



**CITY OF BIRMINGHAM
MUSEUM BOARD AGENDA
556 W MAPLE
Thursday, July 11, 2024
5:00 PM**

Mission Statement: *The Birmingham Museum will explore meaningful connections with our past, in order to enrich our community and enhance its character and sustainability. Our mission is to promote understanding of Birmingham's historical and cultural legacy through preservation and interpretation of its ongoing story.*

1. Call to Order

2. Election of Chair

3. Roll Call

4. Approval of the Minutes

Minutes of June 6, 2024

5. New Business

A. Strategic Plan

- Discussion of museum trends
- Process for discussing articles and written materials
- Process for values exploration

6. Communication and Reports

- A. Director Report (History Leadership Seminar Summary)
- B. Member comments
- C. Public comments

7. Next Meeting: September 5, 2024 (no meeting in August)

8. Adjournment

NOTICE: Individuals with disabilities requiring accommodations for effective participation in this meeting should contact the city clerk's office at (248) 530-1880 (voice), or (248) 644-3405 (TDD) at least one day in advance to request mobility, visual, hearing or other assistance. *APPROVED MINUTES OF THE MUSEUM BOARD MEETINGS ARE AVAILABLE IN THE CITY CLERK'S OFFICE AND ON THE CITY WEBSITE AT www.bhamgov.org.* City of Birmingham, 151 Martin, Birmingham, MI 48009; 248.530.1800. Persons with disabilities that may require assistance for effective participation in this public meeting should contact the City Clerk's Office at the number (248) 530-1880, or (248) 644-5115 (for the hearing impaired) at least one day before the meeting to request help in mobility, visual, hearing, or other assistance.

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**CITY OF BIRMINGHAM
MUSEUM BOARD MEETING
556 W. Maple
Thursday, June 6, 2024
5:00 PM**

Members Present: Kristy Barrett (Alternate), Pat Hughes, Judith Keefer, Marty Logue, Jay Shell
Members Absent: Alexandra Harris, Bev Erickson
Administration: Museum Specialist Caitlin Donnelly
Guests: None

The meeting was called to order at 5:00 PM by Chairperson Logue.

**Approval of the Minutes
Minutes of May 2, 2024**

MOTION: by Shell, seconded by Keefer

To approve the minutes of May 2, 2024.

VOTE: Yeas, 5
Nays, 0

New Business

Members discussed the strategic plan materials provided by Director Pielack in the packet and four additional materials distributed during the meeting, which were originally intended to be distributed by members for their review and report back to the full board. Members agreed by consensus to include the four additional articles with all the readings for all the members rather than split up the documents with separate reports. Due to a scheduling conflict with Museum Director Pielack for the August 1 meeting, the board discussed whether to do an alternate August meeting or cancel the August meeting and reconvene in September.

MOTION: by Keefer, seconded by Shell:

To cancel the August meeting of the Museum Board due to various scheduling conflicts.

VOTE: Yeas, 5
Nays, 0

Communication and Reports

Museum Director Pielack phoned in to share the news that a regional museum association will be honoring the Birmingham Museum with an award for our leadership in the multi-community Underground Railroad research project for the past year. The award will be given later this summer and has yet to be made public. When the press release is official,

there will be more to come. Following the phone communication, Museum Specialist Donnelly summarized the Director's report.

Member Comments

Mr. Shell shared a written statement regarding Caroline Ashleigh's departure from the Birmingham Museum Board and sharing his concerns about the lack of information about this matter among Museum Board members. Ms. Keefer expressed her opinion that Ms. Ashleigh's departure was appropriate due to a conflict of interest. Chairperson Logue suggested that the matter was decided and did not pertain to the Museum Board business at hand, and that further discussion was not relevant to this meeting.

Public Comments

None.

The next Regular Meeting is scheduled for Thursday, July 11, 2024, at 5:00 PM.

Ms. Logue adjourned the meeting at 5:55 PM.

Caroline Ashleigh departure from the Birmingham Museum Board:

Caroline Ashleigh was asked to resign from the Birmingham Museum Board of Directors due to the fact that her home on Lincoln Street is in the geographic boundary of 100+ homes that have been included in a class action lawsuit against the City of Birmingham related to repeated residential flooding. The City Attorney has characterized Caroline Ashleigh's inclusion in the flood related class action lawsuit as a conflict of interest in serving on the Birmingham Museum Board of Directors. Caroline herself has not filed suit against the City of Birmingham, nor does the repeated flooding of the homes in her geographic area have anything to do with Birmingham Museum business.

Ms. Ashleigh's career began as a member of the Educational Department staff and Docent Board of Directors of the Detroit Institute Arts. She became involved in appraising and founded Caroline Ashleigh Appraisers & Auctioneers, cataloguing important collections, estates, archives, and serving as an expert in court cases. She has worked closely with major museums and foundations, and served as a consultant to major auction houses including Sotheby's, Leslie Hindman Auctioneers, and Consignment Director & Personal Auction Concierge at Heritage Auctions. She is a nationally known appraiser and has appeared on Antiques Roadshow since 1996. Ms. Ashleigh lectures extensively and is a columnist and author on art and antiques. She is a contributing author on arts and antiques to the Antiques Roadshow Collectibles Primer; the Antiques Roadshow Insider Magazine; Art & Antiques Magazine; All About Appraising: The Definitive Appraisal Handbook; Antiques Roadshow Magazine; and Warman's Antiques & Collectibles Price Guides. She has been the subject of feature presentations in the New York Times, Art & Antiques Magazine, Forbes Magazine, Crains Business and Hour Magazine. She is the author of Warman's Field Guide published in 2010.

Caroline Ashleigh is both a long-time resident and business owner in the city of Birmingham whose wealth of experience, expertise, and ability to contribute to the Birmingham Museum will be sorely missed.

Respectfully submitted,

Jay R. Shell

Member of the Birmingham Museum Board of Directors

Text from email sent by Museum Director Pielack to the Museum Board on June 21, 2024 regarding Caroline Ashleigh's departure, with notice that it would be included in Museum Board materials for July 11, 2024 meeting and meeting minutes:

"Attached, please find the following:

- 1. Draft Museum Board minutes for 6/6/2024*
- 2. Document shared by member Jay Shell at that meeting regarding the departure of Caroline Ashleigh from the Museum Board*

To provide more complete information regarding Museum Board member Caroline Ashleigh's departure from the Museum Board, I would like to share the following facts, all of which are in the public record, for your consideration in the matter of Ms. Ashleigh's resignation from the board.

- In **December of 2023**, a class action lawsuit was entered into against the City of Birmingham with Ms. Ashleigh as lead plaintiff, regarding damage to personal property due to flooding. The lawsuit alleges that the City of Birmingham was responsible and parties in the lawsuit are seeking damages from the City.*
- In the **early weeks of January, 2024**, City Manager Ecker attempted to reach Ms. Ashleigh several times by phone and email to make arrangements to discuss her role in the lawsuit and her role on the Museum Board as a potential conflict; however the two did not connect. During this time Ms. Ashleigh was apparently out of town and not available.*
- On **March 15**, after failing to connect with Ms. Ashleigh by phone, City Manager Ecker sent a letter stating the City's position regarding a potential conflict of interest between Ms. Ashleigh's position on the Museum Board and her participation in a tort action against the City, citing the City's Ethics ordinance in that regard, and suggested that Ms. Ashleigh consider resigning her position on the Museum Board accordingly. In addition, Ms. Ecker informed Ms. Ashleigh that the City Commission may wish to take action to remove her through a public process that includes a public hearing (which would be set by the Commission, if they decided to take action, at their meeting on April 8, 2024), followed by a waiting period until May 6, 2024, when the City Commission may then consider whether to take action to remove her. Ms. Ashleigh was advised of her options to resign, or to continue in her MB role, but if she decided to continue, Ms. Ecker asked her to refrain from attending Museum Board meetings until the matter was decided.*
- On **March 26**, Ms. Ashleigh responded in writing to assert that she did not agree that there was a conflict of interest and that she wanted to continue on the Museum Board, and that she would like to request the public hearing for May 6, 2024.*
- On **March 28**, City Attorney Mary Kucharek sent a letter to Ms. Ashleigh suggesting that an appropriate course of action for all concerned would be to appeal to the City of Birmingham's Ethics Board for their recommendation about the matter, and citing previous recommendations/findings from the Ethics Board in a similar case in the past. The Ethics Board is composed of*

Birmingham residents with legal background and expertise who review potential conflicts of interest regarding city officials and employees, and they make recommendations to the City Commission on matters that come to their board for review.

- On **April 8**, the City Commission considered the matter and decided to request that the Ethics Board review and make recommendations to the City Commission regarding Ms. Ashleigh's position on the Museum Board. The following excerpt from the Commission Meeting Minutes pertains to this action:

"04-099-24 Museum Board Member Caroline Ashleigh (Item G)

Commissioner Long removed Item G from the consent agenda and recommended the Commission request an advisory opinion on the matter.

MOTION: Motion by Commissioner Long, seconded by tMPT Longe: To request an Advisory opinion from the Ethics Board to determine whether or not Ms. Ashleigh is creating an irreconcilable conflict of interest and unable to serve on a voluntary board when she is in the position of being a Plaintiff in a multi-Plaintiff cited lawsuit against the City and potentially acting in a position which is adverse and in conflict to the City's best interest.

ROLL CALL VOTE: Ayes, Commissioner Baller tMPT Longe Commissioner Haig Commissioner Host Mayor McLain Commissioner Long Nays, None" (p. 4)

- On **April 19, 2024**, Ms. Ashleigh personally delivered a letter to the Clerk's Office stating that she wished to resign her position. As a result, no Ethics Board review was scheduled. The City Commission duly noticed the public that there was an open position on the Museum Board.
- The resulting Museum Board opening was noted at the **May 2** meeting of the Museum Board.

Please note that this information is being presented to you in response to Mr. Shell's statement to clarify that there is, in fact, a transparent public record that documents these events, which I would have been able to clarify had I been present at the June 6 Museum Board meeting. While this information is being provided to you in between Museum Board meetings as an "Information Only" communication, the full text of this information will be available at the Museum Board meeting, and will be incorporated into the Museum Board's minutes."

History Leadership Seminar Summary/Discussion

Museum Trends

1. Values-driven service and responsibility to the whole community
2. Use history and museum to achieve greater equity and inclusion with more balanced narratives
 - People of color
 - Economically challenged
 - Elders
 - Indigenous groups
 - LGBTQ+
 - Physically limited people
 - Children, women, and the voices that are often not the loudest
3. Embrace the values of humanizing history and its interpretation to seek greater personal meaning and relevance for audience members
4. Enhance collection and its interpretation through relationships with community to preserve materials related to greater equity and inclusion-tell stories even when there is nothing tangible left (e.g., artifacts, buildings, etc.) to include the whole story
5. Develop collaborative role with local institutions to enhance delivery of mission
 - Other historical organizations
 - Non-historical organizations with affiliated missions
 - Possibly completely novel collaborations
6. Maintain professional standards, ethics, and best practices and preserve, and care for, information, preservation, and collection in the public trust
7. Consider leadership role and reflection of community and its needs
8. Consider issues of use/abuse of generative AI
9. Incorporate/embrace values in planning and implementation of mission

The Post-pandemic Workplace

CATEGORY: [MUSEUM MAGAZINE](#)

Posted on [Jan 13, 2023](#)

This article originally appeared in Museum magazine's January/February 2023 issue, a benefit of AAM [membership](#).

How can museums build the workforce they need while creating better, more equitable labor practices?

[This is not complicated. If you can't afford to pay your employees a living wage, you do not have a viable business model.](#)

—Robert Reich

As the world shut down in 2020, unemployment soared to its highest rate since the government started keeping records in 1948. Labor participation crashed to a 50-year low as people left the workforce to care for family and protect themselves and their loved ones. Many of those still working were stressed, fearful, angry, and feeling burnt out.

By summer 2022, worker disengagement and discontent were at an all-time high: 60 percent of employees reported they were emotionally detached at work, and nearly one-fifth were outright miserable. Economist Anthony Klotz coined the term “The Great Resignation” to describe the record number of workers leaving their jobs in this time of trauma—4.3 million in August 2021 alone. Long term, this labor shortage may be exacerbated by the massive effects of long COVID, which potentially affects 31 million working-age Americans.

Given all of this, how can museums attract and retain the workforce they need while building better, more equitable labor practices?

The Challenge

The stress and instability of recent years is causing some people to question ingrained attitudes about the primacy of work. In China and South Korea, this gave rise to the “lying flat” movement in which young people took to social media to extol the virtues of a frugal lifestyle (supported by minimal income). In Atlanta, artist and theologian Tricia Hersey founded The Nap Ministry, a reaction to burnout culture centered in Black liberation. In fall 2022, the media began writing about “quiet quitting,” which, confusingly, sometimes refers to “checking out”—doing the bare minimum required by a job—and sometimes to a healthy practice of drawing firm boundaries around work rather than striving to overachieve.

While the pandemic may have brought growing dissatisfaction about work to a head, reactions such as lying flat, “napping,” or quietly enforcing work-life boundaries reflect long-standing tensions. One might argue they are the inevitable result of increased wealth inequality, social stratification, and a drop in socioeconomic mobility. What is the point of going “over and above” at work when your salary doesn’t cover basic living expenses, much less enable you to pay down student debt? The pandemic also forced us to confront the fact that unless we provide better protection, compensation, and respect, undervalued but essential work (teaching, nursing, providing childcare) may go undone.



In 2021, Anti-Racist Design Teams guided improvements to working conditions and compensation practices at the Oakland Museum of California. Courtesy of the Oakland Museum of California

Growing resistance to the many deficiencies of the workplace and the rise in the power of labor mean that employers must compete in a tight labor market. This has led to significant changes in how businesses recruit and retain staff. To expand the pool of potential hires, some are rethinking position prerequisites, dropping degree requirements, and explicitly valuing life experience in addition to formal education. (In response to this trend, LinkedIn, a major global platform for recruitment, has introduced a “career breaks” feature to make it easier for candidates to highlight skills and experience they have acquired outside the workplace.) Other companies are looking

outside the traditional workforce for skilled workers, including the pool of 72 million people reaching retirement age, many of whom want to continue to work part-time. Entire sectors, notably technology, are capitalizing on the preference for remote work, freeing employees to live where they like.

The competition for labor has pushed up wages—by 4.6 percent in the private sector in 2021—but employers are expanding other incentives as well. In response to data that the top reason for workers quitting was lack of career development, some companies are prioritizing training and establishing mentorship programs. Some companies are helping workers repay student debt, while others are covering tuition for continuing education. In the wake of the Supreme Court's *Dobbs v. Jackson* decision, some are even offering to cover travel costs for employees who need to go out of state to seek abortions.

We are only beginning to assess significant long-term changes in work prompted by pandemic disruptions. Legislative efforts in California are seeking to cap a full (non-overtime) workweek at 32 hours (perhaps piloting future changes to the national Fair Labor Standards Act). Some companies are experimenting with the end of the five-day workweek, whether that takes the form of a three-day office week within a longer workweek or four days of work (80 percent of the traditional workweek) at 100 percent salary. These efforts may be supported by research showing that parents, based on pandemic educational experiments, overwhelmingly prefer a four-day school week as well.

There is significant consensus that one massive change driven by the pandemic—the rise of remote and hybrid work—is here to stay. Remote work tripled between 2019 and 2021—to nearly 18 percent of all workers in the US. Research suggests that in coming years from 20 percent to nearly 40 percent of jobs may be fully remote, while 15 percent may be hybrid—with a quarter of work time spent in home offices. There will doubtless be some rebound from the pandemic peak, but some sectors, notably technology, are making remote work a fundamental part of their business model, both as a way to court scarce workers and to save on the costs of expensive real estate.

The untethering of work from geography is reshaping cities across the US. Major urban cores, including New York, Boston, San Francisco, Miami, and Washington, DC, are hollowing out as companies close offices and workers relocate to areas with lower costs of living and higher qualities of life. Many formerly thriving cities are struggling to rebuild their tax base and redevelop downtowns as attractive places to live, shop, and hang out. Some small cities, including Ruston, Louisiana, and Tulsa, Oklahoma, are courting remote workers with financial incentives to relocate. One interesting side effect

of this migration might be increased political diversity in the heartland, potentially blurring the boundaries between red and blue America.

What This Means for Museums

The pandemic labor exodus struck the nonprofit sector particularly hard, and as the world reopened for business, this shortage only got worse. In the 2022 Nonprofit Industry Pulse Survey, 69 percent of nonprofits cited staffing challenges, which left social service nonprofits unable to meet acute needs created or exacerbated by the pandemic. In AAM's 2021 *National Snapshot of COVID-19 Impact on US Museums*, directors anticipated that one of the biggest disruptions in 2022 would be labor and skills shortages.



The Mychal's/ESMoA Education Internship Program introduces students with developmental disabilities to careers in arts and cultural organizations. El Segundo Museum of Art (ESMoA)

This labor shortage stems in part from the terrible toll the pandemic has taken on staff. In the past three years museum workers experienced stress and burnout paralleling that of their nonprofit and for-profit colleagues. Over 40 percent lost income, and nearly half experienced increased workload—with the heaviest burden falling on BIPOC staff and women. Stress, and burnout, may have been exacerbated by the pressure museums felt to innovate their way out of the pandemic. Research from Glassdoor shows that high levels of innovation are a good predictor of employee resignations. This is ironic, in the saddest way, as innovation is what enabled many museums to remain solvent and retain staff. The stress of working in pandemic conditions and the worker empowerment created by the tight labor market may be significant drivers of museum unionization.

Workers have formed collective bargaining units at more than two dozen museums in the past three years.

These pressures are leading many museums to think about how to create better, more supportive, and more equitable workplaces. Some practical steps build on lessons learned from diversity, equity, accessibility, and inclusion (DEAI) initiatives: committing to paid internships for a broad range of positions (thereby reducing economic barriers to entering the field) and including salaries in position descriptions (which has been shown to raise women's pay). Some museums are taking steps to significantly raise salaries, provide flexible work hours, and navigate the technical, legal, organizational, and financial complexities of supporting a widely distributed remote workforce. During the pandemic, more than 80 percent of museums allowed at least some staff to telework, and while this figure continues to drop as the world opens up, 16 percent of directors expect to increase the use of telework going forward.

Museums are also responding to a growing body of research documenting the important role of workplace culture—how workers are managed, coached, and treated—in employee engagement and satisfaction. Promoting diversity, equity, and inclusion; ensuring workers feel respected; and transparent, ethical practices can have a huge impact on satisfaction and retention. Many of these changes have been pragmatic responses to immediate needs—sustaining them in the long term will require a values-based commitment to these reforms.

As museums recover financially and rebuild their staff, some may take this opportunity to reshape their workforce. The Association of Art Museum Directors (AAMD) notes that many museums have used open positions to increase the diversity of their staff and what they were hired to do. For example, AAMD research documented a drop in museum educators in the four-year period between 2018 and 2022. Will these shifts prove to be transitory or enduring?

Museums across the country are also being affected by the demographic shifts transforming their communities. Those in cities being drained by the migration fueled by remote work face the potential loss of visitors, members, donors, staff, and financial support of cash-strapped states and municipalities. Museums in cities competing to attract remote workers can play a role in courting new residents and then welcome them into the museum's family of friends and supporters.

The pandemic inflicted terrible damage, but it also drew attention to ways that the workplace could be different and, in many ways, better—more flexible and compassionate, more skillful in the use of digital tools to support the work of staff. The lessons museums learned in the past three years may help them become more desirable

places to work for decades to come. If remote work continues to grow, as many believe it will, communities may place an even higher value on museums as cultural amenities that help them woo workers who can choose where they want to live. These are seeds of hope museums can tend as they help to build the post-pandemic world.

Museum Examples



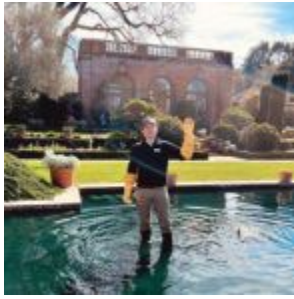
Courtesy of the Philbrook Museum of Art

The **Philbrook Museum of Art** is partnering with Tulsa Remote, a recruitment initiative that provides a wide variety of incentives for telecommuters living outside Oklahoma to relocate to Tulsa. Through private events and invitations to ongoing programs, the museum introduces these new residents to the diverse and engaging cultural activities at the museum. Many Tulsa Remote families have become members and regular visitors, and some have gone on to become higher-level members, patrons, and volunteers.



Courtesy of the S. Woodloe for Delaware Art Museum

Facing workforce challenges during the pandemic, the **Delaware Art Museum** broadened its pool of applicants by removing unnecessary requirements from job descriptions and recruiting from outside the museum sector. At the same time, the museum strove to create a “people-centered work culture” that raised morale and increased retention. This included creating policies and practices that ensure strategy and finances are clear and transparent, instituting paid family leave, raising the minimum wage, creating codes of conduct that outline the expectation of respectful behavior in detail, and building new pipelines for advancement.



Bryan Garza, courtesy of Filoli

In 2019, the rising cost of living in the San Francisco Bay Area and competition for labor caused annual staff turnover at the historic house and garden **Filoli** to soar to 50 percent. This stress, combined with the museum's goal to "attract and retain a talented team" impelled the organization to make a living wage—now nearly \$31 an hour in the Bay Area—the base pay for all positions. Supporting these higher salaries required adding an additional \$750,000 to the approximately \$9 million operating budget, paid for by increasing revenue from rental events, admissions, membership, and a new group tour program. As of 2022, Filoli's turnover rate had gone down eightfold to 8 percent.

Museums Might ...

- Evaluate how they can improve pay and benefits. Pay not only determines who can afford to work in museums, it sends a clear signal about a museum's values and priorities. Thoughtful salary benchmarking might include examining compensation data from comparable local and national museums and non-museum jobs that compete for museum labor. While benchmarking is important, decisions about compensation should also be grounded in principles of equity and fairness.
- Consider how compensation practices reflect an organization's values, particularly regarding equity, fairness, and transparency, which are core elements of workplace culture. While building the overall budget, a museum might evaluate the balance between funds allocated to producing stuff (exhibits, programs, services) and to paying the people who make that stuff. Fair wages may require less stuff, or fewer staff. A growing number of museums are explicitly setting a cap on the pay ratio between the highest and lowest paid positions. This is both more equitable and a strategy for allocating salary dollars to support the museum's needs.
- Follow the lead of organizations in the nonprofit sector that are offering flexible and hybrid work schedules or full-time remote work, prioritizing employee needs,

improving DEAI, and even cutting work hours. Such actions can help compensate for museums' competitive disadvantage in pay relative to the for-profit sector.

- Improve workplace culture—communications, mechanisms for meaningful input, sharing responsibility and power, and reducing unfair treatment at work (which is one of the biggest contributors to burnout).
- Create pathways to advancement and provide leadership training in order to keep people in the field. This is especially important in light of potential turnover in the field, accelerated by the pandemic. In a 2021 AAM survey, over half of paid staff said it was somewhat to highly unlikely they would still be working in the museum sector in three years.
- Revisit assumptions about degree requirements. A museum might broaden its pool of qualified applicants by valuing experience in addition to formal education and welcoming historically undervalued workers, including retirees, formerly incarcerated individuals, and people with disabilities.
- Evaluate how remote work might fit into the workplace, and the effect remote work policies might have on equity and inclusion. How can the museum offset the documented tendency for remote and hybrid workers to be passed over for promotions and raises? Conversely, how can it address the inequities of only some staff or some positions being eligible for remote work?
- If the museum does offer remote and hybrid work, focus on how to enhance and support internal connections. Help workers who rarely meet in person get to know each other and foster a culture of belonging and trust.
- Create support mechanisms for staff coping with long COVID. As with most accommodations, these changes may turn out to be good for all workers, improving morale, reducing turnover, and increasing productivity.
- Help communities respond to demographic shifts. Museums might help reshape former business districts into vibrant centers for residents and recreation, pitching their communities as destinations for people who can work anywhere.

Resources

The US Labor Shortage: A Plan to Tackle the Challenge, Committee for Economic Development: The Public Policy Center of the Conference Board, April 2022
Many of this report's recommendations about recruitment, hiring, and workforce development are relevant to museum operations.

ced.org/solutions-briefs/the-us-labor-shortage-a-plan-to-tackle-the-challenge

Museums Moving Forward (MMF)

MMF is a staff-driven coalition working to measure and support equity within museum workplaces. MMF recently fielded a pilot survey across 54 museums with 1,922 art museum staff sharing their perspectives that will be published in a fieldwide report in May 2023. Key topics include pay and promotion rate equity, salary transparency, and various dimensions of organizational culture in art museums.

museumsmovingforward.com

Elizabeth Merritt

Elizabeth Merritt is the Vice President for Strategic Foresight and Founding Director of the Center for the Future of Museums at the American Alliance of Museums. She studied ecology and evolution as an undergraduate at Yale and received her master's degree in cell and molecular biology from Duke University. Her museum career has included working in a children's museum as well as natural history and history museums. She is a graduate of the Getty Leadership Institute's Museum Management Program and the Foresight Certificate program at the University of Houston. Prior to starting CFM, Merritt literally wrote the book on museum standards and best practices as Director of the Alliance's accreditation and excellence programs—perfect preparation for her current role as agent provocateur. She challenges museums to question assumptions about traditional practice and experiment with new ways of doing business.

A Digital (R)evolution

CATEGORY: [MUSEUM MAGAZINE](#)

Posted on [Jan 13, 2023](#)

This article originally appeared in Museum magazine's January/February 2023 issue, a benefit of AAM [membership](#).

Has the pandemic sparked an evolutionary leap in practice?

Revolutions usually begin as replacements for older certainties, and not as pristine discoveries in uncharted terrain.

—Stephen Jay Gould, evolutionary biologist

The COVID-19 pandemic accelerated existing trends in the adoption and deployment of digital technologies in business, education, and commerce around the world. Some museums went into pandemic lockdown prepared to deploy digital survival strategies, while many others struggled to catch up.

As the world emerges from the pandemic, we may find that the stress of the past three years has accelerated digital adoption to the point where it constitutes an evolutionary leap in practice. Digital competence, in this new era, is not merely nice but necessary, a fact that may induce more museums to approach digital as a pragmatic investment in sustainable operations. However, improving an organization's digital literacy isn't as simple as creating a new job title or even a department. Skillfully navigating digital opportunities requires a human infrastructure of vision and skills integrated throughout the organization. How can museums navigate the transition from proto-digital to digital proficiency and embark on a continual process of adaptation?

The Challenge

Sometimes a disruptive event can transform the world by magnifying the importance of what already exists. In the past 20 years, digital technologies reshaped the world with bewildering speed, transforming how people engage with entertainment, shopping, education, work, and socializing.

The pandemic turbocharged that pace of change. Almost half of consumers increased their use of digital channels to interact with businesses (and most expect to sustain that use), use of messaging apps doubled, and engagement via video increased 300 percent. Companies

met this demand by accelerating their own digital transformation, increasing the amount they spent on digital and speeding improvements to their digital communications strategy. Use of telehealth platforms has stabilized at a level 38 times higher than the pre-COVID baseline. A combination of state and federal funding channeled \$1.3 billion to support K–12 online learning, with an additional \$388 million devoted to closing the “digital divide” that disadvantages less wealthy school districts. The pandemic even sparked the revival of QR codes, turning a technology once disparaged in the US as “niche” into a ubiquitous tool.

These digital adaptations are reshaping the nature of how and where people work. In a recent Gallup poll, 94 percent of employees who can do their work remotely expressed their preference for remote or hybrid work, and many employers are willing to comply. But many jobs still have to be done in person, and pandemic labor shortages prompted many retailers to replace checkout staff with self-service kiosks, waitstaff with ordering apps, and inventory stockers with robots. The World Monetary Fund reports that 43 percent of global companies intend to reduce their workforces through automation.

The reliance on digital technology for business increases the importance of digital literacy, but globally 76 percent of workers feel they are unequipped to operate in a digital-first world, and less than a third are actively involved in digital skills learning and training. This skills gap may, in turn, exacerbate existing inequalities in income and employment.

What This Means for Museums

In the future, the museum sector may look back on the first two decades of the 21st century as a golden era of digital experimentation. Cutting-edge digital labs were hotbeds of experimentation and playful innovation. Digital was hailed as the perfect medium for generously sharing content and cultivating input from and dialog with audiences. Foundations poured millions of dollars into the digitization of collections images and documentation, often in the absence of a specific vision of how those assets would be used.

By 2020, there were signs that the enthusiasm about digital innovation for the sake of innovation was beginning to wane. In the early digital era, several US museums founded digital labs (for example, the Met MediaLab and Carnegie Museums of Pittsburgh’s The Studio) to conduct ambitious experiments with new technologies. But perhaps because they were often positioned as amenities, not essential components of museum operations, many of these labs had been sidelined or closed by the beginning of the new decade. Some of the most respected digital innovators left the sector when their influence and autonomy failed to make up for the pay they sacrificed to work in museums.

The museum sector has always been cautious about adopting new practices and technologies, preferring, on the whole, to let others go first and see what works. But during the financial disruptions of COVID, digital practices were often essential in museum survival, plugging gaping holes left by the disruption of place-based operations. Tools that some

regarded as edgy or experimental (for example, online ticketing, variable pricing, contact-free payment systems, and touch-free interactives) went mainstream due to necessity. The pandemic may prove to be the inflection point between an era of experimentation and one of pragmatism in which digital strategy is seen as an essential component of museum operations.



Videos filmed by staff at the William Root House bring life and humor to the interactive touchscreens that guide visitors through the site. Courtesy of Cobb Landmarks & Historical Society, Inc.

The past three years turned into a vast, unplanned experiment in testing audience appetite for engaging with museums via digital pathways. Research from *Culture + Community in a Time of Crisis* showed that in early 2020 a significant chunk of the audience using museums' digital offerings (between 32 and 67 percent, depending on the type of museum) had not used similar place-based offerings in the year preceding pandemic lockdowns. Data (through September 2021) from IMPACTS Experience showed even more people engaging with cultural organizations online as the pandemic continued.

For the most part, museums figured out how to meet this demand. AASLH's 2022 *National Visitation Report* found that over the course of the pandemic, the portion of history organizations offering virtual programming rose almost four-fold, to 40 percent—and more than 80 percent at large institutions. During the past three years, many museums found that digital programs reached more people and attracted a wider range of participants, demographically and geographically, than the place-based programs they replaced. And while it remains challenging to build an income stream around digital programs (in the face of so much free content on the web), the ROI for digital programs that do charge is often exponentially better than for physical ones.

In addition to increased demand for digital engagement, society increasingly needs the benefits digital resources can provide, particularly to support student learning, as kids

struggle to make up lost ground and address stress, anxiety, and isolation. Museums have traditionally met these needs with place-based experiences, but research is beginning to show that online engagement can be meaningful and beneficial as well. Just three minutes of viewing art online can alleviate loneliness and anxiety and improve mood and well-being, comparable to the effect of visiting a museum in real life, and evidence suggests that longer engagements offer greater benefits. In one study, people over the age of 65 who attended weekly 45-minute virtual museum-guided tours for three months significantly increased their well-being.

Catapulted by pandemic disruptions into the digital future, many museums are now assessing whether and how to sustain or expand their investment in digital going forward. These decisions may be driven, in part, by changes in user expectations and behavior. Can museums convert their new virtual audience into in-person visitors, or will many users continue to prefer digital experiences?

Many schools have become hooked on the relative simplicity, lower costs, and wider options afforded by remote field trips. Might this increase the number of students museums serve as teachers and schools realize they can access meaningful experiences without expending the time, and bus money, to schlep to the museum? Will that in turn reduce the yearly tide of class visits to the galleries as more students make use of museums' digital resources?

Conversely, might we see a growing advantage of place-based experiences as people become fatigued by the ever-growing amount of time they spend online? Children's screen time went up during the pandemic — a disturbing trend given the copious research documenting the link between screen time, anxiety, and depression in children and adolescents. Might parents place an even higher value on physical museum visits, with minimal digital overlay, as an antidote to these concerns?

Many museums will need to significantly invest in planning, infrastructure, and training to take advantage of digital opportunities. The sector as a whole went into the pandemic digitally underequipped. In 2019, only one-quarter of museums had a digital strategy, either separate from or incorporated into the strategic plan. Hopefully, museums will use what they learned from ad hoc digital experiments during the pandemic to create formal strategies going forward. Many, still experiencing significant financial challenges, may assess how data collection and business analytics can help them reduce costs and improve the bottom line.

Working out the long-term ROI on digital strategies is complicated. Museums often take advantage of the massively expensive infrastructure (Facebook, Instagram, TikTok, YouTube) created by commercial companies but then are at the mercy of mergers, acquisitions, and policy changes that can sever connections to the audience they have cultivated on those platforms. How might museums buffer themselves against these risks?

Museums that intend to maintain and grow digital audiences may have to figure out how to monetize this engagement, either directly through fees, purchases, or subscriptions or indirectly through cultivating members and donors. Weighing the practical outcomes of digital investments will be challenging, but museum leaders who do so may create a more sustainable approach to digital.

Calibrating Screen Time in the Museum

By Ann Fortescue, President and Executive Director, International Museum of Art & Science, McAllen, Texas

Even before the pandemic-induced shift to virtual instruction, meetings, and socialization, there was concern, particularly among parents and pediatricians, that children were spending too much time looking at screens. Data on the developmental and behavioral effects of too much screen time for children is in tension with perspectives that “not all screens are bad.”

All agree that children need interaction with adults for screen time to be valuable to their development. Anecdotal evidence: I recently met with two moms bemoaning their children’s challenges with in-person socialization. One’s teen live chats and games with friends, each in their own home, and the other’s middle-schooler struggles to make friends because everyone is on their phone. Both agreed that human interaction is either missing, remote, or hard to initiate in their children’s lives.

At the International Museum of Art & Science (IMAS), we are responding to these current (and likely long-term) concerns by intentionally using a variety of media (digital and analog) to create interactive museum experiences for more than two people to do together, or do side-by-side in the same area. As we plan new exhibits, we’re asking for multiples of the same activity so families and friends can interact. We’re also intentionally including cooperative experiences to encourage sharing, even among strangers—recognizing a smile or thumbs up can provide that non-verbal moment of human connection. In our more traditional art galleries, we’re learning from peers, like the Columbus Museum of Art, and including reflection stations for visitors to interact with one another through words and drawings.

We aren’t anti-screen at IMAS; in fact, one of our signature exhibits is NOAA’s *Science on a Sphere*—a room-sized, digital display. However, we are paying more attention to how screen time may be impacting our visitors and what kinds of interactions may be missing or significantly reduced so we can provide museum experiences to make up for that deficit and support our community’s value of raising well-rounded individuals.

Museums Might ...

- Create a digital strategy that establishes a vision and goals for how “digital” in a broad sense can contribute to the work of the museum. To support this strategy, bring a

digital lens to bear on the whole organization, integrating digital resources and goals into all departments.

- Invest in content creation in tandem with developing digital channels. The success of online programming, social media, and digitally mediated place-based experiences rests on the quality of the materials they present.
- Audit current digital assets and assess whether and how they contribute to the museum's operations and strategy. Evaluate the long-term costs of maintaining digital assets, budget for those costs, and ensure there is alignment between the museum's investments in these assets and plans to support those expenses.
- Evaluate the preferences and appetite of current and potential audiences for online participation, the potential for the museum to reach a broader segment of the public locally and internationally, and the business plan for serving these audiences.
- Identify how digital can contribute materially to financial stability through direct income for products and services, behind the scenes by optimizing operations, or by enhancing staff productivity.
- Create a staff development plan for digital literacy that evaluates needs and identifies and supports training. This involves not only building skills but (to quote ACMI Director Seb Chan) "fostering a digital imagination that can invent more creative practices, and build more diverse audiences in the future."

Museum Examples



Courtesy of Cobb Landmarks & Historical Society

Before the pandemic, the **William Root House** in Marietta, Georgia, began testing the use of touchscreens to provide a self-directed visitor experience in lieu of volunteer-led tours. Now the organization has switched the entire site (five structures plus historic gardens) to digitally enabled, self-guided tours. Through the digital content, including videos, the museum brought historic rooms to life, ensured the quality of interpretation around sensitive topics such as slavery, and experimented with content geared at younger visitors. This digital focus positions the museum for future growth while ensuring the campus can operate with just a single staff member if necessary.



Courtesy of Old Salem Museums & Gardens and Black Country Living

Museum

Old Salem Museums & Gardens in Winston-Salem, North Carolina, and the **Black Country Living Museum** in Dudley, England, turned to TikTok during the pandemic to engage new audiences while traditional, on-site interpretation was closed, using the platform to inspire critical thinking and constructive dialogue. Despite the challenges of producing content (including research into what's trending on the platform, filming and editing high-quality videos, and managing the public comments and reactions), the museums found that their TikTok presence enhanced visitor experience, not only online but also on-site. At both museums, visitors often say that they decided to visit because of the institution's TikTok presence.



Pre-COVID, visitors to **Space Center Houston** stood in line for the tram to visit the NASA Johnson Space Center. When it reopened after an initial pandemic closure, staff developed a virtual queue system to facilitate physical distancing. In the process, they discovered that not only did this solution provide a safer way for visitors to wait to board, but it also positively affected the length and quality of their stay. They were now free to roam the exhibits while waiting their turn rather than spending a portion of their visit waiting in line.

Resources

Digital Readiness and Innovation in Museums, Knight Foundation, 2020.

The Knight Foundation commissioned this report to provide a fuller understanding of digital readiness and innovation maturity in the museum sector. The report includes data from 480 museums of all sizes, including art museums, historic institutions and sites, science museums,

and others.

knightfoundation.org/reports/digital-readiness-and-innovation-in-museums/

Elizabeth Merritt

Elizabeth Merritt is the Vice President for Strategic Foresight and Founding Director of the Center for the Future of Museums at the American Alliance of Museums. She studied ecology and evolution as an undergraduate at Yale and received her master's degree in cell and molecular biology from Duke University. Her museum career has included working in a children's museum as well as natural history and history museums. She is a graduate of the Getty Leadership Institute's Museum Management Program and the Foresight Certificate program at the University of Houston. Prior to starting CFM, Merritt literally wrote the book on museum standards and best practices as Director of the Alliance's accreditation and excellence programs—perfect preparation for her current role as agent provocateur. She challenges museums to question assumptions about traditional practice and experiment with new ways of doing business.



An Introduction to Museum Accountability

Katherine R. Groninger, PhD

The Museum Scholar, Volume 1, Number 1 (2016)

Abstract This article provides a broad overview of the current state of accountability in the British and American museum sectors by defining terminology, exploring the *public trust*, and contextualizing accountability.

Keywords Museum accountability; third sector; public trust

About the Author Dr. Katherine Groninger specializes in ethical standards and fiscal transparency in UK and US museums. She completed her doctorate on museum accountability at the University of St Andrews, Scotland, and holds degrees in art history from Princeton University and in arts administration from New York University. Kate has spoken at international museum conferences, published in museum journals and books, and worked in the US museum industry, most recently at the Art Institute of Chicago, the Detroit Institute of Arts, and the Solomon R. Guggenheim Museum.

Introduction

Museums are complex organizations maintained on behalf of the public trust. Reliant on funding and community support to thrive, museums must be accountable for financial and ethical decisions to help secure that public trust. To demonstrate compliance with expected standards, institutions are compelled to report and explain their actions. Museum accountability requires institutions to establish an internal structure whereby decisions are made, while being held externally to account for those decisions. Continuous internal and external assessment links a museum's values to its conduct. Achieving accountability requires inculcating ethical codes and establishing

controls throughout the museum. This paper examines the current state of nonprofit museum accountability in the United Kingdom and United States, including methods of achieving fiscal and ethical accountability and the factors that have influenced museum codes and policies to that end. The focus of sound museum governance practice now includes negotiating conflicts of interest, financial mismanagement, and ethical breaches of accountability. These concerns have developed as the museum community has steadily emerged as a professionalized industry.

Two broad, complex sectors dominate the social and economic landscape in the UK and US: the corporate (private) and government (public) sectors. The *third sector* consists of organizations working outside the market and the state, yet draw methods and ideas from both sectors. US third sector organizations are delineated by law, while Britain's framework is more flexible, not based in tax law or common law. Encompassing US nonprofit and UK charity organizations, the third sector is less conceptually understood when compared with the private and public sectors (Salamon and Anheier 1999). Notably, even the terminology associated with the third sector can be misleading. The words *charitable*, *voluntary*, *tax exempt*, and *nonprofit* are misnomers since donated monetary gifts are needed for solvency, volunteers are professionalized, taxes are dependent upon national or regional tax systems, and nonprofits must have income to remain in business. Museums operate in the public domain, and are not directly subject to the market or the state. They do not act for the benefit of private individuals, but for communities at large. They also differ from private trusts that exist for specific beneficiaries. Museums, then, conduct their operations *on behalf of* the public, and maintain their collections *in legacy for* the public to provide a public benefit. To do so, museums rely upon knowledgeable individuals to resolve the complex tasks associated with executing museum functions.

An institution's *governing body* holds ultimate responsibility for all ethical, financial and policy decisions guiding the institution, regardless of the governing body's legal status or official title. Governing bodies take the form of management councils, committees, boards of directors, local councils, boards of trustees, and university trustees, among other governance models. *Governance*, then, refers to board oversight of museum efficacy through policy, strategic goals, ethical directives, and organizational transparency that comply with legal and discretionary regulations (Stone and Ostrower 2007). *Transparency* is a formalized process that balances the public's right to detailed information about an organization with the organization's right to

privacy concerning its dealings. Transparency involves periodically disclosing accurate financial, structural, and ethical information that follows strict, complex guidelines and adheres to approved accounting and auditing standards. Filing accurate financial reports, disclosing governance and policy decisions, demonstrating museum-specific accountability through “best practice” procedures, and other internal controls are factors of museum communication that demonstrate professionalism and affect the public trust in UK and US museums.



The public trust

The *public trust* has a “narrow, legal definition” stating that organizations are held in trust for the public good, and a “broader concept[ual]” definition that encompasses the notion of trust as one of “stewardship and public confidence” in an organization. (MacDonald 1992, 63). The right to solicit tax exempt gifts, the grants, and the tax benefits that the government extends to nonprofits and charities oblige these institutions to answer to the public for the funds received. These are monies that would have benefited the public in other ways, so the use of public funds must be accounted for in a public manner. The law represents the public, yet public expectations and the public trust are vague concepts for the law to regulate. Specific breaches in the

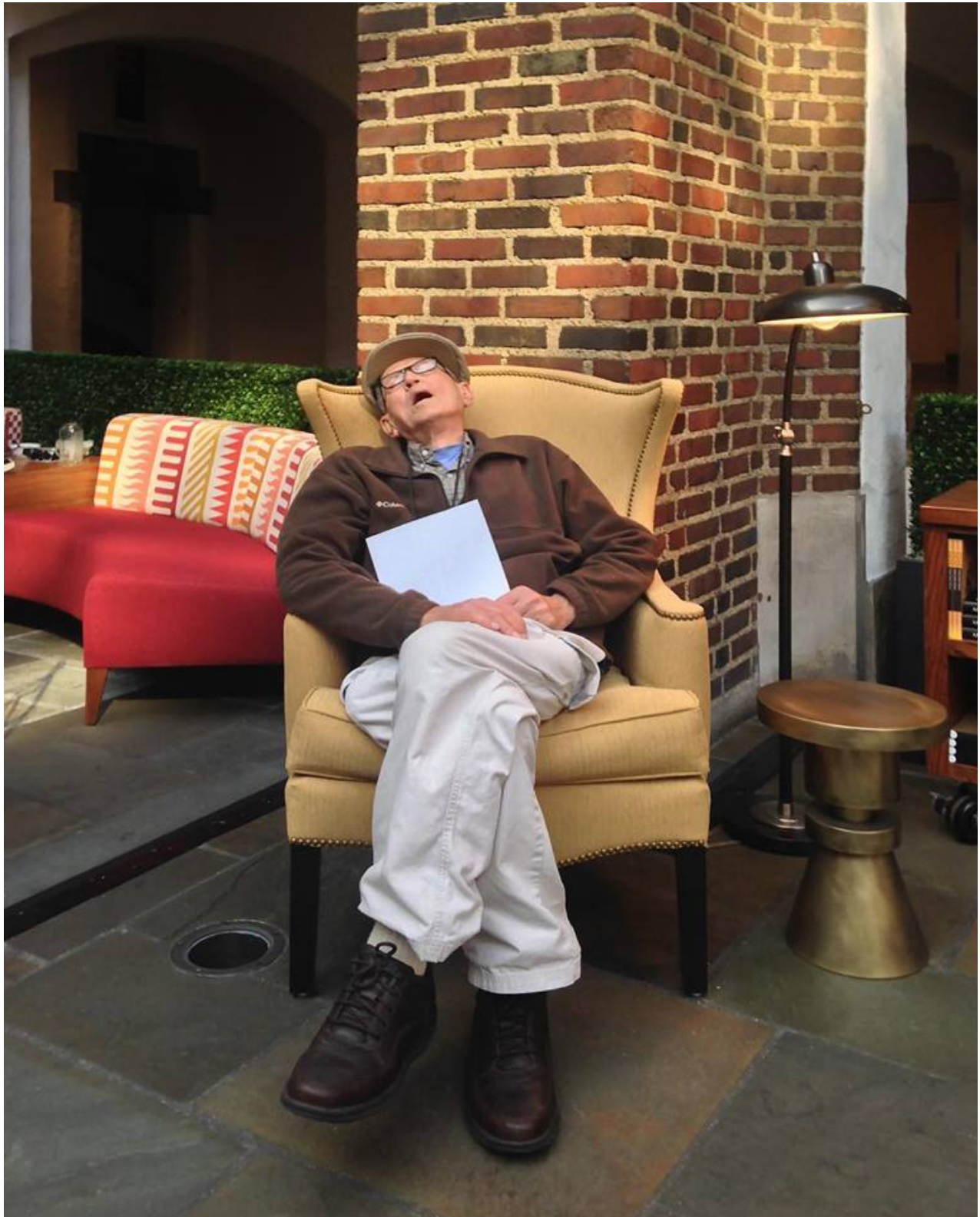
public trust, like fraud and embezzlement, are outlawed, but the public trust encompasses “extralegal” duties that individuals and organizations must fulfill in “an implicit obligation to the public one serves.” (Jos 1993, 364) UK charities were traditionally little regulated, but are now closely linked with government goals. This shift occurred as charities began providing services to meet social needs. In the United States, public and private sector reporting developed during the 1920s-1930s and is entwined with events surrounding the 1929 stock market crash (Lee 2004).

Organizations can “succeed or fail on the notion of trust.”

Organizations can “succeed or fail on the notion of trust.” (Sheppey and McGill 2007, 245) Trustworthiness is predicated on complying with expectations, regulations, and codes of ethics. The public expectation of accountability affects the public perception of an organization. This perception is based in part on the public disclosure of accurate documentation including financial statements. Donors presume the accuracy of financial statements and the adherence to basic policies. Financial statements and policies “are the most public indicators of the state of a company” and the most transparent method for establishing the public trust. (Sheppey and McGill 2007, 79) Institutions that do not comply with established standards can face the perception of distrust and mismanagement, which will deflate an organization’s reputation. As the public trust in an organization increases, the public support of the organization will rise. If a museum’s reputation falters, individual, corporate, institutional, and government donations will evaporate. If standard ethical policies and financial procedures are not in place, it will be challenging for museums to convince grant-making bodies for financial support. The public trust in museums refers to more than the governance and financial aspects

discussed in this paper. “To serve in a museum is to serve an ethos of responsible action toward both its collected objects and gathered human beings.” (Carr 2001, 29) To engender the public trust, museums must also engage in “active principles of fairness, multiple approaches to knowledge, and attention to the reflective trust of learners.” (Carr 2001, 79)

Overall, this paper conceptualizes museum governance and accountability as preventative risk management tools. Museums have been affected by misconduct that occurred in the private, public, and third sectors, and as a result must comply with legislation, government-led recommendations, and expanded stakeholder expectations. Applying principles to museum governance developed from accountability concerns in the private, public, and third sectors, museums are posited as hybrid organizations with elements common to corporate and state entities.



Contextualizing accountability

Governance accountability and transparency are molded by historical factors, driven by social and economic environments. From an institutional perspective (Bielefeld 1992), museums are a product of national cultures,

events, legislation, and internal museum dynamics (Billis and Harris 1996). Scrutinizing museums from historical, legal, economic, and museum-based points of view demonstrates how those external forces have affected museum accountability. Both internal and external factors are examined to acquire the most comprehensive perspective of organizational change (Leavy and Wilson 1994). Deakin (2001) finds analyses of nonprofit organizations are incomplete if the researcher only focuses on third sector attitudes and activities. Both the public and private sectors have helped define third sector expectations (Deakin 2001), and the third sector should heed “the lessons of other sectors, if they are to manage ... emerging [governance] complexities creatively.” (Sandell and Janes 2007b, 3) Because the third sector is less well understood than the private and public sectors, it is vulnerable to impractical management solutions imposed by corporate and government entities (Malaro, 1994). It is essential for museums, functioning as trusted institutions in ever more competitive environments, to continue to form a credible industry within the third sector.

Examining museums through the lens of recent sociopolitical influences enables this sector to position itself within broader interdisciplinary contexts. The accountability standards of other industries can be used to ascertain the relative accountability of museums. Methods to achieve accountability in the private and public sectors can be adapted and implemented in museums of all types and sizes. The museum sector can learn from private and public sector experiences to utilize best practices that benefit the museum. Best practice policies exist to maintain an organization’s standards and to propel the organization forward securely. There is value in best practice methods because stakeholders outside the museum industry understand and respond positively to their implementation, as best practices have been demonstrated to protect diverse institutions from financial malfeasance and ethical breaches.

Museum accountability in the UK

The definition of third sector accountability has been under debate since the 1980s, though public accountability is based upon stakeholder expectations (Rentschler and Potter 1996). Managing the perception of accountability and transparency is equally important to the considerations associated with actually executing organizational accountability. Traditionally, accountability indicated that financial statements demonstrated no unusual, inaccurate, or inappropriate transactions, accounting fully for museum finances (Weil, 2007).

As the third sector and museums morph due to external expectations, accountability is coming to encompass an organization's ethics, efficiency, and effectiveness (Swords). In her 2002 keynote address to the INTERCOM Leadership in Museums conference, former director of the Scottish Museums Council Jane Ryder recommended "remov[ing] the legal distinction between profit and not for profit organizations, accepting that they are both operating to produce a return on capital and to account to stakeholders." (Ryder 2002, Lecture) While the missions of nonprofit institutions form the core of strategic decision making, nonprofits are no less accountable for their decisions and actions than are corporate bodies.

UK museums face public accountability expectations established by central government bodies, local authority councils, grant-making philanthropic groups, the museum community itself, and by individual museums' internal requirements and expectations. By the 1990s, public accountability was a concern amongst UK museums: "Museums have become public property, arousing the interest of the public at large. The question of who should run museums, and how, has moved 'from the professional domain to the public stage' (Cossons 1991b: 186)." (McLean 1997, 31) Twenty years later, public accountability continues to be at the forefront of museum governance and administrative concerns. Governance is no longer only a museum concern, "but is a social and cultural concept." (Ryder 2002, lecture) Now, accountability addresses more than fiscal transparency. Museum operations, museum-specific policy ethics and internal controls, and concerns like conflict of interest and whistleblower protections are under scrutiny. UK funding bodies, including central and local government, also assess programming or operational performance indicators. This paper does not address that type of museum accountability. Value for donated funds, however, is relevant to this study in as much as those funds are properly administered through financial controls that attempt to thwart fraudulent practices.

Comprised entirely of volunteer non-executive board members, UK museum boards differ from their for-profit counterparts that include both non-executive and executive directors. As the board is responsible for governance and plays a large role in the organization's management via executive directors, the corporate structure could be applicable to the museum sector, which has demonstrated trouble balancing executive and non-executive duties. Museum board members occasionally disregard the Museums Association *Code of Ethics* in their decision-making, a practice with which museum professionals find fault. With board representation, museum

professionals and managers could better guide and help non-executive board members who are not trained in specific nuances or requirements associated with running a museum. Similarly, the private sector has considered limiting the number of non-executive board members permitted to serve due to the position's demands and responsibilities. "It may well be time to apply this same principle to [museum board] public appointments on the basis that the risks and the obligations are equally demanding and arguably carry even greater responsibility in the accountability for public expenditure." (Ryder 2002, lecture) While the board's duty is to shape museum policy within legal and ethical frameworks, board members may lack the professional training or knowledge of sector-wide standards required to do so appropriately. This may be problematic given that "the range of issues and pressures confronting museums in the twenty-first century is equal to that of any sector of organized life." (Sandell and Janes 2007, 1)

As UK museum finances face pressures, museum boards are challenged to demonstrate their fiscal accountability and to verify that resources are utilized for the public good. Yet meeting these objectives can betray standard museum practices and ethics. In some instances, local authorities have sold objects from museum collections to cover costs not approved by the Museums Association. Yet even museum sector professionals "who think their institutions might not bear comparisons [with other museums] or meet standards easily, or do not care if they do, might be even less [interested to meet standards]". (Ames 1991, 59) This finding could have important implications for museum oversight bodies that aspire to raise standards in all museums.

Financial controls are now generally accepted norms across the UK museum sector, as "the fiduciary duty of trustees and the outward accountability of museums require the demonstration of sound business practice ... and 'cocoa-tin accounting' [is] no longer acceptable because museums, whether they like it or not, are 'in business'." (Defries 1991, 76) Accountability standards, however, are imposed on UK museums by numerous sources, including diverse funding bodies. These funders have varied requirements and many request proof of internal control standards before donating grant monies. In so doing, "[t]hese bodies dictate policy, and individual museums react accordingly to obtain grants and to obtain status as a museum." (McLean 1997, 31) Due to funders' varied policy requirements, the challenge for acquiring one-time government grants, and the differences in accountability each funder demands, Janes (2009) recommends forming a

centralized museum consortium fund to distribute grants for which “[a]ccountability would be essential, but so would a wide tolerance for mistakes and failures [for meeting grant goals]”. (Janes 2009, 69) Assessing the value of this type of program would require significant public and government scrutiny.

Current state of museum accountability

Despite oversight regulations, recommended ethics and accountability policies, and museum standards, neither the UK nor the US has a unified sector based upon internal administrative policies or ethical patterns relating to public accountability. In many cases, British and American museums do not conform to sector-wide standards. Groninger (2011) demonstrates specific gaps prevalent in museum governance, including internal control implementation and conflict of interest management. These gaps highlight the range of accountability concerns that affect the museum sector, including the low percentage of UK museums with codes of ethics, and the few US museums with whistleblower protection policies. While varied oversight bodies and the museum sector itself have established rules for governance consistency across the disparate museum types, a distinction remains between having standard policies in place and the act of actually fulfilling those standards.

Accountability concerns in the UK reveal themselves to fall primarily within the realm of professional ethics, while US accountability wrongdoing stems from monetary concerns like fraud and embezzlement (Groninger, 2011). Research results further demonstrate that numerous museum professionals do not understand terminology like governance, best practice, or conflict of interest. Many individuals who were queried, particularly those in volunteer-run or small museums as defined by budget, do not understand or recognize the applicability of codes, policies, and ethics to the museum sector or to the museum with which they were associated. These challenges, however, offer a significant insight: many individuals working as museum administrators or board members know little about their accountability duties (Groninger 2011).

Individuals critical of museum change or unaware of accountability measures are as vocal as museum professionals eager to implement contemporary governance ideas. Ethical codes and standard practices threaten many museum employees and volunteers who find little relevance in museum accountability. Data also suggest that though numerous accountability policy

Accountability concerns in the UK reveal themselves to fall primarily within the realm of professional ethics, while US accountability wrongdoing stems from monetary concerns like fraud and embezzlement.

recommendations exist for UK museums, there has been little direction to guide the actual implementation of accountability practices (Groninger, 2011).

Summary

Museums do not exist in a vacuum and the recent development of museum accountability is complex. Couched in corporate culture, government influence, and public expectations, museum governance is an interdisciplinary concern. Yet museum professionalization, including codes of ethics, conflict of interest management, and agreed-upon standards within the museum industry, has received little attention from researchers. An analysis of UK and US museum accountability reveals inadequacies in the museum accountability systems in both Britain and America (Groninger 2011). Case studies demonstrate that opportunities for financial and ethical misconduct remain that directly damage the public trust in museums, and recent controversies exemplify that organizations with accountability fissures can face challenging scenarios. Transparency failings in museums have harmed museum reputations and capacity to fundraise. Accountability is an urgent need that can minimize financial strife, aiding a museum's viability and solvency. Assessing how and why the museum sector is currently governed can point to the locus of museum accountability failings, the first step to improving museum governance, ethics, and accountability.

This paper advocates that museums fulfill their responsibility to demonstrate accountability and transparency. Continuity has yet to exist, however, across the diverse sector in either Britain or America. The range of accountability policies, codes and standards that *have* been implemented have not destroyed museum traditions. Rather, these policies fit unobtrusively within the bounds of daily museum management, serving the public trust and liberating museums from numerous risk management concerns. Museums not only look to the past, they also seek to improve their futures. To do so, museums must become increasingly accountable, fulfilling the public trust.

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**THE
Museum SCHOLAR**



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THE MUSEUMS + AI NETWORK

AI: A Museum Planning Toolkit

Dr Oonagh Murphy
Dr Elena Villaespesa

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Authored by:
Dr Oonagh Murphy, Goldsmiths, University of London
Dr Elena Villaespesa, Pratt Institute

Additional contributions by:
Luba Elliott, Ariana French, Jennie Choi, Casey Scott-Songin



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INTRODUCTION

The Museums + AI Network was formed in 2019 by Dr Oonagh Murphy, Goldsmiths, University of London and Dr Elena Villaespesa, School of Information, Pratt Institute. The network was funded through the AHRC Research Networking Scheme and so far has brought together 50 leading academics and museum professionals to critically examine current practice, challenges, and near future Artificial Intelligence (AI) technologies in both the United Kingdom and United States. The network has also engaged with more than 200 members of the public through events at Cooper Hewitt, Smithsonian Design Museum (New York) and The Barbican Centre (London).

Through these conversations, workshops, and public events we challenged current practice, engaged with wider critical technology discourse and iteratively developed a series of worksheets with professionals from 15 museums, and 6 universities in both countries. We also engaged with policy makers and funders as a means to situate these development tools within a wider cultural policy context.

This toolkit distils some of these conversations, flags areas for critical engagement, and serves as a practical starting point for museum professionals who are interested in working with technologies that fit within the broad field of Artificial Intelligence. The aim of this toolkit is to support non specialists to better understand the possibilities of these technologies, and empower a wide range of museum professionals to develop - strategically, ethically, and operationally robust project plans.

While developing this toolkit we have been approached by museums who would like support in understanding the possibilities of AI, clarification on key terms and an overview of the key things to consider when thinking about AI. This toolkit seeks to begin to answer those queries. It is designed to start a conversation. Conscious of the fast moving nature of this field we decided against the inclusion of a definitive how to guide, but instead sought to provide space for critical reflection, and in some ways we offer more questions than solutions.

themuseumsai.network

THINKING ABOUT AI

When considering using AI technologies, museums need to think about the potential benefits and challenges such technologies present. This list frames some areas for consideration, however each museum exists within a unique context, and as such this list is intended as a jumping off point, from which to explore projects and partnerships with your wider team before a project has been fully costed, or funding sought for implementation:

Why AI?

The conversation around AI is often over simplified, with many technologies that fall within this conversation falling far short of having sentient intelligence, instead what we see is advanced algorithmic decision making. As such it is important to not only understand the technology you intend to use, but also what data it will require (as input) and what data it will generate as output. As with most 'new technologies' it can be appealing to engage with world leading companies, and become innovators of museum practice. However as previous trends from Apps to 3D printing have shown us, the best technology provides solutions to questions or challenges faced by a museum, rather than existing as an additional layer to a museums core mission. Technology used well helps to further your mission.

Just because it's legal doesn't mean it's ethical

Regulation in the UK and US around technology is somewhat lacking, and as such many technology solutions from facial recognition to algorithmic decision making are legal, but ethically questionable. Museums, as social purpose institutions must reflect upon their professional standards, alongside the law when it comes to developing and implementing AI technologies. Professional standards when it comes to digital practice in museums are perhaps best described as interdisciplinary with many of those working in digital departments coming from computing

backgrounds, rather than museology. As such, engaging with a wide range of professional standards can help to inform nuanced practice that aligns to the mission and values of your museum.

Relevant codes of practice include:

- Museums Association - Code of Ethics for Museums (UK)
- American Alliance of Museums - Code of Ethics for Museums (US)
- Chartered Institute for Archaeologists - Professional Practice Paper: An Introduction to Professional Ethics (UK and International)
- International Council of Museums - Code of Ethics for Museums (International)
- Association for Computer Machinery - Code of Ethics and Professional Conduct (International)

Off the shelf tools

A number of AI tools can be used for free, or cheaply (often through a freemium model), these range from IBM Watson a natural language processing tool that allows you to analyse vast amounts of text based data, such as visitor feedback, quickly and cheaply. Or, machine vision tools such as Google Cloud Vision API, or Microsoft Azure which allow you to create metadata tags for images, something that can be useful when it comes to managing vast digitised collections. These 'off the shelf' tools are likely to become more sophisticated in the coming years, and as such more commonly used. However in order for museums to engage with such technologies in a manner that aligns with their mission, they need to be conscious of quality assurance and bias management.

Quality Assurance Process

- Human Augmentation

When using any computational decision making tool it is important to have human quality assurance processes in place. Exploring what this process may

look like, will help you to reflect upon the data created through AI tools, and how that data will be used internally, but also externally. Will the data be visitor facing? What are the implications of creating visitor facing data?

Bias management

Machines much like museums are inherently biased, as such whilst machine learning tools may provide valuable metadata for your online collection it could also create bias squared (museum bias x machine bias). As such understanding the training data used to teach the machine, and the algorithms used to make decisions are crucial to ensure the integrity of any application of these technologies within museums.

Brandwashing

Technology companies are keen to work with museums, particularly large museums with strong national and international brands. This can provide museums with access to cutting edge technology, custom built solutions (which can be much more effective than off the shelf tools), and support in kind from technology professionals. However, museums need to think about such partnerships in the same way that they do fundraising. What are the ethical implications of brand affiliation with a specific tech company? How does that relationship align with the mission of the museum? What are the potential unintended consequences of such a partnership?

Critical Technology Discourse

While some issues raised in this toolkit may sound problematic, these technologies are increasingly being used in wider society. Museums have an opportunity to critically engage with these technologies and the impact they have, by being open and accountable about what technologies they are using, and through public programs and contemporary collecting to develop visitor literacy around AI

and Machine Learning Technologies. The Photographers Gallery in London has a strong critical technology discourse theme across much of its public programming, while the V&A has begun to collect AI technologies and associated art, such Anatomy of an AI System, by Kate Crawford and Vladan Joler (2018). The link between what happens in the digital team, public programs, and collecting could become more reflective and engaged through organisation wide transparency, dialogue and development.

AMERICAN MUSEUM OF NATURAL HISTORY (US)

Founded in 1869, the American Museum of Natural History (AMNH) is the largest natural history museum in the world. The museum is located on the Upper West Side in New York City, and welcomes tourists visiting the city, along with local residents, educators, researchers, and school groups. The museum hosts approximately 5 million visitors annually.

Visitor surveys and comments analysis

The AMNH is reviewed by visitors on a range of different online platforms during and after their visit to the museum, one of the challenges for the museum is analysing these reviews in a timely and cost effective manner. The museum emails a survey two days after a visit (using the contact details provided when the visitor was purchasing an admission ticket). The survey asks a quantitative question 'How likely are you to recommend the American Museum of Natural History?' and visitors are invited to select a numerical value between 1 and 10. The data created in response to this question is straightforward to analyse on mass, however, the follow up question which generates a qualitative response is more challenging: "What is the most important reason for your score?" As a cost-effective way to explore if NLP could provide new insights into visitor feedback, AMNH decided to use an off the shelf Natural Language Processing (NLP) and sentiment analysis service created by a commercial vendor.

IBM Watson is a platform that allows users to identify and analyse a range of concepts, categories, relationships, emotion and sentiment within vast quantities of qualitative data. Its NLP suite of services can be used to generate sentiment analysis reporting on a specific subset of words, or entities. For example,

AMNH used commonly mentioned words in NPS survey comments to more closely examine the sentiment associated with those words.

The above sentiment and entity analysis is a proof of concept, developed with six months of NPS survey comments data. The free tier of IBM Watson's sentiment analysis service was used to analyze these entities and associated sentiment scores.

Google Cloud and TripAdvisor

Google's Cloud Natural Language Processing API provides a similar service to the IBM Watson NLP sentiment services, which AMNH used to analyze reviews shared on the TripAdvisor platform. Tens of thousands of reviews were used as input data to Google's service, and sentiment analysis scores and popular named entities were included in the service output.

A general sentiment score, ranging from -1 (very negative) to +1 (very positive) was generated for the top 7 museums (by attendance) in the USA. With a score of 0.5, the National Air and Space Museum and the Natural Gallery of Art scored highest, followed by museums with a score of 0.4: American Museum of Natural History, the Metropolitan Museum of Art, National Museum of American History, National Museum of Natural History, and 9/11 Memorial Museum. Additionally, AMNH used Google's NLP service to extract the most popular named entities within TripAdvisor reviews to gain insights into what visitors mentioned most frequently within reviews.

Potential challenges

Whilst AI provides a valuable starting point when it comes to engaging with large amounts of qualitative data, providing appropriate context and

interpretation is still the job of humans. Those working in museums and with visitors can provide a valuable layer of analysis that can add to the validity and operational insights provided by these commercial services.

What can we learn from this case study?

An off the shelf cloud service such as IBM Watson or Google Cloud Natural Language Processing can be a cost-effective way to analyse large amounts of qualitative data and extract focused insights on visitor sentiment and aspects of the visitor experience.

Useful links

<http://www.ibm.com/watson/>

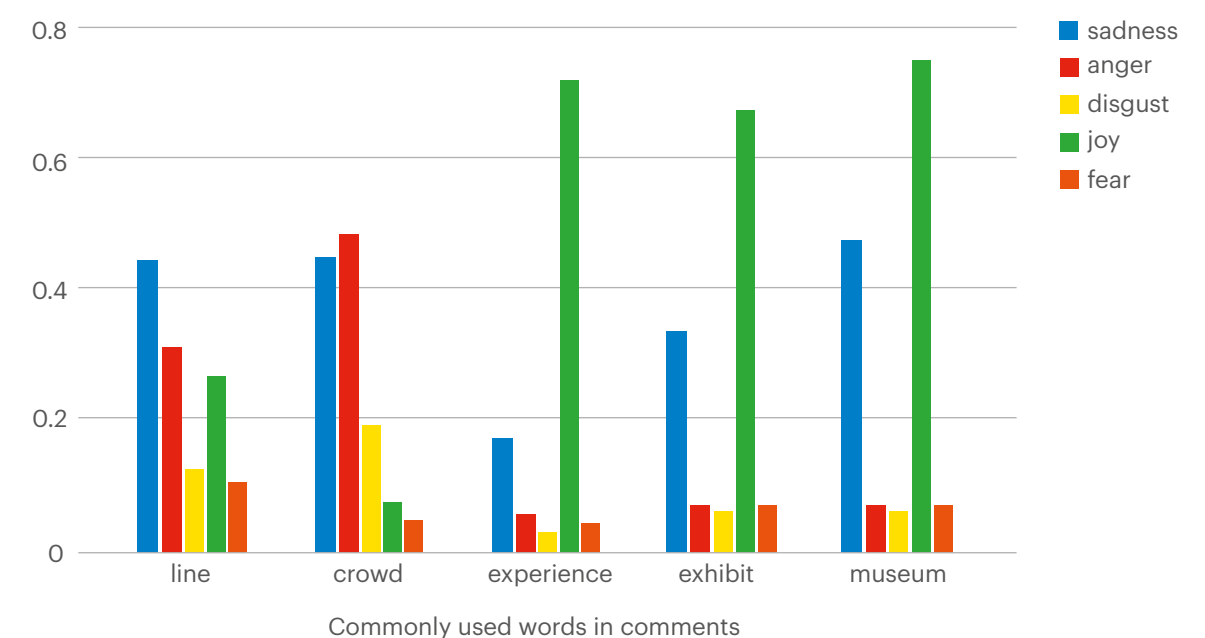
<http://cloud.google.com/natural-language/>

<http://medium.com/@CuriousThirst/on-artificial-intelligence-museums-and-feelings-598b7ba8beb6>

Artificial intelligence featured in this case study: Natural Language Processing (NLP)

Below: This chart shows the insights provided IBM Watson

Sentiment analysis of NPS survey comments (sample)



THE NATIONAL GALLERY (UK)

The National Gallery, London was founded in 1824 and today boasts a collection of over 2,300 paintings, including some of the most important works from the 1300's to 1900. The museum is free to enter, and many galleries are free to visit. One area of the museum does command an entrance fee, namely, temporary exhibitions. The museum has a dynamic temporary exhibition programme which brings together works from its own collection and the finest examples of painting from other leading collections. In 2018, the gallery had 5.7 million visitors, of which 8% attended temporary exhibitions.

Machine learning, forecasting models and visitor data

One of the challenges for The National Gallery is predicting the capacity required by potential demand for temporary exhibitions. This includes the physical capacity of an exhibition space (how many people can comfortably fit within a gallery? And if an exhibition is likely to be popular, is the allocated gallery space enough?), but also resource capacity (how many tickets will be sold for a specific exhibition? what time slots and days will be busy or quiet? and, what type of people will visit the exhibition?) The answers to these questions can help the museum to create a more enjoyable visitor experience and more financially viable exhibition prospect for the museum.

The Data and Insights team at the National Gallery have been developing custom built predictive models as a means to answer some of these questions. These include forecasting potential attendance about 12-18 months before an exhibition opens; and once an exhibition has been open for 3 weeks a daily forecast for overall attendance as well as paid tickets (excluding membership and comp visits)

After initial investigation, it was found that using the following factors as variables allowed a reliable forecasting model to be created:

- Whether an exhibition is thematic or monographic
- Movement and period of the art
- Page views of the artist's Wikipedia page
- The likelihood of the UK public to visit a paid exhibition by this artist (from commissioned YouGov survey)
- Length of exhibition
- Marketing spend on an exhibition
- Visit date (for daily forecast) or time of year (for total attendance forecast)
- Distance through the exhibition's run and sales period (for daily forecast)
- Day of the week (daily forecast)

The forecasting models use training data from over twenty years of exhibition history (less for daily models) and are created using gradient boosted tree based methods. The results are then integrated into an analytics dashboard that provides a detailed picture of ticket sales, attendance patterns, and revenue generation that is available for any employee to access.

Predictive analytics as a provocation

The forecast is then used as a provocation to a range of departments from curatorial to marketing; it becomes a way of reflecting on if the current plans will deliver the intended results. Because the model is trained on historical data from exhibitions with similar artists or themes, it predicts how an exhibition might perform with certain audiences if similar tactics are planned for future exhibitions. These insights are utilised after an exhibition has been commissioned (and as such

have no input into the content of the temporary exhibition programme), but instead are introduced at the exhibition planning stage. Such data can influence ticket prices, exhibition location, exhibition calendar, exhibition run time, and marketing activities. If the data shows that the exhibition is not likely to appeal to a specific market then they can design marketing activities that will help peak interest within the target market. In the future such insights may also be used to influence staffing patterns for exhibitions, or create dynamic ticket pricing to prevent peak times and quiet times and ensure a more consistent visitor experience. The ultimate aim of this activity is to increase the quality of visitor experience (and as such drive repeat visits) and sculpt new audiences by targeting marketing messages to specific groups.

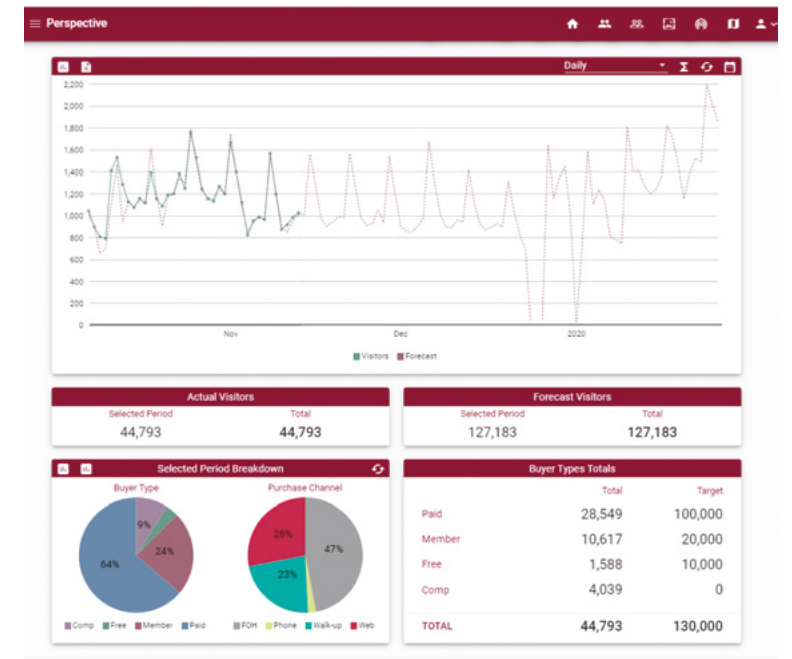
Potential challenges

The insights provided by data must be viewed within the wider mission of the museum as an institution. Whilst busy exhibitions is one metric of a successful exhibition, scholarship, critical thinking and dialogue between cultures and art form are also central to the work of The National Gallery, and as such visitor experience and revenue form only one part of a complex operating context.

What can we learn from this case study?

Quick implementation is possible: the team were able to develop initial working models within a few months, and with access to over ten years of exhibition data, they are able to continually develop their models to be increasingly accurate.

Further, the visibility of such models led other departments within the organisation to find their own uses for forecast data. This has led to success in buy-in and implementation across the Gallery and some Gallery staff have even reported that they feel empowered



Above: Screenshot of the predictive analytics dashboard used by the National Gallery

by the ability to use forecasting data to make data-informed decisions.

Forecasting can serve as a useful provocation to encourage changing organisational behaviours, it provides data driven insights to strategic decision making processes that can ultimately create more successful exhibitions (even when we consider a wide range of success metrics from those defined by curators, to those defined by visitors through to funders).

Artificial intelligence featured in this case study: Machine Learning

THE METROPOLITAN MUSEUM OF ART (US)

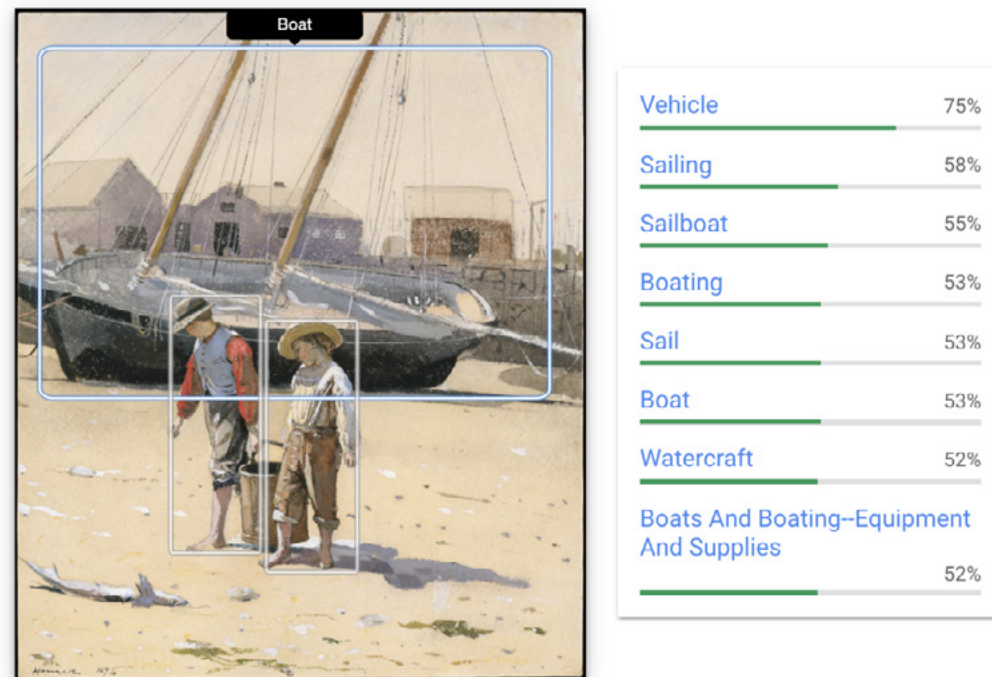
The Metropolitan Museum of Art opened for the first time to the public at its current site on Fifth Avenue and 82nd Street (New York) in 1880. It expanded to The Met Cloister in 1938 and The Met Breuer in 2016. The museum hosts approximately 7 million visitors annually. The museum currently contains more than 450,000 digitized records—and is growing in number with each passing week. Major collections belonging to the museum include American paintings and sculpture, European paintings, Egyptian art, arms and armor, the art of Africa, Oceania, and the Americas, ancient Near Eastern art, Asian art, costume, drawings and prints, European sculpture and decorative arts, Greek and Roman art, Islamic art, medieval art, modern and contemporary art, musical instruments, photographs, and the Robert Lehman Collection.

Providing access to the Collection

With such a large and diverse collection, an ongoing challenge faced by staff at The Met is developing new ways to document, and interpret the museum's collection in a way that will allow it to become searchable and browsable

online. Many objects that have been digitised have very little information to support them, which means that whilst a digital image may exist, a lack of metadata or keywords prevent a user from being able to discover these items through search. The museum is working on the generation of tags manually and testing with computer vision. The goals of tagging the museum collection are to increase user engagement, improve search and discovery of the collection, make the collection accessible to the widest possible audience and explore using tags as training data for AI models.

The museum has manually tagged 233,000 objects from the collection working with an outside vendor. There are 1000 unique tags that were added using a single judgment. Moreover, the museum has engaged with different communities including Wikimedia, Kaggle, MIT and others to develop potential usages of this tagging work. The museum has also tested the usage of various computer vision technologies including Google Vision and Microsoft Azure to generate tags automatically.



Above: Screenshot of what the machine saw when it looked at a painting from the collection

Potential challenges

There are significant challenges in the process of developing tags both manually or automatically with computer vision. The first challenge is imperfect training data which produces issues around subjectivity of the tags added, completeness of all the potential objects and items to be tagged, accuracy and relevance. There is not enough data within the collection itself to train the algorithm, as this normally requires thousands of records. In the case of the Met, more than half of the tags have less than 1000 occurrences, as such working with vendors and off the shelf systems has been crucial for this work to develop.

Another significant challenge is the implementation of the tags both into the collection management system and on the website user interface. Developer resources are needed to bring these keywords to the users so they can be searchable and clickable on the online collection.

What can we learn from this case study?

AI has a lot of potential for making art more accessible to the public. Computer vision has come a long way and continues to improve making the enormous task of tagging museum collections a relatively simple process. However, museum collections are inherently biased and there are no right answers for tagging art. Therefore, museums need to offer a way of signifying the user that the tags have been generated by a machine with all the implications that this process brings. While museum datasets are not complete enough to train algorithms potentially museums could work together to produce an algorithm that could be applied in the sector. There is also an opportunity for museums to partner with the data science community to create machine learning models based on smaller datasets specifically for art objects.

Useful links

<http://www.metmuseum.org/blogs/now-at-the-met/2019/met-microsoft-mit-exploring-art-open-access-ai-whats-next>

<http://www.metmuseum.org/blogs/now-at-the-met/2019/wikipedia-art-and-ai>

<http://www.metmuseum.org/blogs/now-at-the-met/2019/artificial-intelligence-machine-learning-art-authorship>

<http://cloud.google.com/blog/products/gcp/when-art-meets-big-data-analyzing-200000-items-from-the-met-collection-in-bigquery>

Artificial intelligence featured in this case study: Machine Vision

AI CAPABILITIES FRAMEWORK

An AI project requires resources and skills to gather, train and implement the data results. The goal of this worksheet is to discuss each of the following aspects of the capabilities needed to undertake this AI initiative.

Data

- What is the data that will be used for this AI initiative?
- How should the museum be prepared in terms of data infrastructure and governance?
- Is there an ethics committee in place at the museum to assess and oversee the compliance of this project?

Tools

- What are the AI methods and tools that would be employed?
- Would the museum use any external tools from technology companies?
- Are there open-source tools available for this AI project?

Resources

- What are the required resources? (Human, Financial, External Collaborations, Technological)
- What is the project legacy? What is the technical debt that needs to be considered?

Skills

- What are the skills museum staff need to work on this project?

Organization

- Which museum departments need to be involved?
- What is the ideal workflow and process to implement this AI initiative?
- Is the museum's organizational culture ready for this initiative?

Stakeholders

- What internal and external stakeholders would be invested in this project?
- How do you manage and communicate with the stakeholders?
- How do you foster early concept buy-in?

Project title	Project aim
Data 	Tools 
Resources 	Skills 
Organization 	Stakeholders 

AI ETHICS WORKFLOW

AI brings a set of ethical implications and algorithm biases in each step of the initiative life cycle. The goal of this worksheet is to map the potential ethical issues and challenges that arise in each of the phases of an AI initiative from the data collection to the training, application and evaluation of the results.

Here are some questions to guide your discussions:

Data input: Collection & clean up

- Is there bias already in the original dataset? What data is not represented?
- What is the process to clean up the data?
- Has informed consent been gathered for this data?
Is there any personal information?
- What are the museum processes to store and keep this data secure?
Does the museum comply with the legal data privacy requirements?

Data training

- Do museum collections serve as valid training datasets?
- Is there enough data? What data is missing?
- Can we train a machine to see like a curator? What are the benefits and drawbacks of using machines?

Testing/Model development

- What are the potential biases that these algorithms originate?
- What are the ethical implications of using third-party AI platforms to develop our model?
- Is there transparency in the model development process or is it a 'black box'?

Application

- How will the 'black box' alter curatorial practice?
- What are the intended and unintended consequences of the application of this model?

Data output

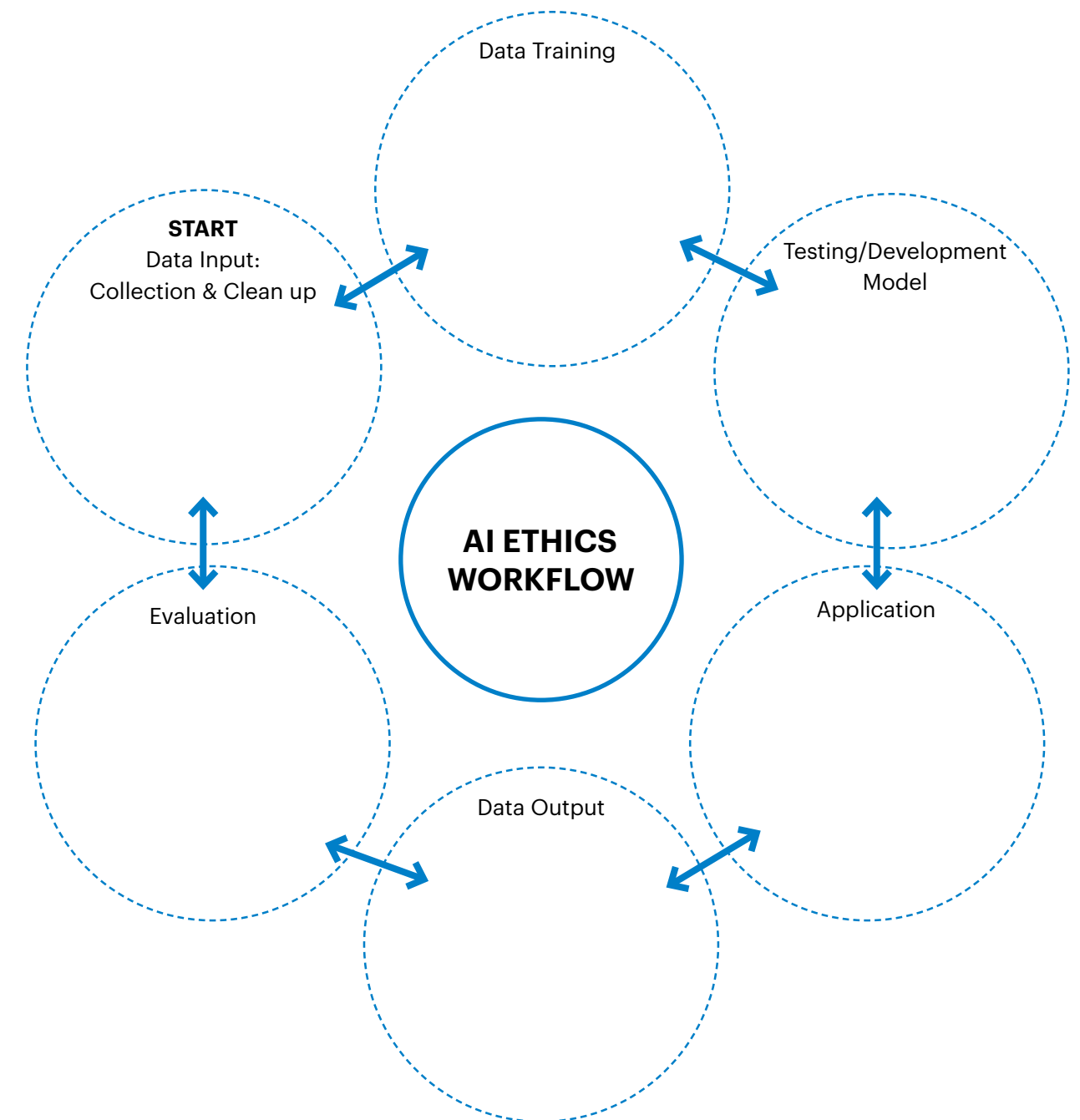
- Is there a potential bias in the data output?
- Can the process be documented and explained to users?
- What are the legacy and future applications of this data?

Evaluation

- How does the museum evaluate the success of this AI initiative?
- What is the impact on the visitor experience?
- How does this work enhance and expand the collection data?
- How do the results of this project comply with the code of ethics of the different museum associations?

Project title

Project goals



STAKEHOLDERS MANAGEMENT

AI projects involve many different partners, and it can be useful to map these partners or stakeholders at the project development stage. The goal of this worksheet is to think about everyone involved, interested and influential for your project. We suggest listing each person on an individual post-it note.

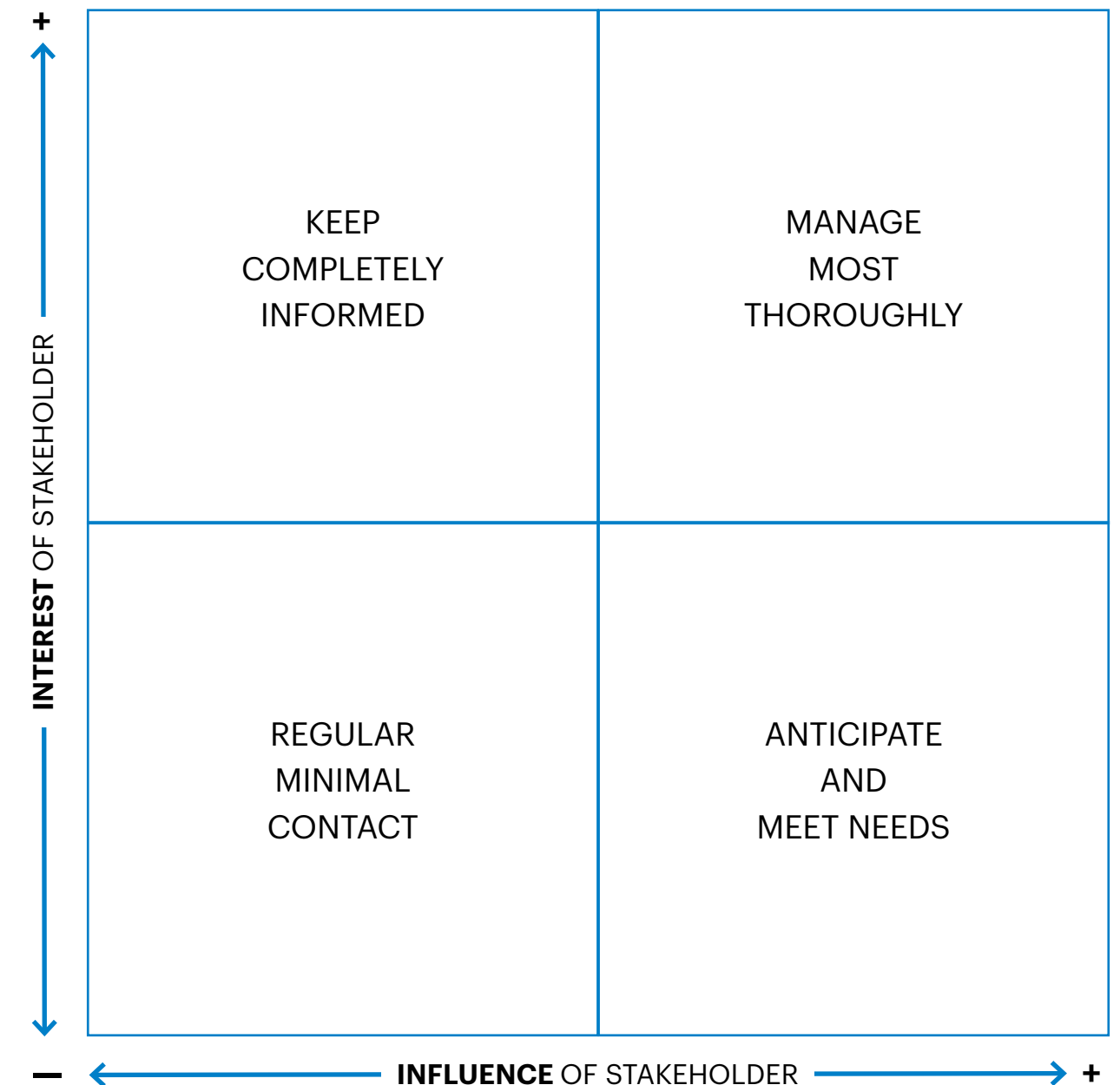
Criteria:

- Who will benefit from this AI initiative?
- Which internal stakeholders will need to support and contribute to the initiative in order to implement it? Are there any specific areas of resistance within the museum?
- Who owns and manages the data that will be used?
- Who in the museum leadership would need to know about this AI initiative?
- Are there any external stakeholders that will participate in this project or where conflict of interest may appear?
- Who would you need to involve to ensure data privacy and ethical practices for this AI initiative?

When you have listed all stakeholders, as a group discuss where they sit within the stakeholder mapping grid, and from there think about when and how you will communicate with each stakeholder.

STAKEHOLDERS MAP: WHO NEEDS WHAT?

Project Title:



Adapted from Mendelow (1991)

GLOSSARY

Algorithm

An algorithm is a series of step by step instructions on how to perform a specific task. In computer science, different types of algorithms are used to recognise objects, translate between languages, recommend products and generate text. In many cases, multiple algorithms are combined to execute some of the more complex tasks. Algorithms are now being used in justice settings to determine prison sentences, and in financial contexts to create mortgage and insurance policies tailored to individuals based on their data footprint.

Algorithmic bias

Algorithmic bias refers to systematic errors in a computer system that create unfair outcomes, for example privileging one group of users over another. Bias can arise due to a number of factors, such as algorithm design, unintended applications or the way data is collected, coded, selected or used to train the algorithm. Impacts of algorithmic bias range from privacy violations to the amplification of social biases of gender, race, ethnicity and sexuality, which can lead to systematic and unfair discrimination in a wide variety of situations including prison sentencing, mortgage approval rates and healthcare premium calculations. In a museum context, algorithmic bias can manifest itself through inherent biases in museum collections, datasets and computer software applied to collection research and public engagement. An example of an art project highlighting bias in datasets is Kate Crawford and Trevor Paglen's ImageNet Roulette, which classifies a user's photo according to the popular ImageNet dataset. The resulting classification frequently gives unexpected and problematic results, particularly when used by people from Asia and Africa – groups which may have been underrepresented or labelled unfavourably in the original dataset.

Black box

A black box model is a system whose internal mechanisms are unknown. In machine learning, “black box” refers to a model which cannot be understood from its parameters: data goes in and decisions come out, however the process between input and output is unclear. This is particularly the case for neural network models, where input data can go through many transformations in the multiple layers of the neural network or where complex models can behave in unpredictable ways. The black box nature of many machine learning models is problematic because of their widespread application, giving rise to cases where individuals may be offered higher insurance premiums or denied mortgages based on the decision of the algorithm, which then cannot be explained. In the past couple of years, there have been increased efforts to develop more interpretable machine learning models, where the algorithms provide some justification or explanation for their decisions.

Chatbot

A chatbot is a computer program that is designed to mimic a human interaction in a text based conversation. These can be a useful tool for engaging with visitors on social media when a museum is closed, for example a Facebook Messenger Chatbot can answer simple questions about opening times, ticket prices and parking. Chatbots struggle with complex questions, and, for them to be effective a user needs to ask short, direct, factual questions. Chatbots can provide operational information - for example the Anne Frank House museum uses a chatbot to answer common visitor questions about visiting, but they can also be creative, for example the Field Museum created a chatbot with a sassy personality for the Maximo, their newly installed T-Rex exhibit.

Deep learning

Deep Learning is a subset of machine learning algorithms based on neural networks that use numerous layers, with each layer providing an interpretation of the data it feeds on. The multiple layers are used to progressively extract higher level features from the input data. To give an example from image processing, lower layers may be responsible for detecting edges, while higher layers determine concepts more understandable to a human such as faces, letters or digits. In recent years, deep learning has gained popularity given the huge amounts of data available online from social media, digitalisation efforts and online browsing as well as the availability of increased computation power through GPUs. An example application in a museum context is the use of deep neural networks for indexing the 800 million digital assets at the World Holocaust Remembrance Center in Jerusalem, with the aim of categorising its digital history for researchers and reaching a younger generation.

GAN (Generative Adversarial Networks)

A generative adversarial network consists of two neural networks: a generator and a discriminator. A generator creates images based on a dataset and a discriminator determines whether the generated image is real (i.e. it exists in the original dataset) or fake (i.e. generated). The interplay between the two networks enables the generator to create increasingly high-quality images that fool the discriminator. Most systems commonly used nowadays to generate images are a type of GAN. Examples of GAN-based projects includes Gen Studio, a collaboration between MIT, Microsoft and The Met. This project consists of images created using a GAN trained on artworks from The Met's Open Access collection. The generated images enable you to explore and visualise possible artworks between selected pieces from the collections. For example,

you can see what an object between a vase and a goblet could look like.

Machine Vision

Machine vision refers to technologies that extract insight from visual input such as images and videos. It looks at individual pixels and the features that are derived from them, seeking patterns in their variations. They include object and facial recognition.

These techniques can be used to find similarities between works across museum collections – examples range from Google's X Degrees of Separation, a project that links two objects through a series of other artworks, to Cooper Hewitt, Smithsonian Design Museum's website, where visitors can explore collections by colour, to Tate's IK Prize Winner 2016 Recognition, a project that matches contemporary photojournalism to art from the Tate's collection. Moreover, it could be used to analyse visitor responses to an exhibition by using facial recognition to analyse the gallery video feed.

Machine learning

Machine Learning refers to algorithms that learn to generalise from data, observations and interactions with the world, all without being explicitly programmed. This then allows the algorithms to make a prediction about something in the world, or to generate new, data based on what they have seen. Machine learning is frequently used as an umbrella term to describe a variety of algorithms including neural networks and deep learning. In a museum context, it is frequently applied together or as part of machine vision or natural language processing techniques. at National Norwegian Museum is an example of this. Here, machine learning technologies were applied to museum collections in order to give visitors easier access through better metadata and explorative interfaces. Generative machine learning technologies can be

used for interactive installations such as the Dali Lives project from the Dali Museum in Florida, where visitors are greeted by a deepfake (i.e. AI-generated lookalike) of Salvador Dali and can interact and engage with him on various screens throughout their visit.

Natural language processing

Natural language processing (NLP) deals with the interaction between computers and human (natural languages). The main objectives are to read, decipher, understand and generate human languages. Nowadays, most NLP techniques rely on machine learning. Applications of NLP include categorising content, analysing sentiments, translation, converting voice into written text and vice versa. In museum fields, NLP can be used to analyse posts from social media or ratings from tourist websites. An example is the inclusion of two virtual educators, Ada and Grace, at the Museum of Science in Boston, who answered visitor questions, suggested exhibits and explained the technology that made them work – including natural language processing.

Neural networks

Neural networks refer to a type of machine learning algorithm loosely inspired by how neural networks work in the human brain, particularly in terms of processing data and recognising patterns. Neural networks are made up of individual units connected via weights, which are then adjusted as the network is trained. The terms neural networks and deep learning are frequently used interchangeably nowadays, although there are some differences, the main one being the increased number of layers between input and output (hence the “deep”). Neural networks underpin a variety of applications in a museum context, such as being used to generate romantic landscapes in the National Norwegian Museum.

Predictive analytics

Predictive analytics is a branch of data analytics used to make predictions about unknown future events based on historical data. Predictive analytics uses a variety of techniques from data mining, modelling, statistics and machine learning to generate future insights based on data analysis. From a dataset of museum visitors, predictive analytics systems can estimate visitor numbers for an exhibition on a particular future date or assess the likelihood of membership renewal for certain customer groups. For example, National Museum of African American History and Culture used predictive analytics to research attrition, using data collected from e-tickets to predict demand and piloting Walk-Up Wednesdays to test no-pass entry.

Robots

Robots are machines that conduct mechanical, routine tasks automatically. Different types of robots are applied in industry, for grasping and moving objects in preparation for delivery for example. In a museum context, we normally deal with humanoid robots, which resemble human beings and are able to replicate certain functions and movements. Paris’ Musée du quai Branly incorporated Berenson, a robotic art critic made to record people’s reactions to artworks and then develop its own taste. The Smithsonian included the humanoid robot Pepper in the National Museum of African American History and Culture, where it is designed to deal with visitor queries and to tell stories using gesture, voice and an interactive touch screen. Meanwhile, the Van Abbemuseum offers a robot for anyone who cannot visit because of physical disability. These visitors can experience the museum from their own home by controlling the robot and guiding it through the museum themselves.

Supervised learning

Supervised learning is a type of machine learning that learns patterns

entirely from a training dataset, where the data is labelled correctly with the right answer. Based on these patterns, it can predict answers in new data sets by reviewing them. For supervised learning, large labelled datasets are crucial to enable them to effectively generate output data. Incorrect or noisy data labels will reduce the effectiveness of the model. In a museum context, applications of supervised learning include predicting exhibition attendance or automating outreach for donors who may not be planning to renew.

Training Dataset

Datasets are one of the key pillars of machine learning. In supervised learning, a training dataset is a set of examples used to shape the model to ensure that it fits the data and is able to predict future outcomes correctly. The training dataset consists of pairs of input-output examples (e.g. a drawing of cat as input and a photograph of a cat as output), which teach the model how to map the inputs to correct outcomes. Given its importance in fitting a machine learning model, it is crucial to have training datasets which are as representative as possible for the future application of the model, as any incomplete or wrongly labelled data will be amplified further down the line as the trained model is applied on unseen data. To give an example in a museum context, if we are looking to make accurate predictions of cafeteria usage, we would need to make sure that the system is trained on multi-seasonal data. If cafeteria usage is highly seasonal and we only trained the system on the last two months, then it will only know about the current season and will provide less accurate predictions as the seasons change.

Unsupervised learning

Unsupervised learning is a type of machine/deep learning that finds structure where none is defined. It examines data and identifies patterns within it without guidance. It can be applied to find clusters of similar

data, find anomalous data points that look different from everything else. For example in a museum context, unsupervised learning could be used to analyse a dataset of museum visitors and identify clusters of weekends with high visitation (e.g. because of school holidays or certain exhibitions).

Sentiment Analysis

Sentiment analysis is the contextual mining of text which identifies, extracts, quantifies and studies subjective information and affective states in source material. It can be used to determine the overall attitude of a group – positive or negative – towards a product, organisation or topic. For example, this can help museums understand the social sentiment around an exhibition or artwork from online conversations on social media. The British Museum applied sentiment analysis to two years of TripAdvisor reviews to gain insights from visitor reviews on how visitors experienced the various aspects of a museum eg. exhibition, tours, facilities.

Object recognition

Object recognition is a general term to describe a set of computer vision techniques for identifying objects in images or videos. These techniques are used for deciding how to classify objects in an image, for identifying the locations of objects within an image or for both tasks. Object recognition includes a variety of possible applications in the museum field, from uses in research and collection management to identification of artworks and visitor engagement through interactive apps. An example of this is the Headhunt! App from the National Portrait Gallery in Australia, where kids can take pictures of the portrait artworks with an iPad and then access interactive learning experiences. Another example is Google Arts & Culture app Art Selfie, which asked users to take a selfie and then, using facial recognition, found the closest matching portrait artwork.

PROJECT LINKS

Gen Studio

<https://gen.studio/>

Google's X Degrees of Separation:

<https://artsexperiments.withgoogle.com/xdegrees/>

Cooper Hewitt, Smithsonian Design Museum:

<https://collection.cooperhewitt.org/>

Tate's IK Prize Winner 2016 Recognition:

<https://www.tate.org.uk/whats-on/tate-britain/exhibition/ik-prize-2016-recognition>

Anne Frank House

<https://www.annefrank.org/en/about-us/news-and-press/news/2017/3/21/anne-frank-house-launches-bot-messenger/>

Field Museum

<https://www.fieldmuseum.org/exhibitions/maximo-titanosaur>

National Museum of African American History and Culture

<https://www.slideshare.net/MuseWeb/mw18-presentation-big-data-analytics-in-museum-operations> (p11-17)

Musée du quai Branly

<https://www.widewalls.ch/berenson-the-robot-vidal-gaussier/>

The Smithsonian

<https://www.si.edu/visit/pepper>

Van AbbeMuseum

<https://vanabbemuseum.nl/en/mediation/inclusion/museum-visit-with-robot/>

National Portrait Gallery, Australia

<https://catchoom.com/case-studies/headhunt-app-turns-a-museum-visit-into-an-interactive-experience-with-image-recognition/?cn-reloaded=1>

The British Museum

<https://medium.com/mcnx-london/invisible-insights-learning-from-trip-advisor-reviews-b5c825fa4409>

ImageNet Roulette

<https://www.excavating.ai/>

Google Arts & Culture, Art Selfie:

<https://artsandculture.google.com/camera/selfie>

Dali museum

<https://thedali.org/exhibit/dali-lives/>

Principal Components

<https://bengler.no/principalcomponents>

World Holocaust Remembrance Center:

<https://blogs.nvidia.com/blog/2019/05/06/yad-vashem-holocaust-museum-ai-dgx-1/>

Museum of Science:

<http://ict.usc.edu/prototypes/museum-guides/>

All project weblinks active when accessed January 2020

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Network Research Assistants

Dimitra Gkitsa, Goldsmiths, University of London
Seth Crider, School of Information, Pratt Institute

Core Network Members

Andrew Lih, Wikimedia Strategist, The Metropolitan Museum of Art
Ariana French, Director of Digital Technology, American Museum of Natural History
Carolyn Royston, Chief Experience Officer, Cooper Hewitt, Smithsonian Design Museum
Casey Scott-Songin, Senior Manager: Data & Insight, The National Gallery, London
Dan Brennan, Museum Application Developer, Princeton University Art Museum
Dr Juhee Park, Data Research Fellow, Victoria and Albert Museum Research Institute (VARI)
Dr Mia Ridge, Digital Curator for Western Heritage Collections, The British Library
Harrison Pim, Data Scientist, Wellcome Collection
Jamie Unwin, Collections Technical Architect, Science Museum Group
Jennie Choi, General Manager of Collection Information, The Metropolitan Museum of Art
John Stack, Digital Director, Science Museum Group
Lawrence Chiles, Head of Digital Services, The National Gallery, London
Rachel Ginsberg, Cooper Hewitt, Smithsonian Design Museum

London Participants

Ben Vickers, Chief Technology Officer, Serpentine Galleries
Dr Fiona Johnstone, Research Associate, Centre for Interdisciplinary Methodologies, Warwick University, People Like You
Dr Giles Bergel, Digital Humanities Research Fellow, Seebibyte, Faculty of Engineering, University of Oxford
Dr Sophie Frost, Research Assistant, One by One, University of Leicester
Hannah Barton, Digital Project Manager, Tate
Joe Padfield, Conservation Scientist, The National Gallery, London
John Davies, Economic Research Fellow, Creative Economy and Data Analytics, Nesta
Lisa Ollerhead, Head of Museums Policy, Department of Digital, Culture, Media & Sport
Meriel Royal, User Experience Researcher, The National Gallery, London

Natalie Kane, Curator of Digital Design, Victoria & Albert Museum
Nicolas Malevé, PhD Researcher, Centre for the Study of the Networked Image, London South Bank University

Philo Van Kemenade, Co-founder and Head Curator, Sensorium Festival

Professor Victoria Alexander, Institute for Creative and Cultural Entrepreneurship, Goldsmiths, University of London

Rachel Coldicutt, CEO, Doteveryone

Tom Cunningham, Data Analyst, The National Gallery, London

Tonya Nelson, Director of Arts Technology and Innovation, Arts Council England

Victoria Ivanova, PhD Researcher, Centre for the Study of the Networked Image, London South Bank University

Vishal Kumar, Futurecity Associate, Spatial Data Science and Visualisation, Centre for Advanced Spatial Analysis The Bartlett, University College London

New York Participants

Achim Koh, Visiting Assistant Professor, Pratt Institute

Adam Quinn, Digital Product Manager, Cooper Hewitt, Smithsonian Design Museum

Dr Anthony Cocciolo, Dean, School of Information, Pratt Institute

Dr Chris Sula, Associate Professor, Pratt Institute

Dr Craig MacDonald, Director, Center for Digital Experiences, Associate Professor, Pratt Institute

Effie Kapsalis, Senior Digital Programme Officer, American Women's History Initiative, Smithsonian Institute

Jeff Steward, Director of Digital Infrastructure and Emerging Technology, Harvard Art Museums

Kang-Ting Peng, Senior Engineer, Cooper Hewitt, Smithsonian Design Museum

Lawrence Swiader, Director of Digital Strategy, American Battlefield Trust

Matthew Cock, Chief Executive, Vocal Eyes

Shannon Darrough, Director, Digital Media, MoMA

Spencer Kiser, Lead Developer, The Metropolitan Museum of Art

Public event contributors

Andrea Lipps, Associate Curator of Contemporary Design, Cooper Hewitt, Smithsonian Design Museum

Dr Oliver Fletcher Vane, Living With Machines, British Library

Dr Sophie Frost, Executive Director, Furtherfield

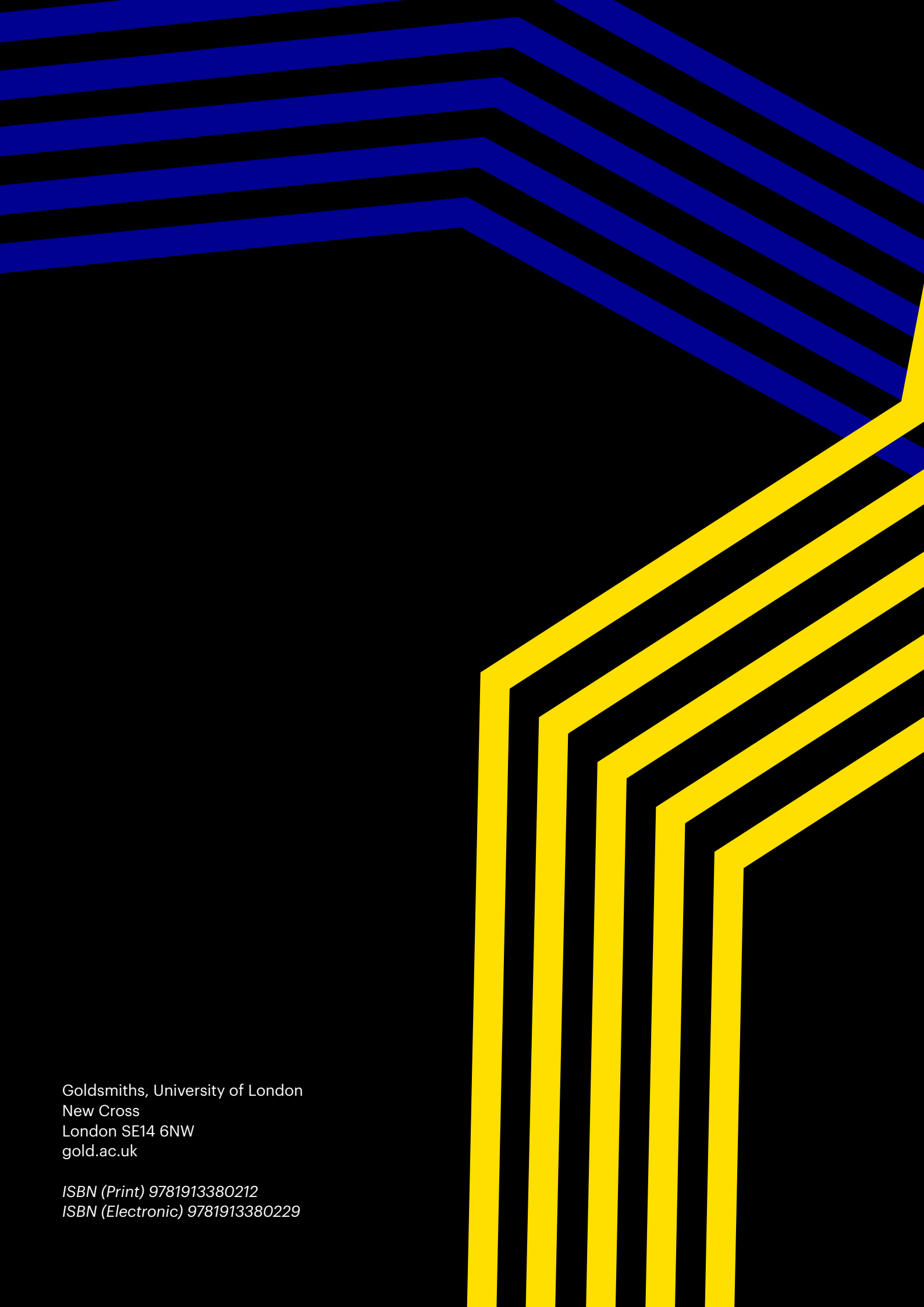
Irini Papadimitriou, Creative Director, Future Everything

Karen Palmer, Storyteller from the Future

Laren Vargas, Research Assistant, One by One, University of Leicester

NOTES



The background of the page is black. In the upper right, there are several parallel blue lines that start horizontally and then fold back at an angle, creating a sense of depth. In the lower right, there are several parallel yellow lines that also start horizontally and fold back at an angle, mirroring the blue lines but with a different color and slightly different orientation.

Goldsmiths, University of London
New Cross
London SE14 6NW
gold.ac.uk

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