proportion

The screen needs the right balance as a point of focus among many others within the screen site. Too large and the audience will feel a sense of captivity. Too small and the focal point is lost in the surroundings. It is important to remember that people don't naturally engage with large screen content.

The proportion of the screen has to be measured alongside all other site aspects. The Federation Square screen is 65sqm serving a 5,000sqm area with a capacity to hold up to 10,000 people at any given time.

It is important to get the right balance between screen size and site size.

Stage

Some live events at the screen site may need a stage. For sites where live events are a feature, it might be more efficient to develop permanent stage, however, this will depend on other considerations such as the site size and configuration, likely use of the space and public order issues.

While sites like Federation Square in Melbourne and Millennium Square in Leeds, United Kingdom, have a permanent stage, the restrictions inherent in their 'standard' design often mean that portable stages are still required for some events. The need for flexibility, coupled with the capital cost, will mean that a stage should be considered on a case-by-case basis.

Viewing distance

The minimum viewing distance for a LED screen is 15m, which allows for a stage to be placed underneath. Designing live events that need a focus on both stage and screen simultaneously has certain spatial restrictions.

At Federation Square, placement of deckchairs helps to define the audience viewing area, with the audience sitting much further back than they would if there was no permanent stage.

The key spatial design challenge is balancing the screen height above the stage with the screen position in relation to performers. Many screens are set too high for people to view the stage and screen comfortably, whether they are sitting or standing. Offsetting a screen (or screens) is also common but may force the audience to choose between watching the stage or screen.

Shade

Shade is a key factor that defines the habitability of the screen space. At Federation Square, for example, any event where the weather is too hot or cold may lose the public. It is important to ensure that a site avoids exposure to extreme heat and has appropriate shelter or shade in the immediate vicinity of the screen. Extreme weather, of course, may not be an issue in some parts of the world.

Retractable awning is an option that provides flexible covering and doesn't disrupt the screen, but it needs to be well integrated into the architecture. Using semi-permanent awning makes the site look like there's an event on all the time (even when there's not) and risks confusing the public.

Site planning and management

The key to the successful site management is to create an environment that is worth inhabiting. This includes (but is not limited to) management of:

- programming
- facilities, such as seating in an open space
- site tenants, such as cafes and restaurants that might be used by the screen audience
- the screen partnership (and marketing it)

Ask yourself these basic questions before committing to host a large screen project:

- Do you have planning permission?
- Do you have enough content?
- Do you have enough experience?
- Do you have enough time?

One approach to managing a large screen site is to develop a set of locally-agreed parameters that define a cross-section of usage issues. These could cover everything from day-to-day issues right through to the unique issues faced by one-off events. Successful large screen sites can be assessed according to the following criteria:

- venue (accessibility, awareness, barriers to attendants, public place)
- price (free to attend for outdoors, what about indoor programs?)
- service (customer, information, languages etc.)
- programming (special events, seasons, mixed broadcasting, events occurring outside of business hours)
- communication (awareness, information, education, public relations, cultural protocols, advertising)

Ultimately, planning a project requires a survey of each site to define your core or basic specifications and to work out whether what you thought you wanted is actually what you need.

Don't assume that there will be benefits, and that people will flock to your site to interact with whatever screen content you display. In practice, it is not that simple. It's important to remember that the screen space is a physical space. You will need to construct a holistic experience for anybody that comes onto the site at any particular point of any particular day.

Audiences for large screens

Local audience

Understanding local audience aspirations is integral to the design of your screen site. Elevating local desire by offering a new language for people to interact with the large screen creates a soft boundary around your site that will draw audiences in.

Never assume that your audience will intuitively know how to interact with the screen. You need to explain it. While most people know how to send an SMS these days, they may not make the connection that they can also send a message to a large screen even if you put a sign up explaining how.

There isn't an established sense that an audience can interact with a large screen and shape its content. Most people still regard screens as a static display mechanism. How much instruction an audience needs to encourage participation has no fixed answer. In many situations, it needs to be induced.

One way to change the local habits is to involve grassroots organisations and communities known for shaping local culture and tastes. These could range from public services to consumer groups and could cover areas as diverse as education, health or safety.

Many public institutions would have an interest in reaching local communities through large screens including:

- local and state government agencies
- business and economic development agencies (entrepreneurs, local businesses etc.)

- community and social services
- media organisations
- education, health, safety and justice organisations

The ideal content for large screens always resonates with local experiences, whether through the arts, street life, multiculturalism or sports. Successful works highlight the multiple identities of the local city. They make people stop and watch because it is about them.

Artists working with large screens need to consider their local audience as integral to the artwork. If the audience doesn't participate, the artwork doesn't exist.

Global audience

There are also increasing expectations for large screens to be part of the global flow of information. Cross-cultural dialogue requires cross-cultural interfaces and large screens are clearly at the frontier of facilitating such transnational cultural exchange.

To allow one screen to interact with another in a different city or country requires a high-speed internet connection, which can be costly. Often the download speed is higher than the upload speed causing difficulties in two-way content flow. It is advisable to test the connection speed and talk to your local provider about a feasible solution if the connection speed is not ideal.

Once you have solved the technology barrier, you will be able to do everything from live performance to gaming. Commissioning digital media professionals with experience in large screen, will provide you with a suite of high quality and high value content.

Language can be a major problem for projects with a transnational audience. One solution is to incorporate 'gesture' into your content, which translates better in different cultural and language contexts.

As a delivery platform, large screens offer new forms of access and communal outreach, and have the potential to play a significant role in 'preparing communities for new forms of participation in the digital environment' (Cultural Ministers Council 2008).

To assess the outcome of your large screen program ensure that it provides:

- a collective cultural experience
- new forms of audience interactivity with possibilities for feedback
- opportunities to develop global networks and engage in live, real-time, transnational exchanges via broadband (e.g. using Skype)
- ways to re-assess the urban environment that accommodates and nourishes these new forms of public exchanges

Step 2

Identifying Strengths & Weaknesses

Before 2000, large screens were often set in spectacular spaces and primarily used for advertising. Quite different screens emerged in the early 2000s, such as those developed by the BBC in association with local city councils across the United Kingdom. These screens no longer occupied sites in high traffic thoroughfares but appeared in more traditional public spaces – city squares, plazas – where audiences could assemble.

Large screens as an urban regeneration tool

Large screens have been incorporated into cultural programs that aim to facilitate the regeneration of urban centres. But has the large screen become an important feature to enhance public space, or does it remain a media asset to be placed wherever it might fit?

The answer varies. Some screens will fit the regeneration model very well. Some will be installed into a space with little consideration for their role in the overall development. And, unfortunately, some will be a forced fit.

English Heritage's guidelines for installing large urban screens in cities in the United Kingdom highlight various planning issues. The guidelines stress that planning for large screens is not an isolated infrastructure challenge, but a process that converges heritage, digital technology and other local development issues.

There has been a growing trend to integrate digital media infrastructure such as large screens into development plans for city centres. Such plans need to acknowledge the often-competing interests of commercial and residential tenants as well as the cultural and civic ambitions of the city.

The following case studies demonstrate just how difficult these agendas can be.

Contemporary Art Screen, Zuidas, Amsterdam

Zuidas is new urban region situated between the old city of Amsterdam and the airport. The screen was placed in a relatively low position at the edge of a plaza surrounded by office buildings and above the train station entrance.

The screen operators had a very different vision for their project – to manage a screen space without showing commercial television or existing pre-produced content. As a consequence, the Zuidas screen was the first in the world dedicated to showing contemporary video art.



[Image 3] The Zuidas screen, Amsterdam.

BBC screens, multiple cities in the United Kingdom

The BBC began operating large screens with local city councils in preparation for the London Olympics in 2012. This project was not simply about having a big screen; it was about designing spaces that people could relate to. The operators didn't just think about content. They wanted an articulation between the screen and the space.

The BBC screen project during the Olympic Games was highly successful in gathering people to watch sport in a public space. The project highlighted the potential for very different types of screen experiences. Audiences no longer simply sat – silent and immobile – as they did in the cinema or in front of the television. The BBC screens introduced a collective experience for audiences that was partially mobile and offered potential for people to become performers in the space.



[Image 4] Developed by the BBC and Manchester City Council, this screen was the first of the BBC screens installed across the UK.



[Image 5] People watching the National Apology to Stolen Generations in Melbourne's Fed Square turn their backs when Opposition Leader Brendan Nelson appears on screen.

Big Screen, Federation Square, Melbourne

In February 2008, when the then Prime Minister, Kevin Rudd, made an apology to the 'Stolen Generations' on television and radio across Australia, around 10,000 people came to Federation Square to watch the event on the large screen. This was one of the key events for large screens in Australia where we saw the screen became a platform for political response and public protest.

When Brendan Nelson, the then Leader of the Opposition, gave his speech, many people at Federation Square turned their backs to the screen, showing their displeasure and disapproval. This gesture was picked up in many news reports, and showed how a large screen in a public space could allow an audience to become actors in the story in a completely different way.

Activating your screen site

Large screens are primarily public infrastructure providing free access to digital content and disseminating information to a wider audience.

Live screening of sport has been at the heart of big screen development. London 2012 Live Sites had more than 13 million attendees over the course of the 2012 Olympics and Paralympics. During the 2010 World Cup more than 20,000 people congregated in Melbourne's Federation Square.

A major priority of these large screens is to enable collective moments in the city centre where large groups of people can gather and experience something for free. Sports broadcasting is the most effective format for this.



[Image 6] People gather at Fed Square, Melbourne to watch a live sporting event

Big Live Event

In London 2012, Live Sites became a unique addition to existing Olympic venues, where fans and spectators gathered to celebrate sports events. These live sites were not just a way to bring the Games closer to the people. They became elevated to 'a forum for people to come together in peace to celebrate the excitement of the Host City' (IOC 2005: 86).

The London 2012 Live Sites had three main designated zones (McGillivray 2011):

Permanent Live Sites: A network of 22 venues in cities across the United Kingdom. These screens are supported by a partnership between the London 2012 Organising Committee, the BBC and the host city authorities. Content is generated through this partnership.

Temporary venues: These are specially created sites to support the scheduled game events. Their main purpose is to provide the opportunity for the public to get closer to the Games.

Community Live Sites: These are sites tied to celebrations within the host cities incorporating local events and activities.

Using screens in this way activates the screen space by facilitating actions in public settings. People gather together to watch sport in public spaces because of the need to be demonstrative and interact with each other.

Associated activation

'Associated activation' is anything happening in the screen space that is connected with the screen content. It could involve a sports club screening sports demonstrations or a community organisation showing a sponsored, screened event.

Cricket Australia's 'Get into Cricket' roadshow at Federation Square featured cricket legend Merv Hughes making an appearance with young cricket fans. The Triathlon Federation offered running, cycling and swimming taster sessions in front of the screen during the Triathlon competition at London 2012. And London 2012 screen sponsor Cadbury's gave away free chocolates in specially designed Olympic Games wrappers and offered extra material for sale.



[Image 7] People gather in front of a BBC screen in the UK to watch a live sporting event

Screens can be one of the most effective public platforms to catalyse public interest and increase an institution's profile. Nevertheless, their success relies on screen operators providing a broader mix of other facilities, activities and programs that help to activate the space.

Short film curation

Large screens are increasingly viewed as part of the cultural infrastructure of local cities, developing links with the arts community and other local groups. This role gathered momentum during the hype of 'creative industries' in the United Kingdom where technological innovation and cultural creativity were seen as keys to local economic development in many post-industrial cities (DCMS 2001). Large screen broadcasts of the BBC Proms and the 2002 Queen's Golden Jubilee Concerts at Buckingham Palace demonstrate this emerging role.

More importantly, however, large screens provide a new platform for local cultural communities to reach their audiences. Between 2004 and 2007 the BBC screen in Birmingham has shown over 900 films. BBC screens show mainly locally made films and videos promoting a booming local film industry. This successful deployment of BBC screens for local cultural use also signifies a general transition toward participatory content production in recent years, enabled by technological

advancement and media convergence.

Given the popularity of participatory media, it is not surprising to find that some telecommunication companies (such as Optus and Telstra) are sponsoring short films for release on mobile devices. Working with local telcos is an excellent strategy to generate affordable creative content for large screen and mobile services.

Festival uses

Located in the heart of the central business district, many large screens have played a role as crowd gatherer at major events and festivals for their host cities. BBC screens in Edinburgh and Liverpool, for example, have been extensively used to promote local festivals.

With such uses, the large screen space becomes a unique 'amphitheatre'. Unlike traditional theatre where the audience is largely silent and immobile, the large screen space encourages audiences to move, respond and interact.

Step 3

Screen Legislation

'Local authorities are responsible for deciding whether or not digital screens should be permitted, and, if so, where. In every case they will need to weigh carefully the potentially conflicting benefits and disbenefits arising from a specific proposal...Wherever they are proposed, before a decision is made to permit a screen, the local authority will need to establish that there are substantial benefits to the function, amenity and quality of the space, as part of an integrated approach to placemaking and sustainable regeneration, and that any harm to other attributes is minimised.'

English Heritage

Planning Permission

In the United Kingdom, there has been a significant dialogue with heritage bodies over the impact of large LED screens in public spaces. This has resulted in local planning guidelines to assess the impact of LED screens placed in spaces near listed or preserved structures.

Nevertheless, there are cases in the United Kingdom where there has been no issue with screens installed on listed buildings. While care is needed in the planning phase, the acceptability of a project will ultimately depend on the proposal's implementation.

If you are planning a large screen facility, check with your local planning authorities about any relevant planning or development legislation. In Victoria, some of the legislative bodies responsible for assessing large screen developments include the Victorian Urban Development Authority, Urban Renewal Authority Victoria and the Victorian Building Authority.

section two

developing large screen projects

Overview

Step 4. Screen operator

Introduces the concept of the screen operator and various tasks involved in the day-to-day management of screen facilities.

Tasks:

- Define the screen operator role
- Describe the facility benefits to local communities
- Develop cost models

Step 5. Technologies

Explains the technological requirements of large screens including scale and resolution. Outlines the basic steps for making a large screen that communicates with the public rather than one that is ignored.

Tasks:

- Understand screen specifications
- Understand the purpose of screen-to-screen (STS)
- Develop a list for your technology requirements

Step 6. Programming

Outlines some of the most effective programming options to strengthen interactivity and sustainability, and activate the screen site.

Tasks:

- Understand the variety of programs relevant to screen sites
- Understand the context of programming
- Develop the key aspects of your screen program

Step 4

Screen Operator

'Urban screens are made possible when the interests of those who control the exhibition space, the technology, the potential content streams and the potential revenue streams converge.'

Auerbach, 2006

The role of the screen operator

Operating a large screen is no small undertaking. These days, many screens operate 365 days a year and display content for at least 16 hours a day.

The 'screen operator' is responsible for managing the screen site, directing the programming and developing the cultural partnership. Within an institution there may be different levels of governance that have some responsibility for operating a screen site. This manual focuses on three key roles that any institution will need to embrace as screen operator.

The screen operator is in charge of a screen and its programming. This requires working with the local community to encourage them to participate and, often, to contribute content. It also requires a myriad of skills from editorial management through to technical operation.

Cost models

Large screen programs are always constrained by available funding. Non-commercial screen projects, such as the United Kingdom's BBC screens, may have difficulty attracting public or private sponsorship because the screens won't display any commercial content. Public-facing local authorities will also stipulate that there is no commercial content if they fund a screen. This makes sustaining large screens very difficult.

Employing a partly-commercial model can be a viable solution to this problem. This does not mean an end to interactive content. In this model, the content is user-generated with a focus on local culture and local community, but there will be an element of commercial activity on and around the screen that generates income to cover operational costs.

Federation Square's large screen is supported by income generated through other on-site facilities, such as the car park. If you are an organisation with urban amenity that can benefit from a large screen facility, and you can divert income to support the screen operation, then this is ideal.

Large screens are an expensive enterprise so it is always advisable to consider any funding constraints at the feasibility stage of the project. Some of the costs involved are:

- screens (hardware)
- installation
- maintenance (technological updates)
- broadband connection
- programming

The following estimate is based on existing projects in the United Kingdom and Australia, however, readers are encouraged to develop their own cost models.

Step 5

Technologies

Until technology and infrastructure becomes more standardised, a lot of the technological preparation involving large screens will be event specific – and this is where it can get costly. Any external network that needs to connect to a remote site in a venue or facility will require specific site modifications.

Screen specifications

Screen size

While screen size should be in proportion to the available space, in general, a 25-sqm screen can adequately service a crowd of 8,000 and a 40-sqm screen will provide good viewing for 12,000. These figures are based on a crowd density of 1.5 people per square metre.

Screen pitch and resolution

A 'finer' LED pitch provides a higher image density and a greater achievable resolution. Latest technology, like the system used in the Atrium of Federation Square, replaces the older 'discreet bayer diode' system with a surface-mount device (SMD) diode that can reproduce red, green or blue (RGB) light. These units are usually cased in a black housing, increasing perceivable contrast.

Today's screens can also operate in a 'virtual' resolution, using proprietary processing to dynamically reassign source pixels to different LED groups, depending on the content. In 2014, the current benchmark resolution is 10mm SMD or less.

Resolution of the screen feed does matter. While LED screens don't currently provide HD resolution, the feed quality is important and High Definition remains the optimum. You can achieve higher quality results if the screen is fed by Ethernet or point-to-point private internet.

Brightness

While LED screens should operate up to 7000 NITs, you may choose to restrict the output to 5000 NITs to extend the pixel life. You can also enhance brightness by increasing contrast with 'shaders', black SMDs etc.

Signal standards

This includes signal resolution, data rate and colour space. Screens were originally Standard Definition but now operate with a signal resolution of High Definition (1920 x 1080). Please note that 'signal' resolution and 'screen' resolution are two very different concepts (see 'Screen pitch and resolution' above).

Screen-to-screen (STS)

Most screens are designed as stand-alone installations. Screen-to-screen (STS) connection is the two-way interactivity that allows one screen to talk to another in real-time. STS connection relies on the speed and bandwidth of the internet connection.

Getting two-way content flowing is quite difficult and costly. Prices depend on the type of connection you use, such as fibre, Ethernet or satellite. Your local ICT supplier or a specialist infrastructure group may be able to assist with the specific needs of your project.

A fast connection will support everything from live performance to gaming. With gaming, you need to set up both local gaming and two-way gaming with a distant screen. This allows you to continue with a single stand-alone screen if the network drops out. You can also use this setup when you have a live performance and you want the option to show another performance, or a participant located elsewhere, on the screen.

In the transnational 'Dance Battle' case study (see **Case Studies**), on-screen dancers in Melbourne, Perth and Seoul interacted with live dancers at each venue. While live footage from one space was sent to the other screens, each site also had its own stand-alone performance.

A standard STS technology setup requires:

- a consumer conferencing solution (CCS)
- a content management system (CMS)
- point-to-point private internet (e.g. ARNET, a sub-network or a dedicated VLAN)
- WiFi
- a High Definition Serial Display Interface (HD-SDI) interface
- a sandbox
- camera and projector
- audio
- dispersed sound

Consumer conferencing solutions

Broadly speaking, the videoconferencing and telepresence sector is unlikely to provide what the LED screen industry needs at present.

Technology like Skype or Cisco's WebEx has proved unreliable for mission-critical events such as two-way gaming or live performances in multiple spaces. A standards-based, dedicated hardware encoding solution such as the high-end Huawei Telepresence system may provide a more stable connection for some sites.

There are a number of Telepresence units on the market and these have been used to provide a range of videoconferencing and real-time information sharing services. You may need to test a few solutions to find one that meets your requirements.

Hardware interface

Some LED screen manufacturers have quite sophisticated content management systems available to use with their product. There are also many stand-alone systems on the market, but make sure you bench-test the solution before purchase to ensure that it delivers the required functionality. In 2008, the CMS for the BBC screens was tested for six months before the final solution was purchased.

Achieving compatibility between screen sites with very different systems can be difficult. Remember, it's an investment in hardware rather than software that provides the STS interface. While you would need to invest in the hardware interface for all networked sites, this approach would set you up to use them again for future events.

You will require a box that does the encoding and decoding in hardware. The box will achieve very little audio lag – a crucial factor in real-time interactions. This kind of synchronicity simply cannot be achieved with software applications such as Skype.

While different venues in a screen-to-screen project may have different hardware interfaces it is important to ensure they all use the H.264 industry standard.

Bandwidth

The imperfect solution delivered by programs such as Skype illustrates the importance of bandwidth and reliable, on-demand connectivity. This can only be achieved with an Ethernet or similar solution such as point-to-point private internet.

AARNet

AARNet is the Australian Academic and Research Network, which owns dedicated fibre optic interface servers throughout Australia. AARNet connects many of the major research and academic institutions and other sites across the nation. AARNet has very high bandwidth and uncontended links to partner networks within Australia and around the world.

AARNet can make vision cross-points much easier on multiple sites, allowing the event producer to see what is happening in each space alongside the onsite technicians who manage each individual venue.

DMZ

The DMZ (demilitarised zone) is a sub-network inserted as a 'neutral zone' between an internal private network and the outside public network. Venues such as Federation Square in Melbourne use a DMZ and this is where the Telepresence system is located.

Using a DMZ ensures that the Telepresence unit has less restrictions than it would if it had to compete with an external network.

VLAN

Your networking capability will be further enhanced by setting up a dedicated VLAN (virtual local area network) instead of using an existing office network, which is used for other purposes. The dedicated VLAN will connect straight to AARNet, or another internet service provider such as Telstra. Make sure the your internet service provider can give you guaranteed bandwidth for uploads and downloads.

Alternatively, you can rent a direct link to either the public internet or a private circuit from point to point.

WiFi

WiFi is useful for interactives and special projects, but not for mission-critical live applications, or for any day-to-day media distribution for play out that involves moving 5-10GB files between storage and points of play out. This kind of distribution requires gigabit wired networking with 10Gbps fibre back hauls (the 'backbones' between switches).

WiFi is also used extensively in other countries, including the United Kingdom, for screen operators to control screen functionality on-site and remotely.

NBN

The National Broadband Network (NBN) will have little impact on large CBD sites where there has been fibre connected for some time (AARNet, VCN, VEN etc). These sites can simply 'choose' their connectivity speed with an internet service provider.

Other partner sites without fibre connectivity will now have tenable high-speed access for streaming live content via the NBN.

SDI

Adopting Serial Digital Interface (SDI) as the site-wide signal standard provides a single standard for the routing, distribution, ingest and play out of high definition video, 16 tracks of audio and other metadata. SDI makes large screen sites interoperable with partner sites over fibre optic.

Sandbox

Sandbox is a security mechanism for running separate programs. It is used in addition to traditional sources such as satellite receivers, fibre optic transports, play out servers or Blu Ray players.

It is useful to have both a PC and Mac sandbox to output less traditional sources like web streams, SWF files, websites or augmented reality projects/interactives.

Camera and projector

Using permanent, remote-controlled cameras (such as the on-board, audience-facing cameras mounted on the BBC screens in the United Kingdom) can provide an easy way for the screen to interact with the audience. These cameras need to be pan-tilt-zoom (PTZ) units.

Setting up plug and play points in the public space also allows for additional cameras and playback from any control point in the area.

Projectors are expensive, difficult to set up, only work in the dark and are best used for specific, specialist performances.

Audio

Audio is critical. It is the one thing that attracts people's attention more than the screen itself. But it is also the single biggest area of customer query or complaint from local residents, users and traders.

You will require local authority planning permission to use audio with your video. Permit applications may involve environmental testing at the time the screen is erected. Using audio may also require other local compliance permissions.

Audio is extremely important in situations where there is a short amount of dwell time as it provides continuity and maintains people's attention.

Dispersed sound

Getting the sound off the screen structure and distributed around the venue is useful in live events. As every site is different, you will need to survey each site and work out your core requirements. You may need different solutions for each site, such as higher sound levels or more speaker pods around the site perimeter.

Step 6

Programming for Large Screens

'It can be tempting to forget that we do not need to grab people's attention...we must have faith in the integrity of our audience and be prepared for them to take it or leave it.'

Kate Taylor, BBC Big Screen, Manchester, United Kingdom

Large screen programming is very different to art curation because the main task is to enable civic participation. Curating large screen content is as much about public behaviour as it is about content. Any decisions you make about content also need to consider the large screen platform, the public space and the available technologies.

Within a large screen space, anyone carrying a mobile phone has the potential to interact with the screen and shape the content. Improved broadband networking has significantly increased this potential.

But audiences aren't the only ones with more opportunities to interact. Screens originally designed as stand-alone installations can now link to other screens. The BBC screens project was one of the first to operate as a linked network.

When programming large screen content:

- don't assume that commissioned content will automatically work in a broadcast context or in a big public space
- don't assume that your content will automatically draw people to the site and make them want to interact in the space

The most successful large screen programs are those that make people feel that there's always something going on, regardless of whether they came to the site intentionally or by accident. There is always a fine balance between managing the site constraints and facilitating opportunities for potential interaction.

As screen operator, your job is to respond to overlapping and sometimes competing events that manifest in the public sphere. The screens and your programming choices are effectively facilitating a holistic public experience for the site. Maintaining a balance between all elements is fundamental to the way you operate.

Federation Square's Civic and Cultural Charter articulates the main objectives of a city square as the centre for cultural activities. The Charter acts as the guiding principle for the Square's content programming in significant ways.

Federation Square has a variety of programming options available on site including:

- third party programs where individuals or organisations hire the space, and the site manager plans and coordinates activities according to the client's requirements
- commissioned and co-produced creative projects
- educational programs such as tours and other initiatives for primary and secondary school students (these are mostly recurring activities)
- regular, mostly free events from book and wine markets to health and well being sessions
- multimedia programs that involve operating and linking public screens and other multimedia resources

Understanding the context of programming

Large screen programming aims to communicate a context to everyone who visits the site. It is particularly challenging to capture someone's attention when they are simply crossing through the screen site without necessarily planning to be there.

You can spend a lot of money on commissioned content but if no one understands its context in the first two minutes, you can quickly lose your audience.

Managing transient audiences requires human resources on the ground who can observe an audience's behaviour and quickly respond to their needs. For example, you may need to display a slide at various times that explains the context to the audience or encourages them to interact.

Content guidelines and compliance

As site manager, you must retain the right to edit the content in order to build a compliant and cohesive program. Often this requires juggling different content providers with different interests. Content classification can be a risk with large screen programs. Often this kind of grassroots or community-developed content is not adequately risk-assessed or classified. While you need classification guidelines to indemnify against content contraventions, you also need to respond to what the public wants from your space. This can be a difficult balancing act.

When commissioning, developing or coordinating programs for your site, it is essential to provide a brief to content producers. The brief should outline your requirements for all aspects of the creative process including content formats, classification guidelines and restrictions, and advice on audio, timings and technical specifications. The brief also includes creative guidelines that describe the kind of content that is appropriate for the site and how this is built into the cultural atmosphere of the space. See, for example, Federation Square's Screen Content and Usage Guidelines.

You will need dedicated staff to liaise with content providers and producers. They will curate the screen program, review all content against the classification guidelines, advise on production and load content to the screen servers. Whether these personnel are employed by the screen operator, the local authority or the program partners it is essential to ensure that there is somebody who manages all aspects of the content creation process.

Functions of screen programs

Screen programs have a variety of functions, each facilitating different degrees of participation and interaction. Programs can act as an:

Informer – passively screening free-to-air content or content that requires little effort or resources to procure. This kind of program uses the large screen as a big television.

Amplifier – with content that fulfills a larger agenda that goes beyond the image on the screen, for example, a live broadcast of a band that is also playing on stage. This kind of program involves developing a partnership with a third party creative entity. It takes a bit more resourcing than passive content.

Initiator – presenting more ambitious, complex content that aims for a more engaging form of public interactivity. This kind of program requires significant resources.

In general, the quality of the overall programming is in inverse proportion to the level of effort required to develop the content. Interactive programs that require the most time, money and human resources to produce occur the least.

It is important to remember that the majority of people who come to the screen site are open to an experience that goes beyond passively watching a screen. With more creative projects such as an interactive gaming session or an inter-screen dance-off, you can engage people in unusual and interesting ways. Even if it's only for a couple of minutes, this 'gentle hijacking of people's attention' is far more interesting than if the screen is just playing Foxtel.

Screen operators need to be open to all kinds of experiences and to support them for as long as they have public legitimacy. The only way you to measure this legitimacy is to be on the ground everyday. This means that the most important criteria for managing a large screen facility – beyond the physical, financial and managerial aspects – is to have ongoing discourse with the local community.

Programming checklist

Balancing the casual nature of large screen content and the transient nature of its audiences requires considerable effort in scheduling and timing. Three key programming aspects unique to large screen content include:

- scheduling and duration
- content and themes
- curatorial ambition

section three

managing and sustaining large screen projects

Overview

Step 7: Developing screen partnerships

A major challenge for managing and sustaining large screen facilities is to produce content that is site specific, interactive and sustainable. This step explains how to balance different objectives through effective partnerships.

Tasks:

- Understand different screen partner roles
- Identify a range of local creative groups and gauge their potential as content creators
- Develop partnership building strategies with other local organisations

Step 8: Commissioning site-specific interactive content

Explains how to commission site-specific interactive content from the viewpoint of screen operators and content producers.

Tasks:

- Understand the site-specific nature of screen content
- Identify cultural forms and cultural producers for commissioned, site-specific content
- Compile screen content and usage guidelines

Step 9: Curating for the unexpected

Discusses ways to manage emerging technological, cultural and social challenges.

Tasks:

- Understand the relationship between audience and large screen media art
- Understand the difference between large screen media art content and gallery-based media art projects

Step 7

Developing Screen Partnerships

Operating a screen site is all about community. Interactive programs feed worthwhile experiences to the community and involve a range of visitors in those experiences. But you need community buy-in to maintain the momentum.

Screen partners are often an essential source of funding, content, audiences and support for screen operators.

The most important way to build and maintain creative programming is to tap into the rich experience of the local community to build partnerships, disseminate educational programs and represent the local to a global audience.

This process will be much easier if you set up partnerships with local creative groups. In this sense, bigger cities may have access to a wider range of potential content partnerships than smaller towns and cities where it can be harder to get the screen material together.

Screen operators don't always have the capacity to review every minute of content that goes on their screens. To mitigate any risk, screen operators require external content providers to certify the rights to exhibit their content and to demonstrate compliance with content classification guidelines.

This process is much easier when you have developed ongoing, sustainable and trusted relationships with content partners instead of having to negotiate different agreements with different entities all the time. Of course, there is always a measured risk and whatever regulatory framework you impose, something could still slip through.

In large screen projects, local city authorities who are typically responsible for managing the public space in a city centre often assume the role of screen operator. For example, the BBC screen model involves a partnership through the screen operator with the London Organising Committee of the Olympic and Paralympic Games (LOCOG), the BBC as the broadcasters and the local authorities. Through this partnership, the BBC provides free broadcasting content for the screens, and the city council pays for screen maintenance and operating the screen space. City councils who fund a screen would normally want to be involved in the programming and this was the case with the BBC screens.

Screen operators are not solely responsible for bringing out the vibrancy of the site. Screens are often situated in the heart of the city, involving multiple stakeholders. If you are an independent screen operator, some of the organisations that you might want to partner with include:

- local authorities
- landlords of screen sites
- anchor tenants for the site
- local arts and cultural organisations
- other businesses and communities

In short, all screen sites should operate as an evolving organism that incorporates creative content produced, consumed and distributed through a comprehensive network of screen partners. Large screens are not just an expensive, static and standalone piece of equipment.

Step 8

Commissioning Site-Specific Interactive Content

Programs designed for large screen sites are very different to televised stadium broadcasts, gallery-based interactive screen works, television broadcasting or sports feeds. Successful programs are responsive to the spaces where the large screens are located.

Our research shows that some of the most successful programs involve short performances that focus on the public space surrounding the screen. These programs don't require audiences to sit and watch a lengthy film or a video, and often encourage immediate interaction with the screen or through a website.

Tests in the United Kingdom found that audiences rarely take away the opportunity to interact, so it must occur on-site. While individuals will interact with a program or game in a public space, mass interaction is a much better experience.

With this in mind, the London 2012 project team developed a suite of interactive games specifically for the Olympic and Paralympic period and tested them against smartphone games developed and used by their online media team. The tests showed that while media may transfer across platforms, there are real differences between intimate personal engagement on handheld devices and mass engagement in front of a large screen.

Interactive content can also be used in different places, for different programs and over different periods of time. Successful programs are often those that work in multiple sites and across different timeframes or cultures.

Contemporary arts such as art-based video streaming and video art programs may not complement a large screen space. Before commissioning site-specific programs ask yourself these questions:

- Is working with new media technology artists a good fit for the project?
- Is it better to go with artists with a performance background or artists who work in the public sphere who are used to dealing with communities?
- What does the artist want from the project? Do they want to facilitate interaction or do they just want to show their work?

Use the following guidelines to help ensure that your content complies with any local legislation and site-specific requirements, such as a cultural charter and other civic principles. You can also use this information as a guide for producing your own screen content or for developing usage guidelines for commissioned content.

Classification

Content classification involves both conforming to regulatory guidelines and managing liability. Regulatory frameworks typically vary from place to place.

For example, Federation Square requires all content to be assessed and classified as either G (general) or PG (parental guidance), whereas, in the United Kingdom, all content shown on public screens is U (Unclassified).

In general, most content should be pre-rated, however, with the increasing amount of social media and real-time content, post-rating is sometimes the only option.

Occasionally, a piece of content may not fit into a broader regulatory framework. In these cases, screen operators need to make their own assessment based on other existing content guidelines, such as the Australian Broadcasting Commission's Editorial Policies and amendments.

It is more sustainable to build ongoing relationships with a handful of trusted content partners who understand and conform to your regulatory framework rather than negotiating individual agreements with many different content developers.

Scheduling and timing

The BBC's Bigger Picture program is a compilation screening for 20-30 minutes, as this seems to be the maximum time people will stay at the screen site. The program screens five times a day (Monday to Friday at 9am, 12pm, 2pm, 5pm and 10.35pm), catching different people who use the space at different times. On weekends the screening times vary depending on sports and news coverage.

Consequently, when the BBC has sports coverage, Bigger Picture content is moved or squeezed out of the schedule. During periods of increased sports coverage, such as the two weeks of the Wimbledon tennis championships when tennis is aired all day, an overnight mute loop screens artists' works (which are silent). This continuously repeats from midnight to 7am, catching a nighttime audience leaving the nearby clubs and bars.

An active audience in the area knows exactly when to look up, and, if arriving early, can wait with confidence.

Curating for large screen means engaging in an audience's transient nature. Content should not require any large commitment from people or a need to sit down and watch for long periods. Short form material – things that passers-by can consume quickly, engage with and then move on – is proven to be most successful. BBC research recommends content with a maximum duration of two and half minutes.

Size and voice level

Audio distribution is an important consideration as appropriate audio levels can vary widely for different types of content and events. You also need to consider the tenancies that surround the screen site. If the screen is too big or the programs are too loud, it will tilt the balance between other offers in the precinct. If the screen is too small and the sound too discreet, it will just become background filler.

The quietest time is usually early morning when the audience is mostly passers-by who are on their way to work. They typically take a maximum of two and a half minutes to transit through the screen space. Audio is more critical than the screen itself to attract these people's attention. Programming at this time should involve a high level of repetition with a strong focus on audio.

Step 9

Curating for the Unexpected

'If organisations continue to take creative risks with the medium, offering continued access, commissions and residencies for artists, Big Screens can offer much to art and much to audiences'

Kate Taylor, BBC Big Screen, Manchester, United Kingdom

Large screen operators face issues that simply don't occur in traditional media contexts. These could be unexpected interactions within the public space or unpredictable weather. But audiences will stay to watch live events if they are worth it.

Audience

The large screen is not immersive media. It is different to a cinema setting where viewers are isolated from the larger public or a gallery setting where curators and artists control the interpretive power of the work.

In the large screen space, we must recognise 'the difference between an intervention or interruption, and an unwanted interference.' Examples of failed large screen projects include art works that use the space as a white cube and projects where artistic needs override the other social and physical aspects of the space. These projects are called 'plonkers' because they were 'plonked' down without any connection to the architecture and environment, or to the way people use the space.

Artists

From the artists' perspective, large screens present a new set of challenges for producing work.

Artists don't necessarily know how to place their work in a large screen space because they are used to working in galleries where the space is more contained. They must realise that large screens are public spaces. In some cases content may be screened simultaneously across a number of sites, possibly located in different time zones.

For artistic projects, curators need to consider how to present the work in a public, non-gallery space. A large screen event is not like a controlled gallery launch – it is more like an incidental engagement where people come and go.

A public space does not offer the same security as a gallery environment. Part of the lived experience of a large screen space makes it impossible to rehearse an event behind closed doors – everything is in public. Yet some of the most successful projects are those that engage people when they least expect it. People might be simply passing by when an artwork on the big screen captures their attention.

Curating for the large screen is an iterative process. The outcomes aren't always anticipated from the beginning. Artists and curators need to relinquish some control because it is likely that the lived experience will differ from the planned experience. This iterative process also gives artists and curators the flexibility to respond to audience reactions during the event, which makes it even more interesting and challenging.

The following tips may help artists who are interested in working with large screens:

- Imagine an audience where people pass by the screen site at the same time of day, and spend less than a minute in the space.
- Content should be no more than five minutes duration, with exceptions.
- Narrative films longer than five minutes can work as part of a special release such as a film festival, which serves both a targeted audience and passers-by.
- Abstract concepts can work well with passing traffic where the interpretation of meaning suits the transitory nature of the audience. Replaying short monologues is helpful for audiences who are entering the space at different points.
- Using slow motion provides a contrast with the real pace of life off the screen. This is particularly effective in a busy city centre location where the contrast is even more obvious.
- Time-lapse is also an effective technique for the large screen. It works well to connect screens in multiple locations with different time zones where content that offers a striking contrast between local and global is likely to succeed.

Case studies

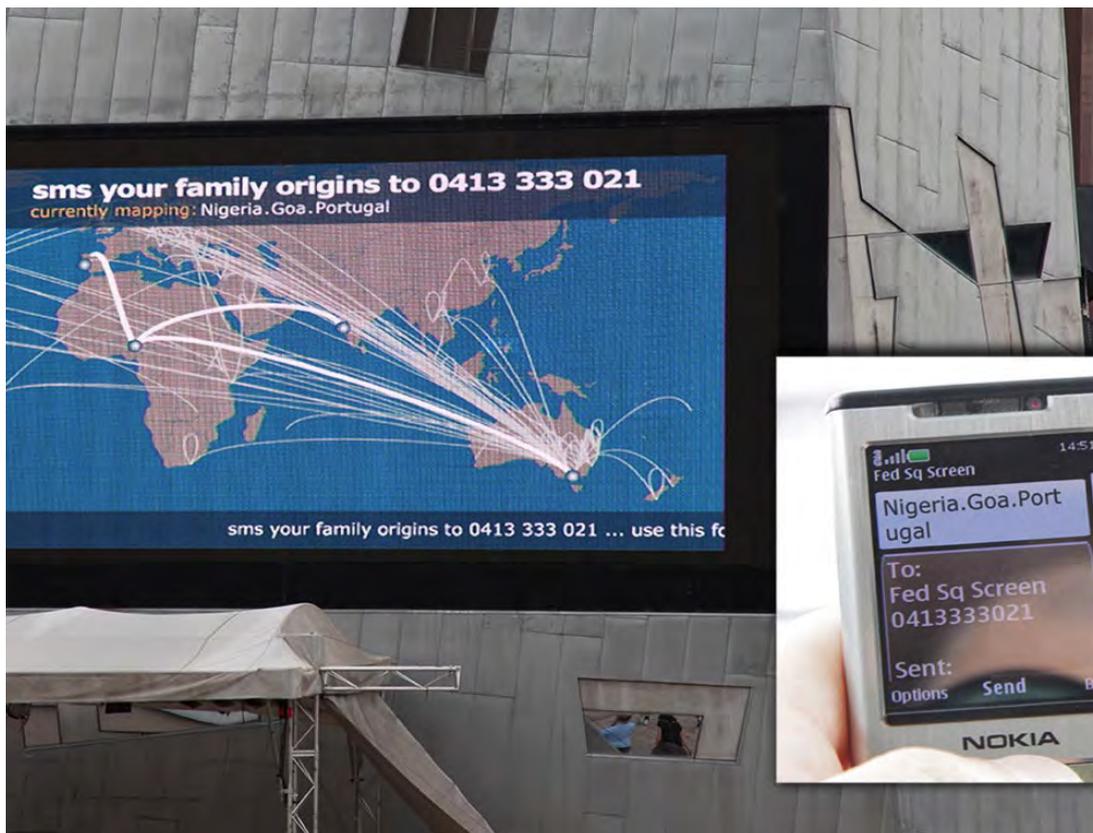
As part of the research for this manual we designed three interactive media art projects. The following case studies share our insights, looking at what works and what doesn't.

SMS_Origins

Our first project set up simultaneous urban events in Melbourne and Seoul. SMS_Origins (August 7, 2009) presented a set of 'accidental interactions' where audiences used their mobile phones to make art on large screens.

The project's premise was simple. Visitors were invited to text the birthplace of their parents, and their own birthplace, to a large screen. Using either Melbourne or Incheon (Seoul) as the point of origin, audiences in both cities could see a collective map of the family origins of all participants.

Similar ideas had been previously tested in small spaces but never in a large screen context. It showed the potential to use this interactivity as a filler at very large, tribal events – such as the Eurovision Song Contest or the World Cup – where people are barracking for their nation.



[Image 8] SMS_Origins in action at Fed Square., Melbourne

The team encountered a few issues. In particular, it was difficult to preempt the words that people would be texting to the screen. To prepare, the team compiled and mapped an extensive dictionary of allowable place names. While this solution minimised any guesswork, it involved a significant amount of preparation that would need to be factored into future events.

The Hello Project

In our second event, the research team facilitated an interactive screen-based dance work conceived by Australian artist Rebecca Hilton in collaboration with Korean choreographer Soonho Park.

The idea was to test a more physical form of interactivity, using person-to-person exchange instead of a text-based or phone-based interaction. The result resembled a dance-based version of Exquisite Corpse, the surrealist game where people collaboratively construct a text or image.

The Hello Project's collaborative exchange was gestural. One participant would throw out a gesture to another participant on the other side of the world who would learn it, and then throw it back to the next person. Hilton and Park choreographed short, 30-second dance sequences using movements donated to the project from community groups in Melbourne and Seoul. These were then passed onto audiences in the two cities via large screens.

This kind of project brings many technical challenges. The first was finding a suitable screen in Seoul. The project is designed for an ambient people-to-screen interaction where audiences are not 'captured' but 'allured' to the aesthetic and social activity on the screen. While Seoul has thousands of large screens, most are too far from the ground to encourage person-to-person interactivity over distant locations. As a result, the team had to build a specific screen.

The project's reliance on physically mediated communication also proved challenging. Hello was made with two choreographers, between two cities, with two technical teams (one that spoke English and one that spoke Korean), and two very different audiences.

The whole project was an exercise in 'translation'. However, using dance as the medium sidestepped the linguistic barriers that we had previously experienced in linking audiences in South Korea and Australia.



[Image 9] Hello participants teaching and learning the dance choreography in Seoul and Melbourne respectively.

Dance Battle

Dance Battle used the format of a hip-hop dance-off to explore and showcase large screens as communicative and aesthetic devices. Unlike SMS_Origins, where audiences shared personal data via mobile devices, this project involved a very public participatory experience.

The battle drew performers from hip-hop communities in three cities (Seoul, Melbourne and Perth) and engaged several hundred people over a three-hour period in each location. The event used broadband to connect screens in each location and provide high-quality images to encourage personal identification and connectivity.

This event was designed as a 'quasi' competition to observe how 'competitive' activities could engage a transnational audience. Mirroring a typical hip-hop street battle, people came at a certain time to dance freestyle with each other in the public space. Participants could see both themselves and their international partners on the big screens. Invitations were extended to a mix of experienced dancers and others who simply wanted to join in.

As a warm up, screens in each of the three cities hosted a one-hour public hip-hop workshop. This was followed by 12 sets of two-minute dance-offs: Seoul vs. Melbourne, then Melbourne vs. Perth and then Perth vs. Seoul. The event also included special performances by dancers in the three cities and ended with public dancing and a finale involving everyone on stage and screens.

Dance Battle is an example of how a popular cultural expression can be used to engage the general public via large screens. Most audiences understand the difference between an interactive experience like Dance Battle and a general broadcast. The project allowed the participants to perform to audiences in other locations, and many felt personally connected to those people the other cities through this event.



[Image 10] Dance Battle at Fed Square, Melbourne

section four

the future of large screens and public audiences

The Future

What is the most likely way to engage a 21st Century audience with large screens? Is it through 'passive' screening of content, events, interactive opportunities or a mixture of all these and more?

Post-London 2012, the BBC screen sites are now developing individual solutions to many of the issues highlighted in this manual. Several national operators in the United Kingdom are working on a new approach that places content at the forefront of any commercial activity. We are now seeing a new breed of programs where individuals can use smartphones to upload content or participate in mass interactions via the large screen.

If this is the future of large screens, how can they be better integrated into art curatorial practice and architectural design? And what new modes of production will take shape in the next decade?

As we move through different phases of screen development, it is quite clear that when you curate for large screen sites you are actually curating public space. The ever-popular large screens installed as building façades in urban regeneration projects are becoming buried in the noise and glitz of city life. They become invisible because they all churn out the same, passive commercial content.

The large urban screen is an extension of public space and needs similar resourcing to other, more traditional, public space projects. Unfortunately, the cost of large screen programming may become a barrier for many screen operators, especially smaller councils with less resources and programming capacity.

Large screen is not a television and it is not an outdoor cinema. The key thing that distinguishes large screen art and its particular context is its 'intercreativity' as opposed to 'interactivity'. It is a space of spontaneous transformation and not just a medium for participation through induced pathways.

Where is the art within all of this? How does the material form of the screen enable new flexible forms of creation, invention and participation? How will it create new forms of engagement? New strategies such as crowd-sourced projects and spontaneous collaboration through large screen media have already broadened everyone's perception of what is truly possible.

Above all, it is important to remember that what sparked the large screen frenzy of the last decade is affirmed everyday in our contemporary urban environment, where people are seeking to feel connection. All it takes is a simple look in the eye or the hint of a smile to confirm that sense of communication.

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