Essay

Finance and Society
2016, 2(2): 138-50

10.2218/finsoc.v2i2.1727

Terminal value: Building the alternative Bloomberg

Christopher Wood
Queen Mary University of London, UK

Alasdair King
Queen Mary University of London, UK

Ruth Catlow
Furtherfield, London, UK

Brett Scott
Independent, London, UK

Abstract

In this essay we propose a reframing of the Bloomberg Terminal, an interface used to track financial trades and values, by using it as a creative, critical and curatorial device to explore the relationship between the art and finance. To contextualise this approach, we offer a history of the Bloomberg Terminal alongside an analysis of the power of interfaces to shape both the user and the represented information. We use the terminal as a way to critique the relationship between art acquisition and financial trading companies. We then describe some outcomes of a series of workshops themed around the idea of 'building an alternative Bloomberg'. We conclude by offering some potential applications of a re-framed Bloomberg Terminal as an open and modular interface for engaging with issues around art and finance, both in terms of content and curation.

Keywords

Curation, interfaces, art market, open-source, representation, value

Introduction

The Bloomberg Terminal is one of the most widely used computing systems to track financial trades and values in the world. In this essay we explore the possibility of hacking or rebuilding the terminal to use it to engage critically and creatively with issues around art and finance.

Corresponding author:
Christopher Wood, School of Electronic Engineering and Computer Science, Queen Mary University of London, Mile End Road, London E1 4NS, UK. Email: c.p.wood@qmul.ac.uk

The motivation for this essay is a collaborative artistic project to build an alternative and open source version of the Bloomberg Terminal as part of the *Art, Data, Money* series of events held by Furtherfield in London, UK. Since October 2015, Furtherfield has been curating a series of art shows, labs, and debates which foregrounded interventions into established currency systems by citizens, artists, activists, researchers, and data and finance specialists, aiming to work according to communitarian principles and to build a commons for arts in the network age.

We begin the essay by offering a history of the terminal and some thoughts on the affective power of the interface. The Bloomberg Terminal does not merely represent economic relations, but rather enacts them through the re-enforcement of a set of power relations and the construction of the figure of the Bloomberg trader. Given the power of this interface to create and re-enforce connections and relations, we argue that, through critical interrogation, it has great potential to provoke reflection on the wider financial system. We then offer an alternative idea of the terminal as a site of diverse collaboration. As examples of the kind of work this new terminal could contain, we offer some reflections on the potential of the terminal as a curatorial model or as a lens to explore the way the finance industry is involved in driving value within the art market. As Latour (2004: 21) notes, art practices are particularly well oriented to this kind of speculative work and "can explore new possibilities with a much greater degree of freedom because [they are] so good at thought experiments". Based on the processes and outcomes of the *Art, Data, Money* events, we conclude that the alternative terminal is well positioned to offer a site of exchange and the collective production of critical meaning around the deployment of finance within art and society.

The Bloomberg Terminal

The Bloomberg Terminal, or more accurately, the online data and information services marketed under the banner of Bloomberg Professional, made its initial appearance in December 1982, and has become an enduring, even iconic, tool in the history of computing, to the extent that various models appear in Silicon Valley's Computer History Museum and in the Smithsonian's National Museum of American History (McCracken, 2015).

Figure 1. The current Bloomberg Terminal in a dual-screen configuration. Source: Travis Wise, Flickr.

Unlike other iconic computers, it has not attempted to broaden its appeal to a universal public, offering instead key niche services to the investment, banking, and finance sector. It is rented on a monthly basis for approximately $1500 by subscribers around the world, currently numbering 325,000, providing instant access to vast amounts of financial and trading data – it processes 60 billion pieces of information a day – offering also a chat forum on related topics, and the facility to carry out instant online trades (McCracken, 2015).

The Bloomberg Professional service can be accessed through PCs, tablets, and smartphones, though its most iconic manifestation is through the Bloomberg Terminal, a dual-screen monitor with a fingerprint scanner and specialised, colour-coded keyboard that offers immediate access to areas such as EQUITY, NEWS, COMMODITY, CORP and GOVT. Although art investment has become an important asset class, there is no direct ART key.

Figure 2. The Bloomberg Terminal keyboard. Source: Travis Wise, Flickr.

The screens scroll through dense lines of written data, much in tabular form, though there are also graphical displays such as a facility to track across global maps the movement of merchant and commodity shipping, down to the detail of the precise location of each individual vessel (McCracken, 2015). Ultimately, what the Bloomberg Terminal offers its customers is an investor-oriented, niche, private, supremely fast, version of the much broader, 'flakier' internet. As Bloomberg's CEO, Shawn Edwards argues, "Our network is really about control [...] It's about being able to manage our own system and have fine grain control" (McCracken, 2015: para. 17).

While the Bloomberg Terminal might be a familiar, and in many cases indispensable, business tool for thousands of investors and finance professionals around the world, it remains largely unknown and its workings opaque to those outside the sector. As Scott (2016: para. 1) suggests, its speed of access to highly focused sets of essential investment data means that the Bloomberg Terminal comes to be seen as "emblematic of the aggressive profit-seeking trader, banker or deal-maker seeking narrow individual gain, disconnected from the social and ecological impact of their actions, using mathematical-scientific-analytic tools of control".

This sense of intense focus by financial workers on narrow investment and trading data accompanied by a general disconnectedness from the wider world beyond the screen has been addressed by Knorr-Cetina (2000: 146), whose study of the trading floor of a Swiss bank noted that:

> When traders arrive in the morning they strap themselves to their seats, figuratively speaking, they bring up their screens, and from then on their eyes will be glued to that screen, their visual regard captured by it even when they talk or shout to each other, and their body and the screen world melting together in what appears to be a total immersion in the action in which they are taking part.

In terms of its interaction experience, the Bloomberg Terminal is driven by its multi-layered, multi-windowed interface. It is a dashboard aggregating and presenting vast amounts of varied data. The dashboard interface has enjoyed a rise to prominence since 2000. One may see it on blogging platforms such as Wordpress and Tumblr, professional managerial contexts and increasingly in 'smart city' environments. In all these cases the dashboard is designed to collect, arrange and present a large amount of information in an accessible way. However, following Tkacz (2014) and Kitchen et. al. (2015), we would argue that the dashboard interface is not a representational interface, but rather one that forms the actors which it connects. Dashboards do not simply convey information. By the act of selecting and arranging data sources they make assumptions about both what is relevant and relevant in relation to what. Crucially, as well as constructing the world they refer to, they also construct the user sitting in front of the dashboard.

Following Tkacz's historical analysis (2014) we can trace a line from the car dashboard to the boardroom and trading dashboards that proliferate today. Within a car, the instruments on a dashboard depict relations between elements in the engine. When the dashboard was introduced into vehicles, the role of the person operating the car changed. They no longer needed an intimate knowledge of the workings of the machine; rather, they just needed to read the dashboard. They ceased to become an operator and became a driver. A similar process took place with the deployment of *tableaux du bord* in 1950s and '60s French industrial contexts. Here the managers moved away from the factory floor and into separate buildings, perhaps in a different part of the country. They used paper dashboards full of graphs and figures to manage remotely. They too became drivers and, at the same time, the factory became a machine understood and controlled through dashboard instruments.

By laying out dynamic price information, and information about who is bidding on what, the Bloomberg Terminal provides a similar experience of control in a trading context. If anything, the sense of control is catalysed by the depth and complexity of the interface. It is difficult for a user of the terminal to get a sense of all the functions available and even more difficult to become proficient with them. This, arguably, shifts the aura of (omni)potency from the user to the interface itself, imbuing it with an intangibility that helps justify the high monthly terminal rental fees. The Bloomberg Terminal is thus understood as a complex, slippery and powerful instrument that can drive as well as represent the market.

The terminal also lies within a network of human colleagues and technical objects. Traders using the Bloomberg terminal enter into a situation described by Knorr-Cetina (2009: 64) as structured as a 'scopic system':

> In such markets, a scopic system is an arrangement of hardware, software, and human feeds that together function like a scope: like a mechanism of observation and projection, here collecting, augmenting, and transmitting the reality of the markets, their internal environments and external context. Within this domain, the mechanism is reflexive: the system mirrors a world that participants confront like an external reality while also being part of it and contributing to it through their postings and transactions.

Knorr-Cetina (ibid: 65) characterises this situation as “synthetic” in that it is constituted by an environment that is unusually dependent upon an “attention-demanding electronic situation”, as well as interaction between two or more traders. This environment is dominated by

> an electronically projected situation [that] reaches far beyond what would ordinarily be visible in a physical setting; not only does it include many layers and windows providing geopolitical and epistemic depth and internal contextualisation, but it also stitches together an analytically constituted world made up of ‘everything’ potentially relevant to the interaction. (Knorr-Cetina, 2009: 65-66)

The information provided to the traders is crucial for the construction of the ‘internal reality’ of their synthetic situation. The specific geopolitical information, for example, that traders access via the Bloomberg terminal, helps to form the traders’ sense of the context within which they are proposing and concluding trades and which constitutes their view of the wider, ‘non-synthetic’ world.

As Knorr-Cetina (2009: 69-70) writes,

> A synthetic situation … is a composite of information bits that may arise from many areas around the world and feature the most diverse and fragmented content. Synthetic situations are always in the process of being assembled: from automatic and non-automatic feeds, from real-life reporting, from the interactions themselves, instantly mirrored on-screen and generating their own contexts.

Callon (1998) and MacKenzie (2007) have proposed that economics is a performative discipline. This means that economics “does things, rather than simply describing (with greater or lesser degrees of accuracy) an external reality that is not affected by economics” (MacKenzie, 2007: 54). Economics, then, is an active part of a series of social, political and moral contexts influencing them, just as it is influenced by them. It does not stand remotely, making distant knowledge claims about its object of study. The Bloomberg Terminal also does things, but it is useful to read this ‘doing’ as the arrangement of an assemblage of human and non-human elements. Bennett (2005: 447) understands political agency as existing in such assemblages of objects, people, interactions and contexts rather than in a single agent or system. In this way, the Bloomberg Terminal ‘does things’ through the type of object it is; through the contexts it emerges from and the particular ways it arranges and presents information. Through the choices it makes in what information to present and how it is presented, it can turn contingent knowledge into received knowledge, giving this knowledge a sense of coherence that is ultimately illusory (Licoppe, 2010). By collecting such a mass of information, it constructs the trader as a driver and the market as a machine which can be monitored and driven.

The idea of the market as a machine is not a new one. Davies and McGoey (2012) argue that Milton Friedman and his colleagues in the Chicago School used it as a way of understanding how people should act within a given set of conditions. Building on this idea of *homo economicus*, more abstracted models emerged for calculating risk and negotiating complex socio-economic situations (Davies and McGoey, 2012: 71). The key here is the idea of predictability, which renders economics as a ‘hard’ science with the ability to observe repeated results. The Bloomberg Terminal offers itself as an interface to observe, understand and intervene in that process. In doing this, it reinforces both the idea of the market as something that can be understood, predicted and controlled and the trader as the one in control.

The workshop on building an alternative, ‘activist Bloomberg’, led by Brett Scott in November 2015, therefore has both an aesthetic and a socio-political dimension. By changing the information which is being presented and the ways in which it is arranged, an alternative terminal would serve as a point of critical intervention. The 'alternative Bloomberg' proposed in the workshop comprises three quasi-discreet elements: (1) replicating and building the existing Bloomberg Terminal information but here in an open format; (2) sourcing new critical data not currently offered on the Bloomberg Terminal; and (3) working on new ways of presenting this critical data using various visual and/or interactive models. The initial concept of the alternative Bloomberg involves creating a platform that curates existing data, resources and tools – for example, oil finance data from OpenOil and bank lending data from BankTrack[1] – but the deeper project is to create a platform that inspires and allows the creation of new data and tools.

Following this, we propose the alternative terminal as a modular platform, full of building blocks which can be created, edited and moved at will. This adaptive structure will hopefully make the alternative terminal more resilient to the complexity inherent in designing for the commons. Under this model, users would be able to add their own content or data streams, or create their own interfaces and sub-interfaces. Within this spirit, we offer an exploration of the co-productive relationship of value between the art and finance sectors.

Art, finance, value

The art market contains a number of roles and processes which allow it to function. These frequently feed back into each other to inflate the value of certain artworks. Certain roles in the market are allocated to collectors, gallerists and traders (artists may also be counted here). Auction houses, biennials and art fairs are also highly significant both as sites where trades are made and as sites where value is produced. For example, the Venice Biennale takes place every year shortly before the Art Basel art fair and can act to create a buzz around certain artists. Equally, collectors may use their position on the board of a museum to promote artists in their own collection, thereby increasing the value of the work. An example of this that caused controversy was the "Skin Fruit" show mounted at New York's New Museum in 2010. The show was curated by Jeff Koons and featured over 100 works owned by businessman Dakis Joannou, who was also a trustee on the museum's board.

The art market should not be seen as a coherent and uniform object or field. It is constituted by the relations between collectors, gallerists, traders, artists, fairs and exhibitions, which allows us to talk of 'a market', but these relations are not equal or all-encompassing. Velthuis (2012: 38) identifies the art market as being composed of "circuits of commerce", each of which has "their own actors, business, practices, regime of value, and logic of action". Different circuits of commerce exist for so-called 'blue chip' artists (such as Damien Hirst and Jeff Koons) and for disciplines such as video art. Each of these circuits has their own logics of access and exclusivity and their own processes for reinforcing value. It is rumoured that the anonymous buyer of Damien Hirst's diamond encrusted skull, *For the Love of God*, was in fact a consortium which included Hirst himself. They planned to exhibit the work around the world, thereby increasing its value for a subsequent resale.

US performance artist Andrea Fraser attempted to address the relationship between the ownership of artworks and the movements of a deregulated financial sector in her critical text, "L'1%, c'est moi" (Fraser, 2011). *Artforum* declined to publish the unsolicited piece, and so the artist then wrote a slightly different article for the German quarterly *Texte der Kunst*, in which she used an alphabetical listing of the top 200 collectors published by *ARTnews* (Thornton, 2014: 350). Fraser (2011: 119) argued that:

> The market-dominated sub-field of galleries, auction houses, and art fairs' belonged less to the field of critical aesthetics and in reality should be understood as part of the 'luxury goods business it already basically is, with what circulates there having as little to do with art as yachts, jets, and watches.

Fraser's piece, which went viral in 2011 and early 2012 at the height of the Occupy movement, opens with an alphabetical listing of the top 200 individual art collectors published by *ARTnews*. The majority of the 200 draw their vast wealth from the wider financial sector – from banking, investments, commodity trading and hedge fund management. Many of those named also act as patrons of art schools and university art programmes, and serve on the boards of the major museums and galleries in the US, Europe, and Asia. According to Fraser, many of those named, too, had either benefited from government bailouts during the recent financial crisis, or had faced criminal charges for aspects of financial mismanagement or wrongdoing over the previous decade. A number had actively campaigned politically to reduce taxes and to 'roll back' state intervention in various sectors and to open up space for further private investment.

Fraser's devastating critique shows that the market in art by the most prominent contemporary artists is dominated by the investment of individual and corporate agents whose wealth comes from the financial sector, competing against each other to raise the price of works by artists that they deem worth collecting. At the same time, few artists seem aware or concerned by the reasons for the liquidity of the art market or by Fraser's assertion that the art market flourishes most where economic inequality is greatest: "what has been good for the art world" she argues, "has been disastrous for the rest of the world" (Fraser, 2011: 118). In her follow-up piece, "There's no place like home", Fraser (2012: 187) compares the Gini inequality index with a map tracing recent art booms, concluding: "It is clear that the contemporary art world has been a direct beneficiary of the inequality of which the outsized rewards of Wall Street are only the most visible example".

Elsewhere, Fraser (2011: 117) argues:

> the art market boom of the past decade has been associated widely with the rise of HNWIs (high net worth individuals) or ultra-HNWIs (people worth over $1 million or $30 million respectively), terms popularized by the World Wealth Reports that Merrill Lynch and CapGemini began releasing in 1997.

Fraser's critique focuses squarely on individual private collectors, yet corporate art collections have grown exponentially in number and value since the 1970s. Financial institutions, as much as wealthy individuals, have been key and keen participants in the shaping of the contemporary art investment economy. As banks around the world have become crucial art collectors and investors, global financial hubs have become important sites for the movement and display of contemporary art. Financial institutions have invested in acquiring large collections and in acting as named patrons of galleries, exhibitions, and awards. Major banks have turned their foyers into acclaimed gallery spaces and the German stock exchange has become the sponsor of Europe's major photography prize. Deutsche Bank's reception hall at Winchester House in London, for example, features prominently a metal sphere sculpture by Anish Kapoor and a spot painting by Damien Hirst, as well as a large sculpture by British artist Tony Cragg (Pickford, 2015).

According to *Global Corporate Collections* (Goodrow, 2015), some 600 companies have collections, mostly focused on contemporary art. The financial sector, among the first to establish corporate art programmes and long the main force in corporate art collecting, features prominently in these lists. Deutsche Bank possesses the world's largest corporate art collection at some 60,000 pieces, consisting predominantly of hung art, photography, drawings, sketches and other works on paper (Kottasz et. al., 2007). Deutsche and UBS, whose corporate art collection runs to 35 000 works, sponsor major international art fairs, namely Frieze and Art Basel respectively, work by buying directly from the primary market, from dealers and artists, rather than from the secondary market of auctions and art fairs (Pickford, 2015). In this way, they often pay far below auction prices, and help to establish emerging artists as well as investing in major contemporary (and often blue-chip) figures. By working in the primary market, the banks evade possible charges from shareholders of speculation. By investing largely in contemporary art, banks "try to align themselves with cutting edge, innovative and creative work" (Pickford, 2015: para. 11), and increasingly target Asian and sometimes African markets, as well as European and North American. Contemporary art prices have soared 600% in the decade to 2014 (ibid: para. 14). Purchases of art by the leading banks have remained constant through much of the last decade, despite the financial crisis, not least as the main driver for new purchases are the "decorative needs" of new buildings (ibid: para. 19).

The leading investment and retail bank, the Deutsche Bank, became known in 1979 for pioneering an 'art in the workplace' scheme in its New York head office that led to an augmented role for the Deutsche as a major investor in contemporary art (Rother, 2009). Key employees are invited to choose works to decorate their offices from the Deutsche's archive. Each floor in the 38-storey towers in Deutsche's Frankfurt headquarters is dedicated to a specific contemporary artist, in the early days of the collection mostly living German artists, but increasingly investment is made in global, particularly Asian (Indian, Korean, Japanese) and African artists working in hung art. This can been seen as part of a trend where acquisitions are increasingly being drawn from emerging financial markets. Deutsche Bank's commitment to hung art and works on paper by predominately male artists working individually aligns the bank's art investment strategy with recent trends in the wider contemporary art market. According to Richter (2012: para. 7), "it is obviously not by chance that the more easily tradable works of art in all (new and old) art markets in Britain, the US, Brazil, China and India appear again mostly as paintings". He notes an analogy between the figure of the individual (male) artist and the entrepreneur, "the new figure in emerging economies":

> It is by no means per chance that especially these so called 'art fair art' is mainly produced by and attributed to male protagonists … and it is not by chance that the new markets (China, India, and Brazil, who are said to have saved the market in the last big crisis in 2008/2009) promote male artists who often use painting as a favourite media. (Richter, 2012: para. 7)

Art is a complex investment in that its liquidity is only accessible at point of sale. Ownership brings only costs – insurance, handling, storage, preservation, high transaction fees, etc. – and as an asset, art is illiquid, being hard to convert into ready capital (although in recent years works of art have increasingly been used as collateral against loans). Art investment operates as an atypical market in that trade is highly regulated by dealers who, as part of what Malik and Phillips (2012: 212-3) term an "antispeculative vehemence", often operate a first right of refusal policy on resale. Transparent market pricing is also made difficult because of the non-disclosure and manipulation of transaction prices by dealers. Investment in blue-chip art (works by Picasso and Warhol or those of a similar standing), however, brings consistent returns and is near immune to market crashes.

For Malik and Phillips, art's idiosyncratic price-setting systems reveals something of the true nature of all other price-setting, namely that it is based on capitalization rather than on production costs or consumption advantages. Indeed, "the art market demonstrates the truth of all price-setting: that there is no basis in production or consumption for pricing, only capitalization" (Malik and Phillips, 2012: 220). They build on this point to draw the conclusion that the art market embodies the truth about financial transactions more generally: "As such, capitalization is a social ordering for the sake of privatized earnings and is therefore directly power. Economy is then always and necessarily a political economy; there are no 'free' markets" (ibid: 223). This is surely the key point of the article, that banks' investment in art is so deep because it is beholden to a 'pure' convention of pricing and so relatively stable as a financial return or asset class.

As Fraser forcefully suggests, the art market is not autonomous and unrelated to the more general movements of capital. It appears both highly dependent on available cash flows, the liquidity of HNWIs and financial institutions, and on growing inequalities between the most and least wealthy. The hoarding of art by financial institutions, particularly of contemporary and blue-chip pieces, helps to mask the role of the financial sector in price-setting and in steering parts of the art market. Even where art is purchased for ownership rather than profit, the role of private rather than public sector ownership raises problems concerning increasing wealth inequalities:

> Playing the risky game of buying and selling art not for profit but because you love art and are perhaps addicted to its irrationalities and impulses in some way is a sure fire way of distracting a public gaze, which accepts the distinction between capitalization and love, from questions concerning the deep inequalities caused by your wealth accumulation or indeed the investments you make in order to produce that wealth. (Malik and Phillips, 2012: 230)

Such a critique of the art market is, however, only one of several potential operations for our terminal. It might also seek to map and log works that engage with questions of money, value and the finance industry in a critical way. How would they respond to being arranged and curated within a set of relations as loaded as the Bloomberg Terminal?

Curation, creation and the alternative terminal

In what follows we explore the way that the terminal could function as a creative and curatorial site that would also inspire critical reflection. Our account draws extensively on an interview with Ruth Catlow, one of the founders and curators of Furtherfield, a space to promote creative and critical engagement with practices in art and technology. Furtherfield's *Art, Data, Money* programme of exhibitions, labs and workshops aimed to bring the space's wider organisational aims to bear on issues surrounding finance. Over the course of the exhibition, workshops took place around blockchain technology, a mapping of data-points in local financial exchanges and the construction of a networked commons for arts organisations. Indeed, the importance of a collaborative commons came up again and again in conversations around the programme. Catlow (2016) describes the programme as:

> An attempt to mobilise the Furtherfield community's network to think about how the emerging tech landscape might work for us rather than against us. The way into doing was to try and build a networked infrastructure for creation and critique, rather than following an auteur model which concentrates on individual artists.

This approach is markedly different from the organisation of the commercial art industry described in previous sections. This industry relies on the profile and marketability of individual artists; a form of market logic which drives financial organisations and individual collectors to invest and horde works by a particular artist, or a set of artists from a particular country. For Furtherfield there remains some aspect of promotion, using named individuals or topics to attract people into the space, but the end aim is collaborative production rather than consumption. The ultimate aim is the creation of a hub of content for reference and further acts of creative and critical engagement.

From this first description we can begin to see how the model of the Bloomberg Terminal could be used as a site of critique. The spectacle of being within a well-connected network that drives much of the terminal's perceived value could be repurposed to explore ideas of connectivity, collaboration and production within the commons, rather than behind an infrastructural and cultural paywall.

The "Building an Activist Bloomberg Terminal" workshops took place in London in November 2015 and March 2016. They were necessarily open-ended, and described as a process where the projects lead and the infrastructure follows. In this way, a developed wireframe of the alternative terminal was not provided; rather, the interests of the workshop attendees would form the direction it would take. There was a wide range of potential directions, ranging from aggregating openly available financial information to proposing alternative stock images for the depiction of the financial industry in media. It should be noted here that, because of the breadth and speed of the information offered by Bloomberg, the idea of creating a functional open source version of the terminal is unlikely to be viable, what is instead at stake is to use the positioning and profile of the interface to adapt it to make critical tools.

One idea that took a particularly strong root in November's session was a desire to map how the finance industry actively intervenes in the creation and maintenance of value in the art world. This earlier sections of this essay should be seen as a continuation of this line of inquiry. Another theme, explored below is the potential for an alternative terminal as a distributed curatorial model, for new and existing work that engages with finance industry in a critical and reflective way.

The March session concentrated on creating an alternative bank of stock images to create a more humane and wilder sense of what the finance industry might be. Workshop attendees were asked to position their image on a graph which held affective adjectives on the Y-axis and terms associated with finance and technology on the X-axis.

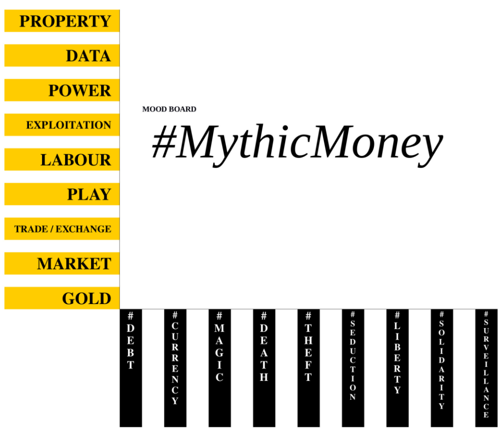

Figure 3. A graph to orient visual depictions of the finance industry. Source: Furtherfield, Flickr.

This process was conceived as a prompt for critical thought, but also as a productive tool to create new images by combining existing ones. These new images provided a basis for conversation with multiple entry points, hooking people into an imaginative process in order to engage them to conduct critical conversations about art and finance.

Figure 4. Image from 'Changing the Image of Finance' workshop, 2016. Source: Furtherfield, Flickr.

Throughout both workshops parallel sessions took place to prototype critical finance projects such as the collection of alternative finance models and an exploration of how one might build one's own bank. This collection process is ongoing and will hopefully find its way into a full prototype of the alternative terminal.

A key point about the alternative Bloomberg Terminal is the importance of collaboration and commons in whatever outcome it takes. Just as dashboard interfaces construct the user, we need to think about a means which will allow users to construct the dashboard in a way that incorporates a critical awareness of how it is constructing them. This point has implications for the alternative terminal as a potential curatorial model for alternative approaches to finance, alternative depictions of finance and as a catalogue of art projects which engage with finance critically. Catlow (2016) argues that "contemporary curation is about creating interfaces" and as such any interface should allow people to feed into the terminal as much as they are fed by it. This does, however, raise further curatorial issues. Catlow (2016) describes one of the main issues as being that "we (nearly everybody) all think we know more about what money is than we actually do, and the fact that this is so serves the interests of a powerful elite". So, what is at stake is to make the terminal accessible and modify-able but at the same time make it instructional. This is further complicated when you consider balancing the needs of more casual visitors with those who are more deeply committed to exploring the meanings and potentials behind art and finance.

Ultimately it would allow people to hack and queer what is a particularly strong symbol for patriarchal modes of power. The Bloomberg Terminal carries a sense of hidden, mysterious knowledge and power. It emphasises the importance of belonging to a networked elite. It fetishises speed, exploiting a moment of ever-shrinking duration to leverage a massive increase in wealth. Having access to a Bloomberg terminal also carries a strong sense of status and privilege in relation to other traders. Engaging with these facets playfully already allows us to go a long way in exploring what could make an alternative Bloomberg Terminal.

Furtherfield's wider work on *Art, Data, Money* here aligns itself with related projects in the critical humanities whereby the assemblages that constitute the financial world are brought into dialogue with writers and visual artists. La Berge (2015: 9) lists a number of events, as an example of this growing interaction, at Harvard and in New York in early 2014 at which artists collaborated with local businesses, banks, and business schools to engage with ways of representing and critiquing contemporary financial practices aesthetically using narrative, metaphor, and performance as key explanatory and investigatory modes. The use of such practices allows a degree of freedom using thought experiments to speculate about possible relations (Latour, 2004) in a way that is productive for both academic contexts and the groups it can connect with by reaching beyond those contexts.

Conclusion

In this essay we have given a brief critical history of the Bloomberg Terminal, arguing that, through its exclusivity and fetishisation of speed and knowledge, it is a powerful symbol of the power relations that exist in the finance sector. Through the way it arranges the market, it also provides an interesting model for an alternative mechanism to collect and construct meaning around finance. Following the modular approach advanced in the workshops, we have not proposed a particular infrastructure or wireframe for an alternative terminal; rather, we have proposed several avenues for further exploration. These have concentrated on the intersection between finance and art and include the implications for the alternative terminal as a curatorial model, as a critical tool for exploring the way finance is instrumentalised in society through its representations, and as a possible way of mapping how the financial industry hordes and creates value for art as a commodity. It should be noted that the understanding(s) of art explored in this essay are multi-faceted and include both the idea of art as an object-product created by a gifted auteur and a more communal idea of art as the collaborative creation of critical meaning. We propose that the alternative terminal has its greatest potential in the latter meaning, as a site of networked and co-constructed work where the infrastructure follows the concerns of an artistic community. We hope that this essay can, in turn, act as a catalyst to inspire further critical reflection and collaboration around the intersection of art and finance.

Notes

1. For more on these data sources see <http://openoil.net/> and <http://www.banktrack.org/>.

References

Bennett, J. (2005) The agency of assemblages and the North American blackout. *Public Culture*, 17(3): 445-66.

Callon, M. (ed.) (1998) *The Laws of the Markets*. London: Blackwell.

Catlow, R. (2016) Interview. Skype conversation. 24 March.

Davies, W. and McGoey L. (2012) Rationalities of ignorance: On financial crisis and the ambivalence of neoliberal epistemology. *Economy and Society*, 41(1): 64-83.

Fraser, A. (2011) L'1%, c'est moi. *Texte zur Kunst*, 83: 114-27.

Fraser, A. (2012) There's no place like home. *Continent*, 2(3): 186-201.

Goodrow, G.A. (2015) *Global Corporate Collections*. Cologne: DAAB Media.

Kottasz, R., Bennett, R., Savani, S., Mousley, W. and Ali-Choudhury, R. (2007) The role of the corporate art collection in corporate identity management: The case study of Deutsche Bank. *International Journal of Arts Management*, 10(1): 19-31.

Kitchin, R., Maalsen, S. and McArdle, G. (2015) The praxis and politics of building urban dashboards. Available at: <http://dx.doi.org/10.2139/ssrn.2608988/>. Accessed 29 March 2016.

Knorr-Cetina, K. (2000) the market as an object of attachment: Exploring postsocial relations in financial markets. *Canadian Journal of Sociology*, 25(2): 141-68.

Knorr-Cetina, K. (2009) The synthetic situation: Interactionism for a global world. *Symbolic Interaction*, 32(1): 61-87.

La Berge, L.C. (2016) How to make money with words: Finance, performativity, language. *Journal of Cultural Economy*, 9(1): 43-62.

Latour, B. (2004) From realpolitik to dingpolitik: An introduction to making things public. In: Latour, B. and Weibel, P. (eds.) *Making Things Public: Atmospheres of Democracy* [Catalogue for the Exhibition at the Zentrum für Kunst und Medientechnologie]. Cambridge, MA: MIT Press, 2-32.

Licoppe, C. (2010) The 'performative turn' in science and technology studies. *Journal of Cultural Economy*, 3(2): 181-88.

Mackenzie, D. (2007) Is economics performative? Pption theory and the construction of derivative markets. In: Mackenzie, D., Muniesa, F. and Siu, L. (eds.) *Do Economists Make Markets? On the Performativity of Economics*. Princeton, NJ: Princeton University Press, 54-86.

Malik, S. and Phillips, A. (2012) Tainted love: Art's ethos and capitalization. In: Lind, M. and Velthius, O. (eds.) *Contemporary Art and its Commercial Markets: A Report on Current Changes and with Scenarios for the Future*. Berlin: Sternberg, 209-40.

McCracken, H. (2015) How the Bloomberg Terminal made history, and stays ever relevant. Available at: <http://www.fastcompany.com/3051883/behind-the-brand/the-bloomberg-terminal/>. Accessed 23 March 2016.

Pickford, J. (2015) What was good for the Medicis is good for banks. *The Financial Times*, 31 July. Available at: <http://www.ft.com/cms/s/0/faf7dfca-2ba5-11e5-8613-e7aeDeutscheb7bDeutsche7.html#axzz41C1RUv6R/>. Accessed 25 February 2016.

Richter, D. (2012) New markets and forms of capital in art. *On Curating*, 20. Available at: <http://on-curating.org/issue-20-reader/new-markets-and-forms-of-capital-in-art.html#.Vr4N5cdGJ3A/>. Accessed 24 February 2016.

Rother, L. (2009) Die Kunstforderung der Deutschen Bank. Mittel zum Zweck? Das Konzept ‚Kunst am Arbeitsplatz' am Beispiel der Frankfurter Konzernzentrale. *Zeitschrift für Unternehmensgeschichte*, 54: 158-78.

Scott, B. (2016) Activist Bloomberg proposal. Email correspondence.

Tkacz, N. (2014) Dashboards and data signals. Presentation at Maynooth University. Available at: <http://www.maynoothuniversity.ie/progcity/2014/10/nathaniel-tkacz-dashboards-and-data-signals/>. Accessed 29 March 2016.

Thornton, S. (2014) *33 Artists in 3 Acts*. London: Granta.

Velthius, O. (2012) The contemporary art market between stasis and flux. In: Lind, M. and Velthius, O. (eds.) *Contemporary Art and its Commercial Markets: A Report on Current Changes and with Scenarios for the Future*. Berlin: Sternberg, 17-52.