



RECRUITING COLLECTIVE INTELLIGENCE TO LEVEL ART WORLD STRATIFICATION

STÉPHANIE BERTRAND

ABSTRACT | Departing from the cultural impacts of physical museums, this article explores two significant virtual benefits of online digitized art collections. Based on empirical research, it speculates that these increasingly interconnected collections have the potential to implement a new model of cultural participation able to sustain power sharing beyond public consultation, and transform the art system's inherent stratification, viz. modulate the art world's access barriers to institutional prestige, thus benefiting artists by levelling the playing field. The claim is that they can serve as a digital infrastructure to recruit collective intelligence on a mass scale in order to democratize culture and foster more equality and diversity in the art world. However, these impacts cannot simply be achieved by turning users into citizen curators or leveraging 'altmetrics' (i.e., views and likes) to influence selection and modulate order within an aggregated or distributed database. The main obstacle to these virtual impacts is not online access barriers, nor insufficient participation. Multiplying eyeballs, facilitating discovery and promoting public choices are all vital; but, these initiatives cannot hope to transform the art system if the individual judgment being captured is subject to different spheres of influence and network effects driving inequality. To overcome these effects, the article proposes a novel, choice-based, pathfinding tool designed to recruit users' sensemaking faculty, as opposed to their personal taste, and in so doing, more effectively capture what users find meaningful (and institute a new value proposition for art).

KEYWORDS | Collections, contemporary art, digital/digitized, infrastructures, network analysis

Virtual Museums and their Virtual Impacts

After more than half a century of museum computing, the notion of a 'virtual museum' is still a source of debate, even though the term is widely used in the field (Schweibenz 2019). Over the past decade, a number of research projects, including LEM—The Learning Museum (2010-2013), V-MUST—Virtual Museum Transnational Network (2011-2015) and ViMM—Virtual Multimodal Museums (2016-2019) have endeavored to define the expression and delineate its scope. From one project to the next, a functional description gradually emerged, qualifying the 'virtual museum' as "a digital entity that draws on the characteristics of a museum, in order to complement, enhance, or augment the museum experience through personalization, interactivity, user experience and richness of content" (ViMM 2018). If the notion of a virtual museum is still in question today, it is not only owing to museum technology's rapid evolution. It is also due to the fluid meaning of the word 'virtual' (Schweibenz 2019). Indeed, 'virtual' denotes 'interactive' or 'simulated'

in the field of computer science, 'digital' or 'essential' in the humanities, and is understood to signify 'online' by the general public (Pescarin 2014: 134). Moreover, beyond the word's shifting sense from one field and from one audience to the next, 'virtual' also denotes unrealized potential. While it is often opposed to the 'real,' it is, in fact, a counterpart to the 'actual' (Desvallées and Mairesse 2010: 59). As the International Committee for Museology's [ICOFOM] definition of 'museum' stipulates: "the virtual museum can be seen as all the museums conceivable, or all the conceivable solutions applied to the problems answered by traditional museums" (Desvallées and Mairesse 2010: 59). It follows that establishing the utility, i.e., the socio-cultural benefits¹ of virtual museums of contemporary art does not only entail identifying the common impacts of existing applications. Based on ICOFOM's definition, it entails conceiving solutions made possible by new digital technologies to problems that cannot be fully resolved by traditional brick-and-mortar institutions, owing to material constraints. Simply put, establishing the utility of virtual museums of contemporary art does not only involve ascertaining their actual impacts; it also involves determining their potential impacts, whereby

impacts are understood as the “changes that occur for stakeholders or in society as a result of certain activities [for which the organization is accountable]” (Verwayen et al. 2017).

As the above-cited definition of ‘virtual museum’ indicates, virtual museums complement, enhance or augment the museum experience, viz. they expand and enrich the museum’s activities. According to the International Council of Museums [ICOM] (2007), the museum’s chief functions are to “acquire, conserve, research, communicate and exhibit the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment”. Correspondingly, the aims pursued by existing virtual museums likewise revolve around education, study and enjoyment—purposes that have shaped their design and outputs. Generally speaking, virtual museums sustain expanded, personalized and engaging forms of outreach by disseminating content through the organization’s digital infrastructure, as well as thirdparty platforms. Virtual museums offer a wide range of educational activities tailored to different users and communities; they provide online access to digital objects (born-digital works, digitizations, and their metadata) and knowledge in order to support scholarly research and creative re-use; and they cultivate enjoyment and affect through interactivity, gamification, and multi-modal immersion. These functions are vital; however, education, study and enjoyment are not well-defined impacts. They describe modes of user engagement with an assumed transformative potential; but, the precise nature of this transformation—e.g., the type of learning that takes place in the short-term and its correlation with a long-term impact—is often unclear (Andersen et al. 2007).

A growing body of literature exploring the concrete impacts of museums has increasingly turned towards assessment tools beyond quantifiable metrics to demonstrate these organizations’ numerous social, cultural, and economic benefits, including: increased social and human capital, community building, societal change, public awareness, health and well-being, and financial development (Wavell et al. 2002; Scott 2003; Kelly 2006). In terms of museums’ cultural impacts, studies recurrently cite five key benefits. These cultural benefits consist of: 1) saying the unsaid (i.e., providing trusted information and exploring controversial or difficult issues towards raising awareness and personal involvement); 2) integration and belonging (i.e., cultivating social cohesion and a sense of belonging in local communities towards a more active citizenry); 3) shifting attitudes and changing perceptions (i.e., prompting end-users to envisage new horizons and reconsider their own personal contributions and histories); 4) affiliations and associations (i.e., nurturing influence, inspiration and new connections); and 5) changing the culture of museums (i.e., shifting internal sensibilities, cultures and workflows) (Selwood 2010). In light of ICOFOM’s

abovementioned account of virtual museums (Desvallées and Mairesse 2010: 59), these five key impacts correspond to solutions applied to cultural problems by traditional museums. The question raised is whether digital technologies can provide further solutions to these problems that exceed brick-and-mortar capabilities.

Answering this question entails conceiving potential solutions to the same problems that extend beyond the current functions of existing virtual museums, and furthermore speculating on the digital activities and outputs most likely to exert these impacts on their primary stakeholders: that is, in the case of virtual museums of contemporary art, the artists who produce the works and the end-users who engage with them. In line with this objective, the following article advances important two virtual benefits pertaining to impacts 4 and 5 (“affiliations and associations’ and ‘changing the culture of museums”) (Selwood 2010), that online collections of contemporary art digitizations²—one particular type of virtual museum—could theoretically sustain, which cannot be achieved under physical conditions. The claim is that these growing online collections have the potential to democratize culture, and in doing so, transform the art system’s inherent stratification, viz. modulate its access barriers to institutional prestige, thus benefiting artists by levelling the playing field. In other words, they can serve as a digital infrastructure to capture what users value (viz. what they consider to be meaningful) and, by the same token, foster more equality and diversity in the art world by effectively recruiting collective intelligence³ on a mass scale to offset some of the adverse effects of its gatekeeping mechanisms.

From Symbolic Critique to Critical Infrastructure

Changing the culture of museums has long been a key issue for artists and curators—who (since the 1960s) have historically used their practice to denounce art institutions’ exclusive structures. Until recently, these efforts mainly took the form of avant-garde gestures of symbolic affront (e.g., institutional critique) (Wilson 2019); however, in recent decades, such “aesthetics of negation” have lost much of their traction on the art system.⁴ According to curator Mick Wilson (2019), if critical practice today is to have any effect on actual conditions then it requires:

a shift of negation from a strategic operation in the symbolic register [punctal, symbolic moments of institutional critique, anti-racism consciousness raising, and multicultural showmanship] to a strategic operation in the infrastructural register [desegregation along class and color lines, the pragmatic quotidian protocols of power sharing and durational practices of institutional reform [Wilson’s emphasis]] (p. 34-35).

Likewise, art historian David Joselit (2013) argues, in contrast to time-honored, critical strategies of withdrawal and denunciation, that “connectivity produces power” (p. 96). He asserts that: “one need not exit the art world or denigrate its capacities. Instead, we must recognize and exploit its potential power in newly creative and progressive ways. Our real work begins *after art*, in the networks and its formats” [Joselit’s emphasis] (p. 96). If Wilson and Joselit are correct in their assessments, it follows that one of the main remits of virtual museums of contemporary art should be to provide infrastructure that connects different artists, artworks, and users, and further leverages this connectivity to shift the balance of power in the art world so that this power can be exploited in newly progressive ways.

At present, the best prospect for such infrastructure can be found in today’s growing online collections, which are becoming increasingly connected through linked open data projects, such as Linked Art and aggregators like Google Arts and Culture, Artsy, and Contemporary Art Daily, and are fast reaching a scale capable of rivalling the physical art system. A few cutting-edge online collections and digital archival projects have even begun to reveal the social connections between different artists and/or artworks. For instance, the multimodal interface *Jazz Luminaries* (2019) enables users to cut, remix, and replay archival video material drawn from the Montreux Jazz Archive by navigating the social network connecting the 5,400 Jazz, Blues, and Latin musicians in the archive. Within the spherical interface, each musician is represented by a node that is interconnected to other Montreux Jazz Festival musicians based on their historic collaborations. The proximity of the nodes in the network (viz. their link strength) signifies the number of times any one musician has played with another artist at the Festival (Kenderdine 2019). Based on this model, it is not difficult to imagine future interfaces designed around the art world’s network connections, which could give users a sense of the distribution of power and prestige in the art system. In this regard, BarabasiLab has already produced several projects mapping such connections, including: ‘The Hungarian Institutional Network’ (2022), visualizing the relationships between different Hungarian art institutions based on commonly exhibited artists, and ‘NFT Universe’ (2021), mapping NFT ownership connections based on transactions conducted through the SuperRare platform between April 2018 and April 2021. If such theoretical interfaces were to be developed, they would surely offer users an alternative way to access and discover artistic practices, and provide them with insight into the context behind the works’ institutional prestige and correlated artistic and economic value. That being said, if the goal is to shift the balance of power in the art world by means of digital infrastructure, then making these otherwise invisible relationships transparent, as Wilson and Joselit suggest, is not enough. The type of connectivity

that such digital infrastructure establishes between artists, artworks, and users should impact this (im)balance, not simply raise awareness of its existence. In effect, leveling art world stratification (i.e., flattening the vast, unjustified disparities in prestige and success between artists) does not turn on public education; it depends on effectively recruiting collective intelligence—in this case, the judgment of a demographic cross-section of non-expert users—to establish artistic value on different grounds and change the actual constitution of the art system.

Over the past two decades, several advancements in the domain of Information and Communications Technology [ICT], including Web 2.0, Semantic Web, and crowdsourcing, have made such a project conceivable. They have enabled large-scale internet collaborations and led to the development of collective intelligence platforms facilitating “knowledge sharing, problem-solving, and decision-making among individual users and groups, through web-based interactions and collaborations” (Suran et al. 2020: 14:2). Although collective intelligence [CI] models tend to be defined and adapted to specific problems, they share a number of characteristics and properties (Suran et al. 2020) that can help guide the conception of new modes of cultural participation. One CI characteristic of particular significance for museum studies and practice is the fact that contributors are divided into crowd and hierarchy: that is, “actors who actively contribute new knowledge, information, or artifacts to the system” by carrying out “a predefined set of actions, based on concrete sets of rules and regulations,” and “administrators and experts who are responsible for allocating tasks to the crowd”, “monitor crowd behavior in the system and make sure that the community and individual goals of the collective are achieved” by analyzing and verifying the contributions of the crowd (ibid., p. 14:23). This hierarchical division suggests that deferring institutional authority and organizational control to end-users through open platforms might actually be counterproductive to the project of democratizing culture. In addition, collective intelligence models also present three properties that are key to the conception of new models of cultural participation, namely: 1) diversity (which refers to “the heterogeneous nature of actors, who belong to different age groups, genders, and educational, financial, and cultural backgrounds”); 2) independence (which holds that “the opinions of one actor should not be influenced by the opinions of others”); and 3) critical mass (which refers to “the minimum number of actors who must participate in system processes for the system to function effectively”) (ibid., p. 14:23-24). These shared CI properties offer a valuable lens to reconsider prevailing digital strategies implemented in online collection interfaces. They indeed highlight the fact these strategies have mainly focused on fostering diversity and critical mass, while overlooking the crucial matter of independence.

In terms of diversity, digital technology has already proven itself able to offer notable opportunities for arts and culture organizations to reach new and more diverse audiences (Slover Linett Audience Research 2022) by overcoming threshold fear and in-person access barriers (e.g., the time and cost of visiting physical spaces). In fact, 'digital only' users are much more likely to come from minority groups (e.g., Black/African American or Hispanic/Latinx in the United States) than those who engage both online and in-person (ibid.). This suggests that virtual museums have the potential to collect and recruit multiple, underrepresented perspectives and preferences in ways that far outstrip physical institutions' capabilities, and eventually sustain the critical, infrastructural operations that Wilson is describing: viz. desegregation, power sharing, and institutional reform. In this sense, museum computing has increasingly designed tools and applications over the past two decades to support power sharing around online collections. These tools have been designed to facilitate user-led, serendipitous explorations, community tagging (folksonomies) and citizen curation (Daga et al. 2022) of collections' contents, effectively deferring part of the institution's authority to end-users by outsourcing curatorial tasks, including lookup, comparison, and relation-seeking (Windhager et al. 2019: 2316). Yet, while these user-led engagements facilitate discovery and alter taxonomic identification, they have very little influence on artworks' correlated artistic and economic value—and by extension, on artists' reputation—leaving the distribution of prestige within the art system intact.

As the following sections will examine, recruiting collective intelligence for the purposes of democratizing culture and levelling art world stratification is not as straightforward as inciting a critical mass of diverse users to find and select (or even tag) artworks from among vast online collections, and/or curate their own digital galleries—a task that, in any case, requires considerable time and some expertise, thereby curbing non-expert user engagement. Offsetting the artworld's gatekeeping mechanisms, moreover, cannot simply be achieved by relying on 'altmetrics' (i.e., views and likes) to influence endorsement and modulate order in an aggregated or distributed online database. Certainly, achieving this impact is contingent, in part, on resolving the issue of access—viz. casual users' ability to discover new artworks within large databases—which is a well-known musetech problem that has been provisionally addressed through various infovis strategies (Windhager et al. 2019); but, in reality, the issue of access is not as critical as one might think. In fact, it is peripheral to a more fundamental obstacle to the project of efficiently recruiting collective intelligence for the purposes of democratizing culture and fostering more equality and diversity in the art system: namely, the spheres of influence and network effects that bias individual judgment (i.e., users' lack of independence).

In light of these influences and network effects, it follows that levelling art world stratification cannot simply be achieved by deferring to public taste: i.e., relinquishing institutional control. The hypothesis pursued here is that it is contingent on recruiting users' personal sensemaking faculty by means of a particular task, which must be underwritten by a fair amount of curatorial (viz. institutional) framing—though of a kind theoretically amenable to automation, which is imperative to the project.

Gatekeeping, Prestige, and Value

Contrary to the enduring myth of the artist-genius, quality and excellence in the field of visual art—whether defined in terms of talent, creativity or aesthetics—are not determining factors in the value of a work. In effect, there are no objective criteria to assess the value of any artwork or the performance of its maker (Barabási 2018: 60). Recognition of an artwork's quality is contingent on variables external to the work itself, including the exhibition venue, the artist's entire corpus and the work's relation to art history (Fraiberger et al. 2018: 825). In fact, neuroaesthetic studies have shown that factors such as knowledge that a work has been created by a highly regarded artist (as opposed to an amateur artist or computer algorithm) modulate brain activity in response to the work (Vessel 2020: 7). It follows that art's quality and value are effectively determined by a network of gatekeepers: i.e., critics, curators, art historians, dealers, collectors, and so forth (Fraiberger et al. 2018: 825). As Barabási (2018) observes, in instances where there are no objective criteria or metrics to evaluate performance—contemporary art being the most paradigmatic case—networks drive success (p. 64). Accordingly, even at the height of Modernism, when the myth of the artist-genius reached its peak, brokerage networks⁵ rather than creativity were, and still remain, the principal drivers of an artist's lasting fame, even close to a century later (Mitali and Ingram 2018)—as famously exemplified by critic Clement Greenberg's championing of Abstract Expressionists, in particular the work of artist Jackson Pollock.

Today, institutional prestige in the contemporary art world continues to be highly subjective. A recent network science study of artistic reputation and success (Fraiberger et al. 2018) has empirically confirmed—as has long been theorized in the art world—that this prestige is concentrated among a small number of select artists moving across an insular cluster of prominent institutions mainly located in Europe and North America that is isolated from a multitude of dense regional communities of art institutions. By reconstructing the careers of nearly half a million contemporary artists based on exhibition data, auction sales, and primary market quotes between 1980 and 2016, Fraiberger et al. (2018) demonstrates an astonishingly "high correlation between

network-based ranks and economic value of the exhibited artists artworks”, clearly establishing that “network effects play a defining role in influencing the evolution of an artist’s reputation and valuation.” In brief, the study finds that exhibiting early on (an artist’s first five shows) in an elite institution is the best predictor of an artist’s career trajectory across a variety of measures, including greater number of shows, more shows outside the artist’s home country, less fluctuation in institutional prestige, more trading at auction and higher artwork prices. Whereas elite artists continue to show at high-prestige institutions throughout their career, the success of artists starting at the periphery is largely local and incremental (Barabási 2018: 69). In sum, through a lock-in effect, the art world network essentially determines artists’ prestige, commercial success, and career longevity.

Nevertheless, the data also reveals a more optimistic indicator. While artistic careers are characterized by strong path dependence, exhibiting at institutions of widely varying location and reputation rather than repeatedly showing at the same galleries can provide artists access to the ‘center’ of the art world, and therefore a ticket to future prestige (Barabási 2018: 70-71; Fraiberger et al. 2018). In other words, success in the contemporary art world essentially depends on linking up with the right connectors in the network, which suggests that findability (access): i.e., curators, critics and gallerists’ capacity to discover the work of new artists and artists’ capacity to make their work known to the right gatekeepers, is largely responsible for the art world’s stratified institutional prestige. While the network may function, in Barabási’s words, like a ‘pyramid scheme,’ shoring up financial stakeholders’ monetary interests by constantly driving up the price of high reputation artists’ works (2018: 68), it is not deterministically closed. Its access barriers are not fixed: e.g., based on geographical origin, even while the center may be mostly isolated from regional communities. Not only can these barriers be circumvented, ever since the globalization of the art market in the 1990s and early 2000s, foreign ethnicity has actually provided entry into, and currency within the network (Belting 2009). As art historian Hans Belting (2009) observes: “difference, with the label of a foreign culture, has become marketable and thus an entrance ticket for newcomers on the art market” (p. 42). This observation further supports the premise that unlike canonical art history, the contemporary art world’s promotion of certain artistic practices over others is not inherently discriminatory—even while it clearly privileges artists from the West—but that artists’ circumstantial lack of access to elite gatekeepers (and vice versa) is driving discrimination within the system.

Overall, what transpires is that the art world’s present-day stratification is largely due to the milieu’s gatekeeping mechanisms: i.e., the fact that initially exhibiting at a top tiered institution depends on the *judgment* of a small number of art

world professionals who do not possess unlimited capacity for *discovery*. It logically follows that the solution to this gatekeeping mechanism at the heart of the art world’s unjust reputational system lies in art institutions’ strategic use of new digital technology, as cultural economist Pier Luigi Sacco (2021) advocates, to recruit collective intelligence. In theory, what this basically entails here is multiplying eyeballs to augment *discovery* all the while collecting other perspectives to diversify and counterbalance (even largely dilute) the *judgment* of experts in the attribution of artistic value. In this sense, Franceschet and Colavizza (2019) indicate that aside from institutional prestige and market buy-in, the art world equivalent of ‘altmetrics’ (i.e., views and likes) might also play a part in the milieu’s mutually reinforcing mechanisms of endorsement (p. 3), suggesting that the public can have an impact on the system.

In fact, ‘likes,’ as an alternative measure of value, are of particular relevance given this endorsement mechanism’s parallels with in-gallery aesthetic judgment (Bertrand 2022b). Indeed, even though there are undeniably important phenomenological differences between in-gallery and digital experiences, both compel the same nominal aesthetic judgment (ibid).⁵ As philosopher Thierry de Duve (1996) argues, ever since Duchamp, viewers have been compelled to declare, upon encountering a work of art, that: ‘This is Art’ or ‘This isn’t Art’ based on a feeling. By contrast to essentialist and institutional theories of art, de Duve’s claim is that anyone and everyone is able and fit to decide whether a work is worthy of the name Art; in other words, anyone and everyone can assess a work’s aesthetic value by formulating this updated (post-Duchampian) judgment of taste, which establishes that the indexed work is, in fact, Art. Against these previous aesthetic theories, de Duve’s claim thus effectively substantiates the public’s equal say in art’s value, which digital technology can now record and quantify. And as this nominal aesthetic judgment ultimately comes down to whether or not the viewer loves the work, such an appraisal arguably finds corresponding expression in the social web’s iconographic endorsement system of heart, star, and thumbs up emojis.

Accordingly, existing virtual museums have already begun to incorporate functions that enable end-users to register their reaction to content—albeit to artworks in collections that have already been vetted by gatekeepers. Aside from art institutions’ widespread use of social media platforms (Daga et al. 2022), virtual museums are increasingly integrating endorsement features similar to the ones found on these platforms (e.g., heart or star icons and swipe right/left functionalities) to record the public’s appraisal of content. As Perry et al. (2017) report in their state of the art on virtual museums, certain applications encourage end-users to “save, “like,” “hate” content, etc.” (p. 2). Indeed, such endorsement features are also being integrated into mobile museum apps

and online collections to capture the public's reaction to artworks both in-gallery and in remote viewing contexts. In terms of onsite applications, the Baden State Museum, for instance, recently launched a new mobile app called *Ping! The Museum App* described as a "Tinder for museum objects" (Bernhardt et al. 2021). The app invites in-gallery visitors to select objects to their taste by swiping left or right so as to trigger a dialogical exchange with these objects by means of a chatbot. As the museum's Digital Manager Johannes C. Bernhardt states: "you can swipe if you like it or you don't like it" (Bernhardt et al. 2021). Similarly, the Mona museum's in-gallery mobile device (and now downloadable app) *The O* includes a Love/Hate function that allows visitors to register their feeling about the artworks on display.

When it comes to online collections, Europeana (Europe's flagship digital cultural heritage aggregator), Smartify (the popular in-gallery and at home museum app) and Rijksstudio (the Rijksmuseum's online collection interface and in-gallery mobile app) similarly encourage users to like content by clicking on a heart icon. Crucially, both Europeana and Rijksstudio clearly display the number of likes associated with each artwork, thereby generating a certain amount of user influence on subsequent interactions through social feedback. Notwithstanding, other art institutions at the forefront of the cultural sector's digital transition are clearly committed to public participation for example, the National Gallery of Denmark, has deliberately opted not to integrate a 'like' feature as part of their online collection because this type of functionality requires a login wall, which tends to stop users in their tracks all the while raising GDPR issues.⁷ It is worth noting in this sense that, at present, only three percent of Europeana's online traffic consists of registered users (i.e., users who can actually like content).⁸ So, even while Europeana is commendably considering exploiting these usage statistics to update the order in which items are displayed on the site,⁹ thus promoting public preferences, the fact that only a tiny proportion of users are actually generating these stats so far speaks to one of the challenges of recruiting collective intelligence in this way: namely, the issue of adequate and representative public participation (i.e., diversity and critical mass).

NFTs' Failure to Democratize the Art System

That being said, even if a more substantial share of users are eventually enticed to record their reaction to artworks, the hypothesis here is that using some form of 'altmetrics' to democratize artistic value will still fail to level the contemporary art world's deeply-ingrained stratification. This hypothesis is supported by early indications coming out of NFTs' recent mainstream explosion, fueled by the COVID-19 pandemic. In comparison to existing online collections,

typically linked to a single organization, NFT spaces present a more radical test case for end-user endorsement because they are purportedly open and free from institutional bias. In fact, NFT enthusiasts typically promote blockchain technologies for their promise to democratize the art world: i.e., redistribute power and agency by establishing an alternative market directly connecting artists with buyers, thus bypassing traditional gatekeepers (Adam 2021; Conti and Schmidt 2021). NFT spaces like OpenSea that do not require a curatorial point of entry or invitation have been described as a potential means of disrupting traditional white-walled spaces and creating a more equal playing field (Vartanian and Wagenknecht 2021).

Yet, even while granting the financial and transactional benefits of NFTs for artists (e.g., new revenue stream for creators of digitally native artworks, automated royalties paid on resale), their capacity to effectively alter the attribution of prestige within the contemporary art world remains doubtful. Firstly, it is unclear whether NFT spaces can do away with gatekeepers altogether; in fact, the overabundance of available assets is already creating a demand for new curatorial services (Adam 2021). Secondly, history has shown that disruptions to the art market that ignore rather than prime traditional gatekeepers result in short-lived financial bubbles, which fail to garner lasting prestige and success for artists (Maizels 2021). This track-record of implosions suggests that the viability of so-called art market disruptions, in the long run, actually depends on securing and therefore consolidating traditional gatekeeping mechanisms rather than negating them. Given the number of elite art galleries and auction houses, including Pace Gallery, Gagosian, Sotheby's, and Christies, that have recently entered the fold as key players on the NFT market, blockchain technologies' promise to create a more equal playing field has grown increasingly tenuous.

In fact, theoretical promise aside, the actual NFT market, so far, has not only reproduced, but in some cases even amplified traditional art world inequities. A recent report analyzing primary and secondary sales on Nifty has revealed that much like the traditional art market, NFT sales are highly concentrated among an elite group of artists: five percent of artists (sixteen artists in total) account for fifty-five percent of all sales (Shaw 2021). Moreover, there is a distinct lack of diversity in the NFT market: only three-point-six percent of artists come from African and Latin American countries whereas seventy-three percent of NFT sales totals are attributed to US, British, and Canadian artists, with a majority of high earners based in New York, Los Angeles, and London. Meanwhile, female artists only account for sixteen percent of the NFT market (Shaw 2021), a percentage comparable to their share of the traditional art market, wherein female artists in 2021 made up a mere fourteen percent of the upper end of the market and seventeen-point-six percent of the

broader market (Villa 2021). Overall, these figures indicate that far from disrupting the art system's unjust reputational economy, the NFT market is largely reproducing it—and, in some cases, creating its own turbocharged version due to the unequal access to digital technologies across the globe—ironically, at the very moment when art institutions are making concerted efforts to become more diverse and inclusive, and decolonize their practices.

Spheres of Influence

If creating fully open and purportedly democratic spaces—i.e., devoid of gatekeeping mechanisms—may seem like the obvious answer to the art world's exclusive system, the example provided by NFT spaces suggests otherwise, viz. that it is not a viable solution to the milieu's inherent stratification. Leaving aside the perverse speculative effects of the NFT market's wild-west deregulation, NFT spaces, as an extreme test case for the public endorsement of art, point to an important caveat when it comes to recruiting collective intelligence for the purpose of bypassing the art world's gatekeeping mechanisms. The vital lesson that these spaces provide is that turning every user into a node in the network: i.e., multiplying the number of connectors along the social network leading back to the center, runs the considerable risk of reproducing, and even amplifying, the network's prejudicial effects as oppose to surpassing them. Simply put, turning every user into a citizen critic/curator is not the solution, at least not without the proper institutional support system in place. One of the main reasons for this counterintuitive and seemingly paradoxical conclusion is that the process of 'liking' art (i.e., endorsing a work based on a feeling) is highly susceptible to various domains of influence, which work to sustain existing asymmetries or create new ones. It follows that if the objective is to foster more equality and diversity in the art system, then the main problem with 'altmetrics' as an alternative form of public endorsement to expert connoisseurship is not online access barriers, nor insufficient participation. Multiplying eyeballs, facilitating discovery (e.g., through generous interfaces), and promoting public choices are all essential to the task; however, these vital initiatives cannot hope to transform the system if the individual judgment being captured is skewed by network effects driving inequality. Even while granting that this type of 'public's choice' might displace the center to some degree, it cannot be relied upon to actually level the playing field.

When in-gallery visitors and online users like a work (whether purely mentally or by clicking on an icon), it is widely assumed that this endorsement signifies that the work holds meaning for the individual in light of their particular experiences, memories, knowledge, viewpoint, cultural frame of reference, and so forth. Yet, what this common assumption overlooks, is the fact that the judgment involved in liking a singular artwork is based on a feeling and concerns the

work's reference as opposed to its meaning (Bertrand 2022a; De Duve 1996), making it particularly vulnerable to external spheres of influence. Indeed, from the outset, the public's perception of art is always already affected by invisible networks of curators, art historians, gallery owners, dealers, agents, auction houses, and collectors, regulating artistic value and prestige. These networks do “not only determine which works hang on museum walls; *they even command which works we line to see*” [our emphasis] (Barabási 2018: 57). Their influence on the public is not limited to the confines of physical exhibition spaces: e.g., the white cube, which has been specifically designed to impress upon audiences the legitimacy and value of the curated art on display through precise architectural cues and installation devices (Cain 2017). This influence can also be observed in patterns of casual user engagement with online collections, which gravitate heavily towards museum highlights handpicked by experts.¹⁰

Notwithstanding, the influence that these invisible art world networks wield is by no means absolute. Online collection search results also indicate that the most sought-after objects are not always gatekeeper picks, revealing other powerful spheres of influence at work, including the media and entertainment industry.¹¹ Moreover, even while these influential power brokers hold considerable sway over the attribution of value, prestige, and success in the art world, influence is not just top-down; it can also come from the bottom up. As Salganik et al.'s (2006) study of social influence on cultural markets demonstrates, social feedback has a considerable effect on artistic appreciation. To gage this effect, the authors created an artificial 'music market' wherein over fourteen thousand participants were asked to rate—from one star ('I hate it') to five stars ('I love it')—and download previously unknown songs either with or without knowledge of previous participants' choices. The participants were divided into eight 'worlds' with identical initial conditions, indistinguishable populations and the same, randomly assigned songs to further control for unpredictability of success. The study found that mere knowledge of how many times a song had been downloaded greatly affected the success of songs; and, moreover, that there was no consensus from one world to the next regarding the best and worst songs.

Beyond artistic appreciation, social influence has been shown to affect diverse human reward systems, including financial gain, endorsement, social status, and social support on different online crowdsourcing platforms (Van de Rijt et al. 2014), which is precisely why exploiting 'altmetrics' through virtual museums to offset expert taste first appears like the logical move. If knowledge of previous participants' choices effectively impacts subsequent users' judgment, then the rationale is that this alternate, cumulative value can potentially give artworks that have been overlooked by

experts and power brokers a fighting chance to rise to the top. While this may be true, when it comes to art, social feedback is actually a catch-22 because there are no objective criteria to assess the value of any artwork or the performance of its maker (Barabási 2018: 60). In consequence, exploiting collective feedback by means of ‘altmetrics’ to level stratification is bound to run up against two major problems arising from social influence: 1) runaway inequality and 2) artificial manipulation. On the one hand, the absence of any objective criterion to judge the quality of an artwork makes aesthetic judgment particularly vulnerable to the collective phenomenon of ‘preferential attachment,’ which can kickstart runaway inequality (van de Rijt et al. 2014). Simply put, preferential attachment is the innate human tendency to endorse superstars (viz. candidates that have already been vetted by the crowd) as opposed to underdogs (Barabási 2008: 142), leading to success-breeds-success effects in the network. Accordingly, Salganik et al. (2006) observe that social influence does not only contribute to the inequality and unpredictability of outcomes in cultural markets (i.e., popular songs are more popular and unpopular songs are less popular); they further note that “as individuals are subject to stronger forms of social influence, the collective outcomes will become increasingly unequal” (p. 855). What is more, this inequality is not a temporary blip; disparities in individual success have been found to persist over time (van de Rijt et al. 2014: 6936). In this regard, van de Rijt et al.’s (2014) study of social influence on human reward systems clearly shows that early endorsement bestowed upon arbitrarily selected recipients on crowdsourcing platforms (e.g., Barnstar awards randomly attributed to highly productive editors on Wikipedia) consistently leads to significant and lasting improvements in subsequent rates of success when compared to a control group of nonrecipients.

On the other hand, what this last study also reveals is that social influence can easily be manipulated, which is the second major problem with using altmetrics to level the art system. For their study, van de Rijt et al. (2014) willfully tampered with social influence online to examine its impacts, effectively demonstrating the ease with which stakeholders with a vested interest in a particular candidate’s success might affect social feedback for their own gain. As the authors themselves remark: ‘the deliberate allocation of success in our experiments demonstrates that cascades of positive reinforcement can be initiated intentionally by a strategic actor’ (p. 6937). Given elite galleries’ well-known manipulation of the art market (Schrager 2013), it stands to reason that they would equally intervene in alternative value systems to maintain or further boost the prestige and value of their represented artists’ works, further aggravating inequalities in the art system. Naturally, social influence has its limits; for instance, quality has been shown to defy its impacts in less subjective fields of performance (Barabási

2018: 147); but again, that is precisely the problem with art. As there are no qualitative standards liable to bound social influence’s effects in the art world, relying on user preferences to level stratification is likely to backfire: i.e., kickstart ‘runaway inequality’ through an amplification effect rather than generate more parity and diversity in the art system.

From Liking to Making Connections

So what is to be done? How can online collection interfaces minimize outside influence and network effects to truly capture what users find meaningful in light of their unique experiences, memories, knowledge, viewpoint, cultural frame of reference, and so forth? Simply put, how can they effectively capture individual ‘meaning-making’¹² in process? Given the aforementioned properties of CI models, the claim here is that to effectively recruit collective intelligence through online collections for the purposes of democratizing culture and levelling art world stratification, the key—apart from fostering diversity and critical mass—lies in sustaining more independence. In effect, this means conceiving a user experience designed to minimize (to the extent possible) the influences exerted on contributors’ opinions. As argued above, ‘altmetrics’ is not a viable solution, even if the process of liking a work online is similar to in-gallery nominal aesthetic judgment, ostensibly positioning it as the best indicator of what users value. Instead, the hypothesis advanced here is that to achieve these goals, online collection interfaces should involve users in an alternative task, one that primarily mobilizes their sensemaking faculty as opposed to their personal taste given the latter’s susceptibility to outside influence. The speculation is that user’s focus should be redirected away from judging singular artworks to judging the semantic connections between different artworks.¹³ Practically speaking, this could be achieved by means of a pathfinding, navigational tool for online collections inciting users to choose the most compelling pair of artworks from among small, pre-curated sets along a path, as opposed to picking standout artworks from among vast, randomly generated or thematically organized interfaces. Simply put, it involves turning users into citizen *meta-curators* as opposed to citizen *curators* by enabling them to build personally meaningful constellations of artworks as they navigate and discover online collections.

Although speculative, this proposed solution is based, on the one hand, on well-established art and curatorial theory, which hold that the meaning of a work changes depending on its context, and, on the other hand, on a liminal and still underexplored area of choice-theory, aesthetic choice, which has been provisionally shown to diverge from aesthetic preference (Isham and Geng 2013). It is firstly grounded

on the notion that the meaning of a work is contingent on its context of display (Chaffee 2010). This is particularly true of art reproductions (including art digitizations), which appear in vastly different contexts beyond the controlled environment of the museum, especially since the advent of the Internet (Cameron 2008). As art critic John Berger (2008) famously remarked half a century ago with regards to art reproductions: “the meaning of an image is changed according to what one sees immediately beside it or what comes immediately after it. Such authority as it retains, is distributed over the whole context in which it appears” (p. 29). Berger provocatively demonstrated this claim in the first episode of his popular 1972 BBC series *Ways of Seeing* by juxtaposing Goya’s *The Third of May 1808* (1814) with a clip of attractive white female cancan dancers, singing and dancing to a lighthearted, upbeat tune, and then again with a wholly different, silent clip of black men being tied up and shot to death by soldiers. The effect was dramatic and unmistakable: the two conflicting associations radically altered the reading of Goya’s work, effectively demonstrating that by combining two judiciously chosen artworks, it is possible to specify each work’s otherwise ambiguous meaning (Bertrand 2022a). The implication of this claim for the present proposal is as follows: if users are presented with a set of diverse artworks that all relate to an initial work but specify conflicting interpretations, then by selecting one work among the group, users will effectively be opting for a particular reading, presumably the one that holds the most significance to them in light of their unique worldview—though this remains to be verified. Such an aesthetic decisional process could then theoretically be repeated with a growing selection of artworks along a path to create a coherent and personally meaningful constellation of artworks.

Certainly, the contention that, if given the choice, users would opt for the work that specifies the most meaningful interpretation rather than the most subjectively beautiful, visually salient or well-known artwork in a cluster, is still hypothetical at this point. For instance, if asked to choose between the two clips in Berger’s example, some users might reasonably opt for the clip of the cancan dancers rather than the clip of the execution even if the latter carries more meaning for them because it elicits unpleasant feelings, like outrage and revulsion, possibly discouraging further exploration. Naturally, this type of response might be mitigated by giving users clear instructions as part of the onboarding process regarding the nature of their task: that is, to pick the combination of works that is most meaningful to them. Nevertheless, there is cause to believe that even without explicit instruction, viewers would still be drawn to the most personally meaningful association rather than pick the most aesthetically pleasing or famous artwork. Indeed, emerging research in the field of choice-theory has provisionally shown that aesthetic choice diverges from aesthetic preference,

even when it comes to basic stimuli (images with very low emotional and semantic content: e.g., combinations of black and white geometrical shapes) (Isham and Geng 2013), indicating that the criteria used to assess the aesthetic value of an individual image differ from the criteria used to choose between different images. As Isham and Geng (2013) note, aesthetic choice presents an interesting boundary condition for choice-theory as it does not lead to any clear benefit or consequence by contrast to other decisional processes. This suggests that aesthetic choice might enable more self-expressive decisions based on highly personal selection criteria and patterns of perception deriving from users’ unique experiences, memories, knowledge, viewpoint, cultural frame of reference, and so forth.

To be clear, the meta-curatorial task of assessing and choosing between different semantic connections significantly differs from the curatorial functions that some of today’s advanced collection interfaces are currently offering to the public. These functions basically enable users to select artworks from the collection (either by liking or saving them) and curate their own personal online galleries. While these individually curated galleries typically reveal personal preferences and interests, they do not speak to the users’ unique worldview—the reason being that when users select artworks from among large sets (whether by parsing through search box query results or browsing through generous interfaces), they tend to either pick and choose their ‘favorites’—subject to visual salience and, of course, various domains of influence—or select artworks that correspond to a particular thematic interest, as evidenced by the recurrence of popular user-led gallery themes like food, flowers and eyes (Engberg 2016). Naturally, there is nothing wrong with these tendencies if the goal is to create a collection of stuff that one likes, or to research a particular idea or motif. But if the aim is to democratize culture, and diversify and equalize the art system, then collective intelligence should alternatively be channeled towards investing artworks with personal value by means of a different selection process. In other words, users should be compelled to pick artworks because they fit with their unique worldview—not because they look pretty or have a certain cool factor—regardless of whether or not they actually like these works. The key to overcoming these tendencies, as speculated above, is to enable users to choose personally meaningful connections as opposed to singular artworks by way of an adapted, curatorial support structure.¹⁴

This change may seem like only a minor adjustment in the way users interact with art digitizations through online collection interfaces; but, in effect, it constitutes a new model of cultural participation with potentially far-reaching consequences for the actual art system—provided art institutions are willing and able to adequately exploit the user-generated data. By inciting users to flag personally meaningful interpretations through intuitive aesthetic

choice, this solution can enable them to voice their opinions and collectively decide on societal values—instead of simply judging the aesthetic quality of individual artworks—without having to rely on verbal expression, which can be an important barrier to active contribution. As Gielen et al. (2015) affirm, “culture is all about *assigning* meaning and it tells us something about what we think is of value in life and how we view the world” (p. 8). Yet, even while this assignation may be performed by anyone and everyone (ibid.), it is ultimately validated and secured by cultural institutions, to which “falls the task of saying and confirming what matters” (Boltanski 2011: 75). As follows, if the hypotheses advanced in this article prove correct, it will mean that this model of cultural participation can empower end-users to perform cultural institutions’ fundamental task, thereby implementing a more radical form of power sharing than current modes of public consultation. Moreover, the proposed solution does not only offer a means to sustain independence (i.e., reduce outside influence on users’ judgment); it also simultaneously

establishes a new value proposition for art that differs from the one sustained by the actual art system. Within this model, the value of an artwork is not determined by its performance in the art system (e.g., where it is shown and by whom); it is derived from the number and strength (or intensity) of the work’s connections with other artworks as perceived by end-users at a given point in time—hence, dynamically fluctuating with shifting individual and public outlooks and concerns.

For these reasons, I believe that this alternative digital strategy has the potential to democratize culture and level art world stratification. Naturally, building the right curatorial support structure (viz. digital infrastructure) to realize this project is a delicate enterprise that presents considerable ethical and technical challenges; but, certain existing curatorial practices and digital tools suggest that it as a viable prospect.

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NOTES

1 Virtual museums’ economic benefits are beyond the purview of the underwriting research project.

2 Digitizations refers to digital reproductions or surrogates of artworks originally created for the physical space of the gallery.

3 Collective intelligence is used here, in accordance with its widely-agreed upon definition in the domain of Information and Communications Technology (ICT), to refer to a “form of universally distributed intelligence, constantly enhanced, coordinated in real time, and resulting in the effective mobilization of skills” (Lévy 1994: 13).

4 At the time of writing, this mitigated impact was eloquently captured by the title of a review covering the latest Venice Biennale, which read: “Venice Biennale Artists Want to Blow Up the Art System. But for Power-Brokers Around Town, That System Was in Full Flower” (Brown 2022).

5 A brokerage position, in contrast to a closure position, consists of relationships to disconnected alters (diverse social worlds) (Mitali and Ingram 2018).

6 Certainly, as the online collections currently featured on museum websites are still overwhelmingly image-based and predominantly viewed on desktop or mobile screens, installation, performance, and other three-dimensional, time-based, and situated practices are at a considerable disadvantage compared to static and image-based artworks. That

being said, as immersive technologies such as Extended Reality become more prevalent in the museum computing field, it is reasonable to believe that online collections will eventually be available in 3D in the metaverse, which will reduce the experiential gap between different artistic practices. Even so, the point here is that aesthetic judgment is, and will remain, the same.

7 Jonas Heide Smith, email message to the author, January 4, 2022.

8 Naturally, this percentage is an evolving number and the figure cited here reflects the situation at the time of writing. Europeana receives a continuous flow of new registrations daily (approximately thirty new accounts per day), and the number of ‘liked’ items is growing (Dasha Moskalenko, email messages to the author, December 27, 2021 and June 9, 2022).

9 Dasha Moskalenko, email messages to the author, January 4, 2022 and June 9, 2022.

10 At the time of writing, for instance, the Städel Museum confirmed that there was currently only one artwork in its ‘most viewed’ list not considered a core highlight of the museum (Ulrike Fladerer, email messages to the author, Mai 31 and June 1, 2022).

11 For instance, museum theorist and technologist Seb Chan (2007) reports that the most viewed object in the Powerhouse Museum’s collection, for a time, was a designer dress worn by an Australian pop star and celebrity. The object garnered twice as many views as the next most

popular item (fueled by traffic coming in from Google and fan sites) even though the museum had never put the dress on public display.

12 The use of 'meaning-making' here can be understood in light of museologist Stephen E. Weil's (2002) assertion that: "the objects displayed in the museum do not have any fixed or inherent meaning (...) 'meaning-making,' or the process by which those objects acquire meaning for individual members of the public will in each case involve the specific memories, expertise, viewpoint, assumptions and connections that the particular individual brings" (p. 212).

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13 Such an assessment is not expected to be purely rational and conscious in nature; rather the assumption is that it will be performed quite spontaneously and instinctively, and guided by users' emotional response. In this respect, psychological studies like Bolte et al. (2003) have shown that humans are capable of recognizing coherent semantic associations pre-consciously, even in cases where subjects never succeed in consciously identifying the connection.

14 Design specifications for such a curatorial support structure will be explored in future papers.

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STÉPHANIE BERTRAND is a Commonwealth Scholar, Onassis Fellow and Marie Skłodowska-Curie Fellow, currently working as an affiliated researcher in museum computing at the Human-Computer Interaction Laboratory (HCI Lab) in the Institute of Computer Science of the Foundation for Research and Technology – Hellas (ICS-FORTH). She is the author of the Routledge book *Contemporary Curating, Artistic Reference and Public Reception: Reconsidering Inclusion, Transparency and Mediation in Exhibition Making Practice* and recipient of the Hannah Arendt Prize in Critical Theory and Creative Research.

Correspondence e-mail: bertrandst@ics.forth.gr