# From 'Digital Originals' to 'Unlimited Editions': Exploring New Business Models for Digital Art through Case Studies, Research Prototypes and Design Fictions

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***Abstract***

*Digital technologies are facilitating profound changes in the art industry. Based on three strands of work, including case studies of existing commercial practices, research prototypes and design fictions, this paper explores a range of emerging business models for digital art, from 'digital originals' to 'unlimited editions'. This is still an emerging and rapidly evolving area, and new research is clearly required.*

## Introduction

Digital technologies are facilitating profound changes in the art industry, not only enabling the emergence of digital art as a new form of art, but also transforming the way traditional art is distributed and monetised. Throughout history, only a small elite group of artists have made a significant amount of money from their work; and the proportion of artists who earn a living wage from their work is small. The majority of artists have to rely on other sources of income to survive (Day, 2012). Digital technologies are having mixed impacts on this pattern, because digital tools are making it easier to make, distribute and display art, but they also make it even harder to for artists to earn a living. In this paper, we draw on case studies of existing commercial practice, research prototypes and design fictions to explore new business models for digital art, and discuss their business implications.

## Business Models

A business model describes how an organisation creates, delivers and captures values (Osterwalder & Pigneur, 2010; Badden-Fuller &Morgan, 2010 ) and the way it does business. As a unit of analysis it provides the vital link between business strategy and organisational structures and processes, and is often associated with notions of organisational rationale, architecture and infrastructure (Li, 2007).

A business model has a number of key components. Value proposition describes the 'values' an organisation offers its customers through products and services. Such values are created, delivered and captured through three sets of activities, namely, product innovation and commercialisation, infrastructure management and customer relations management. A business model is measured by two sets of criteria, financial sustainability – can the organisation generate a financial surplus consistently and over time; and stakeholder credibility – can you convince key stakeholders that you are have the capability to create, deliver and capture values.

A widely used tool for mapping business models is developed by Osterwalder & Pigneur (2010): the business model canvas. It breaks down a business model into nine key components. Value propositions describe the values an organisation offers its customers. Such values are underpinned by other components. Key partners identify the main outside suppliers and partners of the business. Key activities are the core activities the business engages in to produce its product or service. Key resources identify the important physical, intellectual, human or financial resources for the organisation. Customer relationships describe the type of relationship the business has with its customers. Key channels define the communication, distribution and sales channels of the products and services. Customer segments identify the groups or segments of people or organisations that comprise the customer base. Revenue streams describe the revenue flows and pricing structure of the model. Finally, cost structure represents the costs underlying the running of the business.

The rapid development of digital technologies offers the potential to fundamentally transform all activities and components of the business model in different sectors and domains. In this paper, we will explore how digital technologies are transforming the business models in the art world, with particular focus on emerging business models for digital painting.

**About This Research**

This paper is based on three strands of work: case studies of existing commercial practice, research prototypes and design fictions. The first strand consists of two case studies: 's[edition]', a novel, web-based service that offers limited editions of digital prints and videos; and the Brushes Gallery by Flickr, where digital artists post images and comment on one another's work.

The second strand is based on a series of provocative prototypes developed with artists to explore the perhaps paradoxical notion of a 'digital original'. One intervention used off-the-shelf digital frames to display different layers of a digital painting and digitised to show the development process of the work both at people's homes and in an art gallery. The second intervention was based in the '3sixty room' at York University, where artists made iPad paintings which were projected live onto four walls in the room from floor to ceiling. The third intervention was the Repentir app for iPhone. This was developed with the hyper realist painter Nathan Walsh who photographed his oil painting "TransAmerica" day by day as it developed. The resulting database of images was incorporated into the Repentir app which allows users to photograph any section of TransAmerica and rub the screen to take the image

back to earlier states of development. These empirical studies focused on the dissemination and display of digital art, and the observed reactions by artists and consumers.

The final strand of the paper considers concept designs and design fictions, which explore the same space. These are presented as "imaginary abstracts" for a conference that has not yet taken place. The abstracts describe technologies which, though feasible, have not been developed yet. Our analysis of already existing commercial developments, research prototypes and design fictions allow us to explore a range of possible business models. The paper outlines emerging patterns and possible future directions.

**Emerging Business Models for Digital Arts**

Digital technologies have the potential to fundamentally transform all activities and components of the business model, from the purposes that art serves, to the way it is created, displayed, distributed, and the way the financial and other values are realised. In this section, we will use empirical evidence to explore emerging business models for digital art.

*'Digital original' – limited editions of digital prints*

One fundamental difference between traditional art and digital art is that the latter can be easily and infinitely reproduced and distributed at virtually no cost. In fact, when artworks are digitally created, the notion of an 'original' and 'limited edition' begins to break down. When a drawing is created on an iPad, for example, it is difficult to determine what or where the 'original' image might be (Blythe, *et al*, 2012).

's[edition]' was launched in November 2011 as a 'revolutionary way to collect art'. The artworks are only offered in digital format to be viewed on smart phones, tablets and TVs. Users (consumers) sign up to an account and are given a 'vault' where they can view the artwork they purchased. Work in the 'vault' is shown without the copyright watermark running across the centre of the publically accessible images on the site. The buyer is also sent a digital certificate of authenticity, 'signed' by the artist. The artworks – still images or videos - are only sold in 'limited editions' of 500 to 10,000, all by established artists, priced from £5 to £1000. Once editions are sold out, the collectors are then permitted to resell their editions in the s[edition] marketplace.

This case study represents an attempt to reproduce the business model of paper printmaking in the digital space, where high prices are maintained due to limited availability and scarcity. By artificially imposing 'scarcity' in the unlimited digital world, the value of the artwork can be maintained. The comments boards reveal consumer resistance to the idea "£50 for a jpeg are you nuts?". But established artists such as Damian Hirst have made sales. It remains to be seen whether the model will extend to new or aspiring artists. From the perspective of art collectors (consumers), the notions of 'digital originals' or limited editions, and the experience of 'owning but not having' will remain significant barriers.

*Socialisation and gift exchange through community building: the Flickr Brushes Gallery*

'Brushes' is an iPad and iPhone app that allows users to create digital paintings, and see a playback of their work through an animation of the sequence of the creation process. The artworks can then be exported to the photo sharing library, the Flickr Brushes Gallery. The Brushes Gallery provides an online venue where hobbyists and practicing artists can meet, share techniques, compliment and encourage each other; but financial returns are not the main concern for these artists. The focus appears to be one of gift exchange where the images facilitate socialisation and the formation of a group identify. This case study shows how digital technologies make it easier to produce, disseminate and display artworks. However, from the business perspective, only the owner of Flickr, Yahoo, generate a financial return by serving as the aggregator and renting 'spaces' to artists. For the creators and consumers of the artworks, the returns are limited to social interactions and gift exchanges.

*Adding tangibility and production process to digital art product: Digital exhibitions at homes and in art galleries*

Digital art can be displayed via off the shelf digital frames. However, unlike conventional prints digital frames can display the development process of the artwork at different stages. Such an approach can be extended to artists working in traditional media, by electronically capturing images of the unfinished artwork during different stages of its creation, and the process can then be animated to show different layers and stages of an oil painting (Briggs & Blyth, 2012). One example is the Repentir app (also called Pentimento), which allows users to explore the way that a work developed over time. Using an iPhone they can capture the whole image or a part of it. They can then scroll back through the previous stages of development. In fact, the images are matched exactly, it can even give the user the impression that they are 'rubbing away' layers of the painting on the iPhone, enabling the viewers to gain insight into the painter's method (Hook, 2013). Such interventions open up new possibilities for generating revenues from both sales and royalties, not only from the final finished product, but also through the displays of the production process and work-in-progress during different stages.

*Digital art as experience: The 3sixy room*

The '3sixty room' at York University provides an immersive environment in which it is possible to project images and films onto all four walls from floor to ceiling. In one exploration, an iPad was connected to project live images on to one wall, with previous works from the artist is projected onto the three others. The room enables the artists and the visitors a direct experience of work, including through a live performance to experience the process of art creation. Unlike the metaphor of the digital limited edition of 's[edition]' or the more tangible digital frames, the 3sixty room is predominately experiential as it was time limited and confined to a particular space. It offers opportunities for art making and viewing as an experience, similar to going to a live concert or the cinema. This could potentially open up new opportunities for revenue generation by offering live experience to viewers.

*Art as Service Design: Ambient Environments in Public Spaces and Micro Payment*

New and emerging commercial practices such as s[edition] and Brushes highlighted new opportunities and challenges for commercialising digital art. Research prototypes such as Repentir (Pentimento) and 3sixy room indicated that new approaches to reproduction may open up new income streams for artists and galleries. However, it is not necessary to build fully working prototypes to consider whether they might result in a viable business model. A number of concept designs were developed by the research team and captured as imaginary abstracts for a conference that has not yet taken place, indicating other new business models.

The 'Visual Juke Box' is a system for delivering art from online galleries to a set of digital frames in restaurants and cafes. Digital painting apps such as Brushes for the iPad and iPhone have generated vast online galleries displaying the work of amateur artists and enthusiasts. This system explores new forms of income for digital painters by creating a "visual juke box" based on the Brushes archive. Visitors to participating restaurants, cafes and bars can re-set some or all of the frames on the walls to display work that is to their taste. Users scroll through a display of images on the visual juke box to set the pictures on the wall by individual artists or work. Because the frames are back lit the users are effectively altering the ambient atmosphere of the public place as they might when choosing music. A slot machine allows users to select the art that is displayed for up to half an hour and a royalty of similar value to a Spotify play fee is paid to the artists for as long as the work is displayed.

Although no such system has been developed it is entirely feasible. Design fictions such as scenarios and personas have long been used in the development of new technologies. This example uses such concept designs to explore the possibility of art in the form of a service design. :

*Patronage and Micro Payments: Micro-sponsorship through unlimited edition prints*

Another concept design considers what new forms that patronage might adopt in the digital age. 'UtopiArt' is a website which seeks to provide unlimited digital copies of work by new artists through micro-sponsorship. Crowd sourced investments are increasingly used to generate investment capital for projects such as film or book production. UtopiArt provides sponsors with numbered copies of art work and adds their names to lists of sponsors. Rather than stamp available images with a spoiler watermark such as the s[edition] logo, UtopiArt is displayed publicly without any watermark. Images which are purchased by micro sponsors however are stamped with an edition number indicating purchase. A limited number of sponsor names are added to a roll call showing each artist's supporters. Again, no such website yet exists. The concept explores not whether such a system is technically feasibly but economically feasible.

**Discussions: From Digital Originals to Unlimited Editions**

Digital art, like art in general, is created to serve many different purposes, from delivering social and cultural values, to generating economic values and financial returns to the artists and art collectors and to society. Digital art is often freed from many traditional physical constraints. The marginal costs of production and distribution have significantly decreased, and consumer appetite for digital content is going through rapid changes. Digital

technologies themselves are also developing and evolving rapidly. These changes both challenge and generate new opportunities for the art industry. Although the patterns and general trends remain unclear, a range of new business models are emerging.

's[edition]' is largely an attempt to reproduce traditional business model of limited editions for digital art. The viability of this approach remains to be tested. The Flickr Brushes Gallery delivers social and cultural values, but profit is only accrued to the owner of the aggregating site – the new intermediary. The digital frames intervention attempted to add tangibility and production process to digital product, but new mechanisms need to be developed to monetise the digital art and art creation process. The experiment in the '3sixty room' adds both tangibility and experience for the creation, display and consumption of digital art, in a time limited and space confined fashion. The Repentir app opens up a range of possibilities for income generation from new forms of digital print. However the space is large and design fictions such as the Visual Juke Box and UtopiArt indicate that there is still greater scope for development. Although novel technologies create new possibilities they also require the development of innovative business models. Perhaps business models in other areas, such as live concerts and cinemas, could be borrowed and adapted to monetise the art creation and consumption experiences.

**Conclusions and Future Research**

Digital technologies both challenge traditional business models in the art industry, and open up new possibilities for the creation, distribution, display and consumption of art. In particular, one fundamental element of art consumption is related to experience, and new business models need to be developed to create, deliver and capture the social, cultural and economic and financial values. Our case studies, prototypes and design fictions have so far highlighted several important dimensions for future business models.

First, the notions of 'digital originals' and 'limited editions' are worth further investigation. By developing novel methods to authenticate 'original' digital art, and by imposing scarcity on the reproduction, distribution and consumption of digital art, it may be possible to develop an economy of digital art by borrowing and adapting the business models of traditional art.

Second, by adding production process and work-in-progress at different stages of production as layers of the finished product, new dimensions and new experiences of art creation and consumption can be offered to consumers. More importantly, exploiting the versatility and mutability of the digital format, enables different levels of personalisation by the individual consumers, for example, by choosing a particular stage of the art creation process, or changing the colour pallet or adding filters so the personalised work will better match their home interior décor, creating their personalised 'digital original' either for download and digital display, or for printing onto paper for framing. This is referred to as 'unlimited editions' (Blythe, *et al*, 2013).

Third, this research also explored issues of adding 'tangibility' to the intangible digital art, either through digital frames or through dedicated immersive facilities. This opens up several possibilities for the creation, distribution, display and consumption of digital art. The

feasibility of people paying for digital displays of digital art in private spaces (e.g. homes or offices) is worth exploring; and even in public spaces, from restaurants and shop windows to art galleries and other public spaces, it may be possible to enable individuals to select or change the art being displayed for a period of time, at a price. This is similar to the notion of a 'jukebox' for digital art. Further research and experiments are required to determine its feasibility and effective mechanisms.

Fourth, the experiment of 'the 3sixty room' immersive environment changed the focus of art consumption from product to experience. It highlighted the potential in adapting business models from other areas in the creation, display and consumption of digital art in a time limited and space confined environment. The success of such an approach could open up a significant new source of revenue and new channel for digital art creation and consumption.

This is still an emerging and rapidly evolving area, and new research and new experiments are needed. Digital technologies are forcing changes in existing business models and generating opportunities for new business models. These changes are reflected in changing consumer behaviour, shifting market power, and the development of new products, new production and distribution methods, and new ways of consumption. The experience from other sectors of the creative industries suggested, such as music and video games, that the speed of change in consumer behaviour has outpaced the business model response of content creators. A range of other issues, from copyright enforcement to disintermediation and remediation in the supply chains, also need to be investigated. This paper only touched on some emerging patterns and trends in the development of new business models for digital art. Further analysis of the data collected will enable us to report our findings at the conference.

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