Digital Arts & Heritage Access & Interaction: Taking Advantage of Yet More Technologies

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Was die Erfahrung aber und die Geschichte lehren, ist dieses, daß Völker und Regierungen niemals etwas aus der Geschichte gelernt------ haben. Hegel[1].
(*History only teaches us that peoples and governments have never learnt from History*)

Abstract

The tides of new technologies continue to sweep across the Arts & Heritage scene with London (amongst many other cities) acting as an innovative crucible. Three fields are used to begin to explore the relevance of historical analysis: Digital Artists from the 1950s; BBC Participatory Media during the last 20 years and, recently, International *Live-casting* of performances from Opera to Theatre and Museums to large-screen audiences. A primary aim is to encourage increased European cooperation in HORIZON 2020 and other cross-border R & D initiatives.

Introduction

Over the last three decades the scope of digital-based methods and tools in the Cultural Sector have become increasingly pervasive as may be seen by examining the thousands of papers at EVA conferences as well as at other events and the voluminous literature. London's 'Memory Institutions' are now far from being the only providers of wide-spread digital access. In this paper, we focus on three areas: digital artists since the 1960s (Lambert), Participatory Media in the last 15 years (Jackson), and the more recent emergence of 'live' large-scale distributed cultural events such as the Opera, Theatre and (in 2013) the Museum & Gallery field (Hemsley). Participatory Media can be defined as that offering interactivity, affected by network effects, and which offers the opportunity to become a producer-consumer, or 'Prosumer'. Social Media can be framed as one genre of the Participatory Media, alongside other participatory platforms, such as online gaming and virtual worlds. Our common approach is therefore historical, with London as the focus. EVA Berlin has included *'Historie'* in its 'strap-line' since its inception twenty years ago. We wish to explore the value of researching the history of digital culture technology itself to see to what extent Hegel's famous dictum, quoted above, applies.

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[1] G.W.F. Hegel reference page 17.

Digital Arts in London[2]

In 1968, the seminal exhibition 'Cybernetic Serendipity', curated by Jasia Reichardt at the Institute of Contemporary Art in 1968, demonstrated that London hosted a flourishing scene of artists engaged with novel digital technologies. Even before this exhibition, the concept of Cybernetics – developed by Norbert Wiener at MIT as a trans-disciplinary approach to the sciences in the late 1940s– took root amongst a section of British artists called the Independent Group in the 1950s. Richard Hamilton, who died in 2011 aged 89, was a prominent member and exponent of the idea of popular culture and technology in art, which later coalesced into the Pop Art movement.

This gave impetus to the incorporation of various new technologies into the British art school curriculum, most notably through the efforts of Roy Ascott, whose Ground Course at Ealing College of Art in 1960 pioneered the introduction of Cybernetics into art. Some of Ascott's most notable students made an impact in the area of music, not least Pete Townshend of The Who, and Brian Eno, whose engagement with digital media continues to this day. Scott and his contemporaries also drew on sources amongst the Russian Constructivists and the Bauhaus to bring technology into art. Following Ascott, a range of British artists engaged with early digital computers, from social systems invented by Stephen Willats, through Tony Pritchett , who made the first British computer animated film, *The Flexipede*, to the sculptor Edward Ihnatowicz, who made *The Senster* in 1968-1970, which was a very advanced and influential computer-controlled responsive robot. A leading example of such computer artists working in London has been Gustav Metzger from Germany.[3]

The founding of the Computer Arts Society in 1969 enabled many of these artists to communicate with each other and internationally. After the exhibition "Event One" at the Royal College of Art (RCA) in that year, the journal *PAGE* was founded to encourage exchange of ideas in digital art. Both the RCA and the Slade Art School (UCL) had early research centres in digital art during the 1970s, and by the end of that decade, Middlesex Polytechnic (later University) had established a dedicated course in digital and TV graphics run by John Vince, and later by John Lansdown, a co-founder of the Computer Arts Society together with George Mallen[4] and Alan Sutcliffe. The development of the UK's digital graphics industry was greatly facilitated by these forward-looking artists working alongside technologists.

In the 45 years that followed, computers moved from expensive tools of scientific research organisations to commonplace articles in our culture, and in the process the range of artists using them has grown accordingly. Beyond the fine arts, in the areas of applied arts such as illustration, typography, design, architecture and the rest, computer graphics have almost entirely displaced earlier techniques and technologies of image-making. Entire industries have grown up around specific pieces of software, such as 3DS Max, Final Cut Professional and InDesign. In a wider sense, the computer has also fostered a greater visual literacy and access to images than at any previous time in human history.

Insofar as London was a centre of fine and applied arts before the advent of the computer, it has now become a centre of digital imaging and the recent expansion of this term to cover 3D capture and printing has also seen the rise of new kinds of printing bureaus and design services. All the digital arts activity in London is embedded in a larger context of the Creative Industries, an area that has attracted significant government funding as it is worth a considerable amount to the UK economy. The Creative Industries can be defined as those which blend the digital arts and technology, for example, digital media, gaming, animation, participatory media, and so on. In a recent report, media analysts Booz & Company examined the digital creative sector and found significant year-on-year growth since 2001, despite the recession:

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[2] This section draws on the research performed for the major research project "Computer Arts, Contexts, Histories etc.", (CACHe) funded by the UK Arts and Humanities Research Council, 2002-2006, at Birkbeck College, University of London. See: http://computer-arts-society.com/static/cas/cache/

[3] http://www.tate.org.uk/art/artists/gustav-metzger-7196

[4] EVA London Committee member and founder of System Simulation: http://www.ssl.co.uk/

'In spite of significant structural changes, the revenues of the five major industries book publishing, press publishing, film & television, gaming and music have increased to more than GBP 30 billion since 2001; translating into a stable yearly growth rate of approximately one percent. Revenues from digital businesses even grew by more than 10 percent per year to almost GBP 9 billion.[5]

For this reason, the several London universities and colleges with a design or visual component to their courses offer specific degrees in digital art. Examples include the MA Fine Art Digital at Camberwell College of Art (University of the Arts); the MA in Computational Arts at Goldsmiths, University of London; and Digital Media Arts BA (Hons) at London South Bank University. This means there is a thriving culture of undergraduate, postgraduate and research students in the area of digital arts; and various organisations exist to foster exchange in this area. These range from Furtherfield, a physical and online gallery space that encourages participatory and community-based digital works, to the Thursday Club, which hosts lectures and discussions by digital artists. The Sackler Centre at the Victoria & Albert Museum hosts an annual Digital Design Weekend[6], but also fosters considerable exchanges with digital practitioners throughout the year; and the Kinetica art show, which attracts tens of thousands of visitors during its three day run every February, also provides a window on numerous digital art projects.

The connections with Germany have been strong, as emphasized by Douglas Dodds and Melanie Lenz in the 2013 Digital Design Weekend at the V & A. Dodds leads the V & A's efforts in collecting Computer Art works. Also, a recent addition to the West End art gallery scene, Carroll/Fletcher, is a space that offers a distinct and often experimental approach to artists' retrospectives and shows. It has hosted a number of digital artists recently, such as the internet-based duo Thompson and Craighead. The gallery also set up the first British retrospective of the established German digital artist Manfred Mohr, in December 2012[7]. Active since 1969, Mohr deploys algorithms to explore the nature of image and process, evoking the musical side of this imagery as well. His work involves a spare, Constructivist aesthetic that uses this sense of musicality as a counterpoint to the rigidity of mathematical form; and in recent works he has evolved towards a multi-dimensional form of representation as well. Active in Berlin and New York, Mohr's career has spanned the whole period of computer graphics development but he has remained very fixed within a particular understanding of the computer's use in the fine arts: that of process and generation of geometrical forms. As Mohr says:

All my relations to aesthetical decisions always go back to musical thinking, either active in that I played a musical instrument or theoretical in that I see my art as visual music... I was very impressed by Anton Webern's music from the 1920s where for the first time I realized that space, the pause, became as important to the musical construct as the sound itself. So there are these two poles, one and zero. [8]

Mohr is one of an early group of German computer artists who followed the aesthetic theories of Max Bense, who investigated the way that art could be expressed as information and how it might be expressed in formal systems. Along with Frieder Nake, Georg Nees and others, Mohr remains focused in this approach to digital art. As Mohr takes forward this line of thinking that began in the 1960s, other London-based digital artists are bringing out more recent conceptual strands in this area. For instance, Jeremy Gardiner[9], a professor at Ravensbourne College of Art, has found ways to unite painting with various digital processes, including 3D printing and new types of information gathering techniques. He is a graduate of the Royal College of Art from the early 1980s, who also spent a period in the USA and has since returned to the UK to foster new developments with students in London to take forward the concepts of digital art and design. Therefore, with its

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[5] http://www.booz.com/uk/home/press_contacts/display/creative-sector-uk
[6] http://www.vam.ac.uk/whatson/event/2565/digital-design-weekend-3870/
[7] http://www.carrollfletcher.com/artists/37-Manfred-Mohr/biography/
[8] *http://www.carrollfletcher.com/exhibitions/13/overview*
[9] http://www.jeremygardiner.co.uk/

combination of a heritage in this area and the range of current practitioners and artists, London is a leading centre of digital media art with strong international relationships including with Germany.

Participatory Media: The Creative Public & The BBC

The BBC, as arguably the largest global public service media production house, has been experimenting, trialling and innovating with the design, development and delivery of interactive on-line digital public services for over 15 years, building on previous experience with letters, emails and discussion programmes. Strikingly, these have embraced not only traditional forms of reception but also public participation and media-making. This is particularly the case in the world of immersive games and platforms for the publishing of user-generated content, involving transference of control from producers[1] to the public, i.e. a diminution in the power of the former to the benefit of the latter

A wide variety of approaches have been explored, including a number resulting in 'False Starts', but with valuable lessons. Here, through the lens of theories connected with the participatory media, and production and audience studies, we focus first on a particular case study of a 3D solo-play game world for children, Adventure Rock, and then consider a number of more recent BBC initiatives in the Digital Public Space. Drawing also on other BBC experiences, as well as critical and public views of the media landscape across Europe and internationally, we develop conclusions on the BBC's evolving strategy. We examine how best to take advantage of the rapidly developing opportunities – as well as the competitive threats -- for creative public participation in interactive digital media. The BBC often takes a brand-centric approach which clusters multi-platform content around popular television or radio programming in order to increase audience consumption and retention.

The BBC was stimulated by an official UK communications regulator report (Ofcom 2006) drawing attention to the rapidly growing prevalence of the mobile phone and the Internet – not TV – amongst children. Accordingly the BBC reviewed its strategy with regard to online interactive services and immersive media and commissioned new online services for children, including online games.. Inter alia, in 2007 BBC Children's commissioned *'Adventure Rock'*, a development of KetNetKick, an award-winning 3D Virtual World which Larian Studio (Belgium) had previously produced for the Belgian Public Service broadcaster, VRT. *'Adventure Rock'* offered children exploration of an outside landscape via a running jumping personalised avatar. The child's avatar was continually accompanied by Cody, a friendly robot, however children were not able to chat to each other in-world; a message board was provided on an accompanying website along with a showcase area to display creative work generated in seven in-world studios for drawing, animation, making music and so on (Jackson et al, 2009). *Adventure Rock* remained 'live' from April 2008 until 2012 when it was withdrawn as part of a major reorganization of the BBC's web activities.

A special study was undertaken to examine the final production and testing stages of *Adventure Rock*. 90 children from across the UK drawn from differing socio-economic backgrounds between the ages of 7 and 11 participated in 'creative workshops' employing expressive methods (drawing and mapping) to communicate their views on *Adventure Rock* and other worlds for children from commercial players. Parent views were also obtained using questionnaires. Key results were as follows: Younger children (7- 9) devised worlds relatively unrestricted by 'real world' constraints; Older children (10 – 11) wanted spaces reflecting adult life, including communications with others, and also often built on prior Virtual World game experiences. The study's findings and conclusions were found to be of considerable interest and value to the BBC producers including the following recommendations: split the product offer by age group; consult children at an earlier stage in the design and development process; provide 'in-world' communications; employ more flexible project management methods. These lessons corresponded to approaches already embedded in commercial industry practice by computer software and games developers as regards User-Centred Design and Agile Development methodologies.

Other innovations have been- and continue to be - attempted in many different BBC departments with its 20,000 staff and decentralised organizational structure. We consider three of these innovations here. The first example concerns the adoption of User Generated Content, UGC, by the BBC's News division. The impetus for this was the London Underground terrorist bombing in July 2005. Unable to reach the location of the incident BBC News were forced to rely on photo and video footage captured by passengers trapped in the destroyed Underground trains to report the story on television and radio.

In 2007, the BBC's New Media Department created a network of developers - members of the public - around its BBC Backstage blog and online community. Over a 5-year period that began in 2007 the BBC offered the opportunity to 'hack' (creatively extend or augment) existing BBC prototypes, such as online applications and games.

Backstage engaged the developer community by (. . .) offering people a chance to meet, share ideas, work together, and build the sort of strong social bonds that allow online interactions to flourish (BBC Backstage, 2011).

The group ethos was to support the use of open data for the public good, to create more than 500 innovative prototypes, and to play with technology in interesting ways. A current (2013) project led by BBC Archive Development is 'The Digital Public Space' using database infrastructures to support 'creative ideas and events' within the Creative Arts realm including theatre, music, film and dance. It uses various combinations of interactivity including live streams, re-mixable media, and searchable multimedia archives to provide a window into selected UK artistic and cultural events. The prototype project is 'The Space' (www.thespace.org), a free service launched in May 2012 in time for the London Olympics. It draws on BBC archives (with over one million hours of video and audio content), the British Film Library, and the UK Arts Councils, the latter providing £3.5 million[10]. This can be traced back to a pioneering digitization project for the BBC Photo Archives in the mid-1990s.

A large scale unsuccessful development was the BBC's Digital Media Initiative which aimed to provide a sophisticated media asset management system, library of meta-tagged and retrievable multimedia asset store, and publishing platform. The idea was to begin to offer an agile and responsive content management production system, which would serve BBC production staff in the future. The ethos was to 'shoot once and use many times', for example footage shot for the national newsroom could be used for a regional news item on the same topic (*Localisation*). Siemens, the original system supplier, refunded over £20 million, but subsequent efforts also failed[11]. Having cost the BBC £98 million to explore and prototype, the project was finally abandoned in May, 2013. Currently, the BBC is endeavouring to re-initiate the scheme in 2014 and intends to place another major contract. In general however the BBC is well placed to continue such innovative work with, inter alia, the presence of colleges and institutes in or close to London with particular strengths in Film & TV, e.g. The National Film and Television School (NFTS) and Ravensbourne with its cutting edge 3D capabilities.

The literature on Public Media Services is extensive and inter- and multi-disciplinary in nature; we concentrate on just four authors here. First, Shirky (2008: 81) identified two basic paradigms: the 'filter then publish' model of broadcasting and the 'publish then filter' systems typical of the internet. Overall, the BBC is currently situated between these two; so far no major transformations towards newer structures of cultural production have been made. Currently, the BBC's general preference is to outsource interactive services and peer to peer communication, for example, to Facebook and Twitter in 'branded areas'. Second, Gloor (2006: 4) noted the emergence of concept-driven 'collaborative innovation networks', or COINs, describing them as "a cyberteam of

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[10] Kiss, Jemima, (6 January, 2013), *"BBC Makes Space for Cultural History"*, The Guardian. http://www.guardian.co.uk/media/2013/jan/06/bbc-digital-public-space-archive

[11] www.bbc.co.uk/bbctrust/assets/files/pdf/review_report_research/vfm/digtal_media_initiative.pdfand http://www.theguardian.com/media/2013/jun/07/bbc-warned-digital-media-initiative-problems

self-motivated people with a collective vision, enabled by technology to collaborate in achieving a common goal—innovation—by sharing ideas, information, and work". The BBC's Backstage initiative described above is an example of a COIN. Third, Lee-Wright (2008: 249–250) pointed out that commercial competition and alternative delivery platforms are undermining [public service media's] core audience, cultural fragmentation and political disengagement are depriving them of new audiences, and income cuts threaten not just their ability to respond to these new demands but to sustain their existing standards. Two years later he observed that the exploding multi-channel environment, the technology to manipulate it, and the internet with its endless options and direct sources all put the consumer in the driving seat previously occupied by the news editor (Lee-Wright 2010: 3) . These are more powerful drivers of change, because they challenge the very bedrock of BBC belief in its natural supremacy, and call into question its unique funding formula and its core public service mission since January 1, 1927: "to inform, to educate and to entertain'. Fourth, Jackson (2014, page 5) notes that: 'Participatory media offer a wealth of exciting opportunities for the BBC to connect with and involve an increasingly creative public. The corporation's preference, however, seems increasingly to explore how the internet might carry broadcasting, an orientation which postpones any critical analysis of changes to traditional sender-receiver structures.' A detailed analysis is provided in Jackson (2013, pages 381f).

In summary, the BBC appears to offer an exciting range of interactive experiences and opportunities, and there are many producers at the BBC who are highly enthusiastic about Participatory Media and about blends of participatory and linear media; however, this is not universal and in reality there is still little direct engagement between producers and audiences. Despite a lack of willingness to engage with the less controllable elements of the internet (principally peer to peer communication) the BBC remains committed to the exploration of the potential of the internet as a publishing platform; a more familiar construct. For example 'The Space' could be positioned as a natural development of broadcasting, the distribution of televisual media via the internet. It also has similarities to the BBC's successful iPlayer, and also 'YouView' the internet-connected set-top box which began to broadcast internet channels in the summer of 2013. The increasing interest in Connected Television (television with the internet) and Second Screen (television enhanced by internet protocol-delivered interactivity) may sit more comfortably with the BBC than social media. The emergence of 'Connected Television' and 'second-'(or even 'third-') screen approaches arguably draws the broadcast and network paradigms increasingly together.

The impact of the economic crisis has not left the BBC unscathed. In 2011, the BBC's website budget was cut by 25% against a 20% average reduction in budgets across the BBC in 2011. The cuts focused on 10 areas, including homepage, news and sport (BBC News, 2011). To make such large cuts to the BBC's online provision forces a retrenchment to the broadcast paradigm. The BBC's predicament is not an isolated case:

"Right across Europe the public sector in media is caught in 'a perfect storm'" (Lowe and Steemers, 2011: 9),

They are all seeking strategies to keep pace with commercial media and communications outlets, including the large US companies e.g. Google, and Facebook. On the positive side nonetheless there are grounds for optimism. We are moving towards a Media-scape in which there is a more collective approach to production; the public become prosumers and collaborators in the creative enterprise as pointed out by Shirky (2008) and many other writers. A more audience-/user-driven orientation is needed that facilities the aggregation of public-service communication around audience-user preferences and behaviours, for example, through the provision of a public-service search engine. Such a service would be in keeping with the ethos of public service media (inform, educate, entertain) and provide a quality, commerce-free, open and transparent, media and information-retrieval experience. Public-service media have an obligation and opportunity for the making of meaning (reification) through the sifting, recommendation, identification, curation, and facilitation of storytelling from a range of quality sources. Lastly, an ethical approach to media and information retrieval could be constructed, one which supports democratic purposes and the overall well-being of nation states and their citizens.

Further research is needed to sharpen the critical debate: for example, a useful tool would be to identify more suitable criteria for measuring the value and impact of services located online. Shirky suggests the use of 'Cognitive Surplus'as a better measure for the Participatory Media; the surplus creativity and cognitive value generated through crowd action (Shirky, 2010). Brynjolfsson and Saunders (2010) suggest 'Consumer Surplus', the monetary surpluses created through crowd transactions, or other economic value generated through crowd production, via online platforms. In the final analysis, it is not the technology per se , but the use of the opportunities for the public to both 'create and consume' which is the focus in the Participatory Media.

We now move on to consider the amplification of public access and engagement through the combining of HD digital broadcasting and Cinema for significant cultural Live Events, complementing 'ordinary' TV.

'Live-casting' HD Digital Performances / Events

Conventional TV has been used to provide access to major cultural heritage events for many years, such as for the Machu Picchu centenary celebrations in 2011 of the disputed 'discovery' by Yale Professor Hiram Bingham[12], which reportedly reached well over 100 million viewers and gave a very welcome boost to tourism revenues. Smartphones are increasing such access to event-led television substantially. However, for our third area we consider the historical development and cultural context of a new approach: 'Live' HD Digital Performances/ Events – 'live-casting' including with university and industry assistance. In the realm of 'High Culture' the Opera has a privileged role, despite its comparatively recent origins (17th Century Italy) – compared with Painting, Sculpture; Poetics and the other Muses from Ancient Greece (in European terms). In consequence, an operatic performance has particularly high status as an 'Event' or special occasion, generally limited to affluent audiences (at least in the UK) and also particularly when at one of the great centres such as La Scala, L'Opera de Paris, Bayreuth or the Metropolitan of New York. It was disconcerting for some Europeans in the field that the latter very successfully took the bold decision in 2006 to live-stream Mozart's Zauberfloete/Magic Flute in digital High Definition (HD) to cinema screens across North America and internationally. The performance reached many thousands of spectators at a much more affordable price and engendered a Special Live Event experience – a sense of presence and occasion (like Benjamin's 'aura') due to a combination of the 'Big Screen' and large audiences, not just TV family or individual viewing.

Although the experience was of course not identical to that of being 'at the Met', it was sufficiently close for the experiment to be improved and rolled out in a continuing programme of live and recorded events, which appears now solidly established, complementing and reinforcing the appeal of opera on conventional (digital) TV (and 'Home Cinema'), home computers and mobile devices. Increased access to Opera by new audiences is seen as a key benefit. The Met's pioneering initiative was quickly followed by others.

In the UK the first to adopt the Met's approach was the Royal Opera House, Covent Garden, which offered live performances internationally (for example to the city of Florence).Not to be outdone, the English National Opera swiftly followed suit. Similar 'Events' originating from other great Opera Houses across Europe are now increasingly digitally distributed. In the 2013-14 season the Royal Opera House is live-casting 20 ballet and opera performances from itself and the Met.[13] Of note also is the 2013 -2014 Season Viva l'Opera [14] initiative which offers live broadcasts from the Opera Nationale de Paris, and non-live cinema performances in HD from La Scala, Salzburg Festival, Aix-en- Provence Festival, Baden-Baden, Vienna and Barcelona. Other 'High Culture' distribution of similar events have followed suite and these have close relationship and affinity with national cultural strengths, for example Ballet from St Petersburg, Concert Music from Berlin; and Theatre from London which we now examine further.

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[12] http://www.bbc.co.uk/news/world-latin-america-14060341

[13] http://www.roh.org.uk/cinemas

[14] www.vivalopera.fr

The United Kingdom's National Theatre on the (relatively) new cultural complex on the South Bank of the Thames in London, together with the Royal Shakespeare Theatre in Stratford-on-Avon, is the leading showcase for English drama. Its adoption of the 'HD live-casting' of performances screened at cinemas around the world began with an initial exploration by a young American, David Sabel, who had just completed a Cambridge Master's dissertation on the Met innovation. He and Nicholas Hytner, Director of the National Theatre attended a live performance screening from the Met at the Curzon Cinema, Mayfair. The first play chosen for *live casting* in 2009 was suitably European: Racine's *Phèdre*. The event sold-out quickly and it was broadcast to 73 cinemas in the UK including London and over 200 internationally (Cellan-Jones 2012). The reception, both critical and public, has been very positive, live drama presenting some particular cinematographic challenges. Of note has been its educational application. By 2012, NTLive was well established with 6 -8 productions a year including, for example, *Othello* (Autumn, 2013). These live or 'as live' Event experiences have also generated 'encore' screenings, evidence of increasingly wide cultural adoption.[15] Victoria Lowe (2013) argues that *'it is the 'eventness' of the theatre experience itself that is the focus of the adaptation from stage to screen'*; this is an intriguing issue for research[16]. Another important area of 'High Culture' not normally associated with performance (or the *Spectacle)*[17] and thus more challenging is the museum, however, this is also evidencing adoption of the Event.

In late 2012 the British Museum re-organized its digital media activities including web operations, integrating them and related activities under the newly recruited Tim Plyming, previously in a senior role for the BBC's Digital Olympics coverage. As part of his new approaches for 'opening up' the British Museum the major special exhibition on Pompeii & Herculaneum was selected for 'live performance' screenings on June 18, 2013 at cinemas around the UK[18] and one city abroad: Hamburg. This international 'first' in the museum field was achieved with support from the Computer Sciences Department of University College London (UCL). The cinematic 'live event' achieved the second highest cinema audience in the UK that evening with over 30 thousand, only being exceeded by a blockbuster, *Ironman*, according to Tim Plyming.[19] The National Gallery in London, is also providing a live-cast based on its Vermeer Exhibition on October 10, 2013[20]. Only time will tell whether such innovations will take hold but at least for the moment they appear worthy of study as part of the Media Landscape complementing other modes of reaching out to new audiences.

Towards Extension, Synthesis & Future Research

In our recently initiated research, we have surveyed just three particular areas, however, it may be seen that there are some unifying aspects, including how examination of even 'Contemporary History' can provide useful perspectives, not least the potential value of cross-fertilisation between different   genres of media and performance. We have considered the formative role of early Computer Artists in raising awareness and stimulating subsequent advances in other cultural fields, particularly in the field of digital culture.. The BBC case history of *Adventure Rock* and subsequent BBC research and development projects illustrates the need to be aware of broader industrial developments in User-Centred design and project management methods originating from

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[15] http://ntlive.nationaltheatre.org.uk/productions/40168-othello (accessed 29 September, 2013)

[16] http://lnu.se/polopoly_fs/1.92117!DA_Abstracts_Tuesday24.pdf. Page 19.

[17] See http://www.bopsecrets.org/SI/debord/ for a new translation of "The Society of the Spectacle" by Debord

[18] http://www.bbc.co.uk/news/technology-22203498 re Pompeii& Herculaneum Exhibition

[19] In a Skype conference call: British Museum and participants at a Hamburg Workshop on June 19, 2013 to review the results of the Hamburg live screening on June 18.

[20] http://www.showcasecinemas.co.uk/events/arts-and-events/exhibition-vermeer-and-music-the-art-of-love-and-leisure

the Hi-Tech Software and Systems industries, including from Business, Aerospace and Defence Sectors. The use of Live-casting in the fields of opera, theatre and museums illustrates that sites of European High Culture are beginning to explore and exploit the internet and its distribution and aggregation capabilities.

Since our paper has been limited to initial exploration in these three areas one question worthy of future study is the extent to which this kind of 'Triple Helix' approach, looking at the three areas selected: digital artists; the BBC; and "live-casting", is applicable? Could this notion also be applied to another triad: a) adoption of digital practices, (b) adoption of participatory paradigms, and (c) *liveness* and *spectacle*? Could it be usefully extended across other Cultural areas? For example, other areas where these instances where this historical and cultural adoption trajectory may be in evidence are the Digital Humanities field and in the 'Convergence' phenomenon associated with the Creative Industries. We aim to continue doing further research, extending and deepening to include Design in particular, perhaps even producing a 'Multiple Helix' metaphor.

Future topics also worth consideration are the impact on the consumption of both broadcast media and live performance of the 'Home Cinema', with 'Wallpaper TV' already in laboratory stage development. Looking further forward, the increasing exploration of emergent projection technologies such as Domes and projector technologies, 3D, and digital holographs will prove a useful field of study from industrial and ethnographic perspectives. Ethical issues connected with online access to information (openess and transparency) are being foregrounded in more recent debates connected with the dominance of Google. Questions connected with the making of meaning and the maintainenance of a European Culture (or cultures) arise as the delivery of media and information becomes embedded with algorithms concerned with marketing and the psychology of influence and persuasion. To counter this we have suggested the possibility of a European Public Service Search Engine to rival major US activities. In particular we are interested in corresponding comparative contemporary historical research with German-speaking cities, as well as with other cities, regions and countries. Historical research in Culture & Technology is an active field of study as shown by the impressive *RENEW 2013: The 5th International Conference on the Histories of Media Art, Science and Technology*, Riga October 8 – 11, 2013 .[21]

The launch of the EC's new seven year Research and Development Programme, HORIZON 2020, will require the formation of cross-border partnerships in Europe. The UK is often wrongly (in our opinion) viewed as being 'anti-European' and a major objective of this paper is to show a keen interest by Universities in London and the rest of the UK in R & D partnering. Their strength may be attributed in part due to the absence of powerful research institutes common on the Continent such as CNRS, CNR and Fraunhofer. Also there is a wealth of Hi-tech SMEs in London, for example those clustered in the Silicon Roundabout (Shoreditch) area close to the City of London - reportedly the largest such grouping in Europe- and which includes many media and technology firms connected with the Creative Industries as noted above. Public funding and support organizations, such as NESTA, the Technology Strategy Board (TSB), JISC (the Joint Information Systems Committee which supports technology innovation for Higher Education Institutions in the UK), the Department of Trade & Industry, and the London Government, are actively encouraging and facilitating London and UK participation in HORIZON 2020. London's universities may be seen as a first avenue for developing proposal relationships with their access to the capital's Cultural Sector and Creative Industries, including 'hard-to-reach' SMEs.

Finally, we return to Hegel's dictum. We believe from the above cases that there are lessons from Contemporary Cultural Technology History but that we need to not only to learn more quickly but also more effectively and then apply the lessons. If not, Hegel will once again be proved correct.

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[21] http://www.mediaarthistory.org/renew/programme_venues

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KEY TERMS GLOSSARY

[1] *Producer*. This term in the TV world has a different meaning from that in Films —more akin to 'director' in the latter. In New Media the term producer is often used to denote the person who leads a production team, often from separate disciplines; for large projects they will work with the project manager)

[2] *Participatory Culture* is a term coined by Professor Henry Jenkins. It is now commonly used to denote interactive platforms. [23] The term has been appropriated to be participatory media by many (rather more precise than interactive media, which describes the two-way nature of participatory media). The term is currently often twinned with *'prosumer'*, a consumer who is also a producer.

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[22] http://lnu.se/polopoly_fs/1.92119!DA_Program_Tuesday24.pdf

[23]. http://en.wikipedia.org/wiki/Participatory_culture and his blog http://henryjenkins.org/2013/05/what-do-we-now-know-about-participatory-cultures-an-interview-with-aaron-delwiche-and-jennifer-jacobs-henderson-part-one.html.