American Alliance of Museums

TRENDSWATCH 2013

Back to the Future

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TrendsWatch 2013: Back to the Future

In 2012, we launched our first top-line summary of emerging trends that are shaping the future of museums: **TrendsWatch 2012: Museums and the Pulse of the Future**. To our delight, the report was enthusiastically received by the field. My collaborator, Phil Katz, and I were asked to make presentations on the content all over the country to museum boards and staffs, arts administrators, funding agencies and conferences serving diverse parts of the cultural sector. We heard from users that the report served as a springboard for conversations about priorities, planning, partnerships and resource development—exactly as we had hoped.

This positive feedback encouraged us to produce another annual summary, even while worrying that the second time around would be harder to write. (After all, the old trends are still in play.) However, in surveying another year's worth of stories from "Dispatches from the Future of Museums," we found there was no dearth of fresh material. If anything, our challenge was to wrangle this wealth of observations into manageable chunks, and then let go of favorite themes that are still emerging, not yet developed enough to interpret. (Stay tuned, maybe, for the Multisensory Museum.)

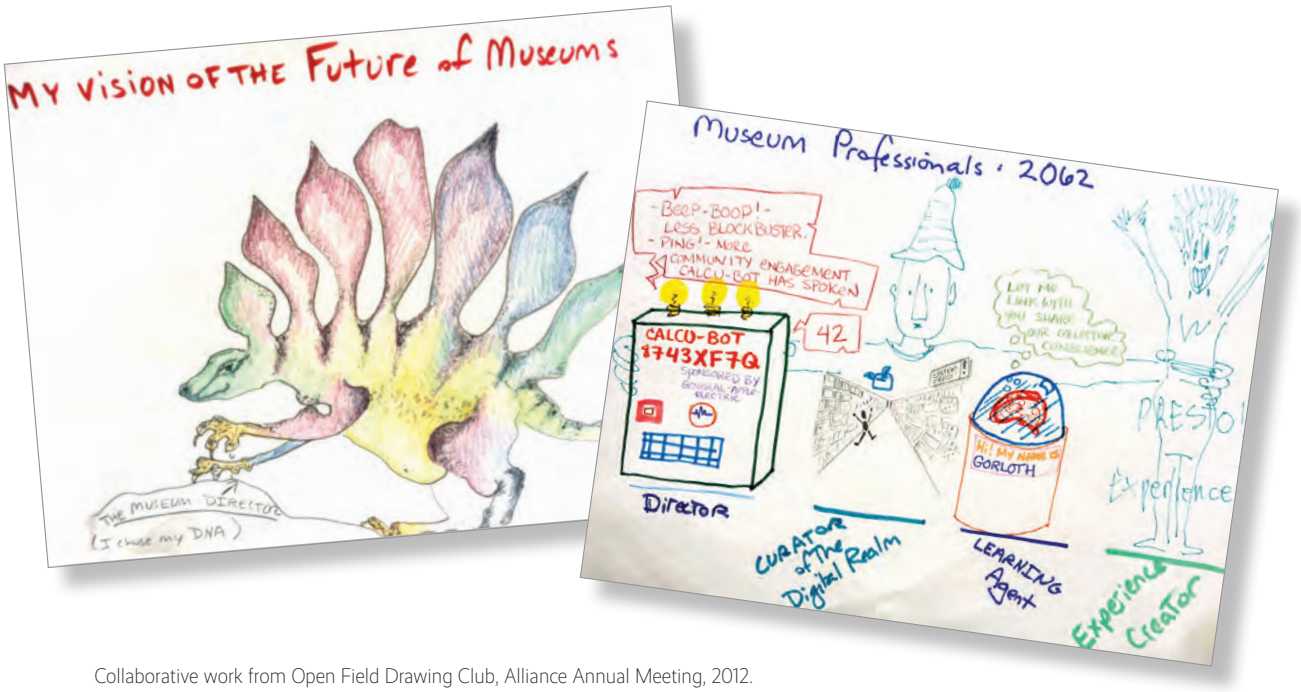
We welcome your assistance in continuing to develop this annual foresight report in a way that best serves your needs. Please write to Phil **(pkatz@aam-us.org)** or me **(emerritt@aam-us.org)** to let us know:

- how you made use of *TrendsWatch 2013* (or made use of last year's edition) and what effect it's had on your organization
- what we could add to make it even more useful in the future
- emergent trends you think we should consider for the next report

We are profoundly grateful for the support of the institutions and individuals who made it possible to bring this report to the field again. If you would like to join their ranks and help us deliver *TrendsWatch 2014*, let us know that as well. (Just think of the recognition you will receive in return, as promoters of the future of museums—a pretty good value for any contribution.)

Yours from the future,

Elizabeth Merritt
Founding Director
Center for the Future of Museums



Collaborative work from Open Field Drawing Club, Alliance Annual Meeting, 2012.

How to Use This Report

TrendsWatch 2013 highlights six trends that CFM's staff and advisors believe are highly significant to museums and their communities, based on our scanning and analysis over the past year. For each trend, we provide a brief summary, list examples of how the trend is playing out in the world, comment on the trend's significance to society and to museums specifically, and suggest ways that museums might respond. We also provide links to additional readings.

TrendsWatch provides valuable background and context for your museum's planning and implementation. We encourage you to share copies with:

- the museum's executive and planning teams
- the entire staff (paid and volunteer)
- members of your governing authority
- local foundations and major donors
- policymakers and government representatives
- members of key community groups and museum partners
- the press

To foster discussion, you might host brown-bag lunches, make the report an agenda item for staff or board meetings, or organize your own **forecasting workshop**. Encourage people to explore the following questions:

- How are these trends playing out in your community, state, region or country?
- Which trends are likely to have the greatest effect on your organization?
- How might your museum take advantage of the opportunities or avoid the risks these trends present?

If you are not directly involved in museum planning, we encourage you to organize similar conversations in other settings, such as museum studies classes or professional conferences.

Another way to use *TrendsWatch* is to make it a guide for your own scanning. In the coming year, keep an eye open for news and opinion pieces illustrating how these trends are playing out.

The PDF version of this report includes copious embedded links to news stories, blog posts, research reports, videos and other resources. These links were all working at the time of publication, but we cannot guarantee their viability in the future. If you are reading a print copy of the report, you can access the digital version with links at **www.aam-us.org**. You can access more information, including all CFM forecasting reports and scanning tools, at the CFM website: **www.futureofmuseums.org**. Please share your scanning hits with CFM via e-mail **(futureofmuseum@aam-us.org)** or Twitter **(@futureofmuseums)**. And remember to let us know what you think about *TrendsWatch* and how you use it in your work. Together we can build a formidable forecasting network to help museums chart a successful course to the future.

Photo courtesy of www.pgecurrents.com

Are these the museum donors of the future?

The Changing Shape of Giving

Philanthropic Trends for the Future of Museums

Time was when civic amenities such as museums, the opera, orchestras and nonprofit theaters attracted charitable gifts because … well, *because*. Because "culture" is a social good and giving made you feel good. Because nonprofits were presumed to operate in the best interest of their communities. Because everyone else in your social circle gave to the same organizations. And maybe because you got a tax deduction. As a result, for nearly four decades the volume of private charitable giving in the United States remained **remarkably stable** at around two percent of the Gross Domestic Product (even while the absolute number of museums and other nonprofits swelled). This stability may be at an end, so museums need to act now to engage philanthropists who are bringing new motivations and expectations to their support.

"The future of philanthropy is feedback. Every big force acting on the field—data, mobile giving, metrics, impact measurement, engagement, outcomes, social media, open source—is about feedback."

—Lucy Bernholz, Philanthropy 2173

The underlying assumptions behind charitable giving are being questioned as donors—particularly younger donors—demand measurable results in return for their dollars. This is happening against a backdrop of unprecedented shifts in wealth and demographics and proposals for **new tax policies** that would reduce the financial incentive to give. These shifts may create new answers to the old questions of "*Who* has money to give?" and "Why should they give it to *us*?"

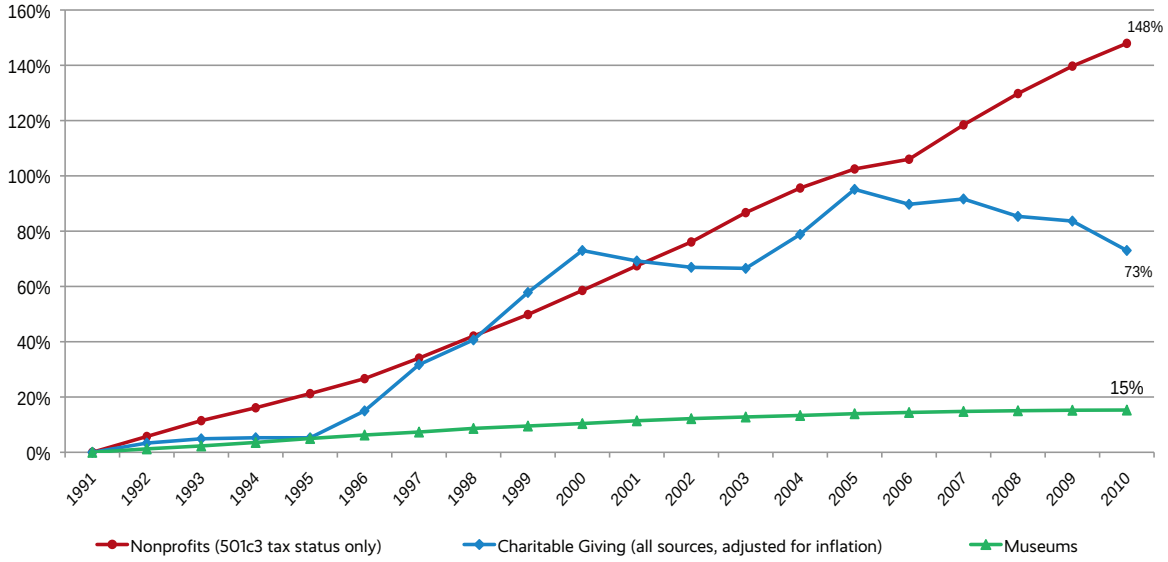
Let's start with some demographics:

- Wealth is now **more concentrated** in the hands of the richest Americans than at any point since the Roaring Twenties. The "super rich" (America's 50 wealthiest donors) gave **more than $10 billion** to charity in 2011, including sizable gifts to museums. About half of all (itemized) charitable donations by individuals come from just **three percent** of America's wealthiest households. Middle class donors give more as a percentage of their total income, but the rich contribute the largest fraction of **total charitable support**.
- Wealth is also becoming more concentrated in the hands of just one generation of Americans, **the Boomers**, who will soon control 70 percent of the nation's disposable income (and stand to inherit $15 trillion more in the next 20 years). So far, Boomers have been **less generous donors** than their parents. And with longer lifespans and adult children who are struggling to find jobs and pay off college loans, Boomers may decide to keep much of their wealth in the family rather than giving it away.
- Women have more philanthropic clout than ever before, **consistently outgiving** their male counterparts (by 89 percent, for those aged 50 and older) even while the **gender gap in gross assets** shrinks.
- The future of American philanthropy, like the future of everything else in the country, will be shaped by **increasing racial and ethnic diversity**. According to the Minnesota Council on Foundations, "Who donates and what they give will be profoundly impacted, and public policy will become more representative of minority communities."

The Millennials (roughly 20–35 years old) are the donors of the future even if they don't have much money as yet. Three-quarters of them donated to charity in 2011. Even more than their elders, this generation wants their charitable contributions to make a noticeable impact: Two-thirds of respondents to the ***Millennial Donors Report 2011*** said they want specific information about how their dollars will "make a difference"—and for many that means measurable, quantifiable outcomes. Women of all ages also **"demand more proof of effectiveness"** from their donations than men do.

The preferences of Millennial and female donors are part of a larger trend towards "strategic" or **"outcome-oriented"** philanthropy, sustained by a cultural climate of accountability, testing, metrics and return on investment (ROI). Unlike giving based on trust in a charity's mission or good intentions, strategic philanthropists set defined goals and expect their grantees to pursue evidence-based strategies for achieving those objectives. And the donor (whether foundation or deep-pocketed individual) often plays an active role in monitoring progress toward outcomes, assessing success and evaluating whether changes in approach are needed. A focus on outcomes has also encouraged some foundations to redirect their

Relative Growth of Museums, Nonprofits and Charitable Giving in the United States, 1991–2010



Sources: IRS Data Book, U.S. Census Bureau, Giving USA Foundation, Official Museum Directory. Analysis by AAM Research Program.

support from broad national programs to more focused, high-localized investments that make significant, measurable differences in their immediate communities.

The **emphasis on impact** (tough as that may be to define and implement) is a welcome antidote to the recent emphasis on purely financial metrics by organizations like Charity Navigator, whose **ratings** have a significant influence on many individual donors. A **narrow focus on financial benchmarks** like the ratio of program to administrative expenditures may stifle innovation by penalizing charities for investing in new approaches.

Individual donors and big foundations are not the whole of philanthropy; for many people, giving is an extension of their other social activities. Social networks have long been mobilized for philanthropy (religious congregations, mutual aid societies, community funds, even family foundations)—but this old practice has been rejuvenated in the past few years through the rise of giving circles and **social fundraising**. Giving circles are **defined** as "individual donors [who] pool their money and other resources and decide together where to give them away." They tend to be more formal, while social fundraising usually taps existing networks developed through social media.

WHAT THIS MEANS FOR SOCIETY:

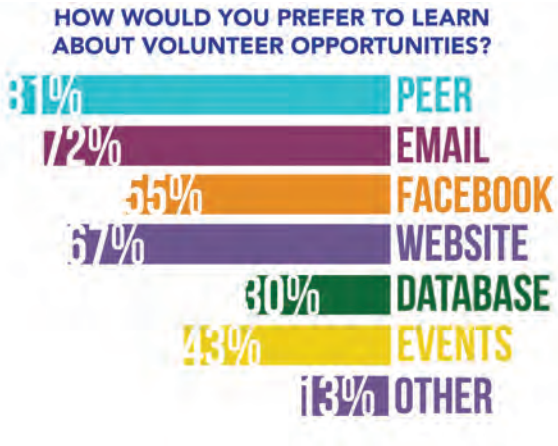
- Assumptions based on the behavior of previous generations of donors are not a reliable guide to future patterns of philanthropy.
- Fierce debates are raging in the United States today about the **proper role of charities** in providing social services and public amenities, the tax status of nonprofits and the deductibility of private contributions. Whatever the outcome of these debates, we are unlikely to see a return of the old assumptions about charities. We expect more debates as society and the political system evolve towards a new understanding of the roles of government and the nonprofit sector.
- Some observers worry that the increased focus on accountability will lead funders to concentrate on financial returns rather than meeting social needs (despite a professed emphasis on "impact"). In the future, donors will likely expect museums and other charities to demonstrate both impact and good fiscal management, with metrics that are still **far from standardized**.

WHAT THIS MEANS FOR MUSEUMS:

- Many foundations (including those that support museums) are approaching or undergoing a **generational change in leadership**. As Gen Xers take the reins, old areas of focus and old strategies will be revised—and the funders may well shift their giving strategies and expectations for measurable impacts.
- Museums have long struggled to measure and report on the results of their work. As donors increasingly expect rigorous reporting on the outcomes of their funding, the pressure on museums to develop meaningful metrics and incorporate evaluation into their work **will only increase**.
- General debates about the status, role and future of nonprofits will surely affect museums, even if the ostensible focus is social welfare agencies, universities and hospitals (the "eds and meds" that are typically targeted for Payments in Lieu of Taxes, or PILOTs), or other charities.

MUSEUMS MIGHT WANT TO ...

- Devote more resources to development functions, consciously monitoring the shifting landscape of local and national giving with the understanding that they will need to craft new fundraising strategies to respond to these changes.
- Work harder to cultivate relationships with local and regional foundations; understand how generational shifts in leadership in these organizations may affect support for the museum.
- Tap the philanthropic support of aging Boomers (who already **give more to museums** than to many other kinds of charities)—but museums have a relatively limited time to engage this generation and need an active strategy for doing so.
- Come together as a field to deliver a unified message about the social good provided by museums (and other nonprofits), making the case for both private philanthropy and government funding.
- Invest in the capacity to evaluate and report on their own impact in meaningful, credible and compelling ways. Even small nonprofits can find ways to mine **big data** (multiple sources of cross-indexed data) via commercial services or publicly available free data sets.
- Consider a strategy of pursuing bigger gifts from fewer people. While many museums philosophically prefer a populist approach to service and support, in an era marked by increasing disparities in wealth, it makes sense to cultivate the few who have the ability to give the most.
- Continue to explore alternative forms of giving (such as crowdfunding and donations via cellphone).



Courtesy of the Millennial Impact project

The 2012 Millennial Impact Report shows that Millennials really care where the money goes.

MUSEUM EXAMPLES:

- Aware that they are fast approaching a time when none of their visitors has first-hand memories of the *Saturday Evening Post*, the **Norman Rockwell Museum** in Stockbridge, Mass., is repositioning itself as the "home for American illustration." Some other museums also focus on subjects that resonate with a particular generation. As their original audiences pass away, museums may want to pay close attention to this example and look for ways to broaden their significance and appeal.
- The **Dallas Museum of Art** recently abolished fees for both admission and basic membership. This model is largely designed to increase the number of members, because, as their new director notes, "participation drives philanthropy." This illustrates how a development strategy can be used to reshape other areas of a museum's operations.
- Another approach to cultivating support is to rely primarily on extremely large contributions from a few high net-worth individuals. Some notable museums that have opened recently took this approach. **Crystal Bridges** in Bentonville, Ark., relied on the largess of Alice Walton. Robert J. Ulrich, chairman and CEO of Target, is the founder and primary funder of the Musical Instrument Museum in Phoenix. This approach can backfire, however, if major donors do not provide enough funding to make a museum financially independent, but wield influence in a way that alienates a broader base of support (a **scenario** that may be playing out at the Museum of Contemporary Art, Los Angeles).
- In New York, the Museum of Chinese in America has partnered with the **Asian Women Giving Circle**, a group that is "fiercely committed to support the vision of artists and arts organizations that seize the power of the arts for social change." This donor-advised fund of the Ms. Foundation for Women supports Asian women-led projects, addressing historic inequities in funding and bringing together donors and grantees to "build a social justice movement together."

FURTHER READING:

2012 Giving USA: The Annual Report on Philanthropy for the Year 2011 (Giving USA Foundation, 2012), **executive summary**.

Lucy Bernholz, ***Philanthropy and the Social Economy: Blueprint 2013*** (Grantcraft, 2013).

Vinay Bhagat, et al., ***The Next Generation of American Giving: A Study on the Contrasting Charitable Habits of Generation Y, Generation X, Baby Boomers and Matures*** (Convio, 2010).

Marcia Sharp, **"Donors of the Future Scan: 12 Key Trends and What They Mean for the New Giving Landscape"** (Millennium Communications Group, 2007).

For more information about giving circles, see Angela Eikenberry and Jessica Bearman, ***The Impact of Giving Together*** (Forum of Regional Associations of Grantmakers, 2009) and the **Giving Circles Network**.

Courtesy of **opacity** on Flickr

Mini homage to Jeff Koons printed during a Fab Lab at Chicago's Museum of Science and Industry.

3-D Printing

Digital Fabrication Unleashes Creativity

3-D printing is the closest we've come so far to making real-life versions of the "replicators" from *Star Trek*. 2012 was the breakout year for this technology, as it spread from the home workshops of Makers to new public "hackerspaces" and (soon) your neighborhood Kinko's. At least four museums held "hackathons" or "scanathons" that encouraged artists and technology geeks to play with digital data, making replicas or adaptations of museum collections. On the larger stage, experts speculate that 3-D printing may stem the collapse of American manufacturing, as tailored, local, on-demand, small-scale production recaptures business from large, cheap foreign factories.

For decades, computer-controlled machines have been able to carve complex objects from solid blocks of material. By contrast, 3-D printing is an example of "additive manufacturing"—instead of removing excess stuff, you build an object bit by bit, either by extruding materials from a nozzle or solidifying particles of organic or inorganic raw materials. Whatever the specific printing technology, digital information is translated into a series of physical cross-sections, which the printer lays down in successive layers of liquid or powder and fuses to form a solid object. They can be used to print engineering prototypes, spare parts and all kinds of widgets, even objects with **moving parts**. (They can also be used to print food, artworks and replicas of artifacts, even body parts—but more on that below.)

Industrial-grade 3-D printers have been around for more than a decade, and most 3-D printers are still designed and scaled for industrial use, but within the last few years innovators have been perfecting tabletop printers suitable for use at home or in a small business. The rapid decrease in cost and increase in quality of these models is shaping a revolution in manufacturing and design that **Chris Anderson** (former editor of *WIRED* magazine and the leading evangelist of 3-D printing) says will be even bigger and more profound than the Internet, because it's taking place in the "Real World of Places and Stuff."

Distributed production on table-top printers could eliminate traditional economies of scale and make mass customization possible and affordable. Small 3-D printers can be moved easily, and the digital information that makes them work moves at the speed of the Internet. Now everyone can be a manufacturer; anyone can be a designer or a least a tinkerer with existing designs. Already we see a proliferation of digital data that can be used as printing templates, distributed via open-source communities like **Thingiverse** and commercial intermediaries like **Shapeways** and **Kraftwurx**. At least one manufacturer has made the specs for replacement parts for its products available online so you can **print your own** rather than ordering by mail.

Because designs can easily be created and modified, 3-D printers are great for prototyping, fueling small-scale innovation and invention. This makes 3-D printing a natural extension of the Maker Culture and a tremendous boon to the cultural trend towards personalizing commodities. Personal design can be aesthetic or it can be functional, as when doctors designed and printed a customized **exoskeleton** that helped a little girl use her congenitally weakened arms; soon she'll probably be able to print her own replacement parts at home.

Just as you don't have to know programming language to create a Web page, you don't have to be a software specialist to create functional designs. As a result, 3-D printers make great teaching tools, as demonstrated in dozens of Maker Spaces or "Fab Labs" ("Fab" for both "fabrication" and "fabulous") around the world, many of them **located at museums**. Software systems are being developed to encourage and enable people to design without specialized CAD (Computer-Assisted Design) skills, including software that **detects and corrects** structural weaknesses in amateur designs.

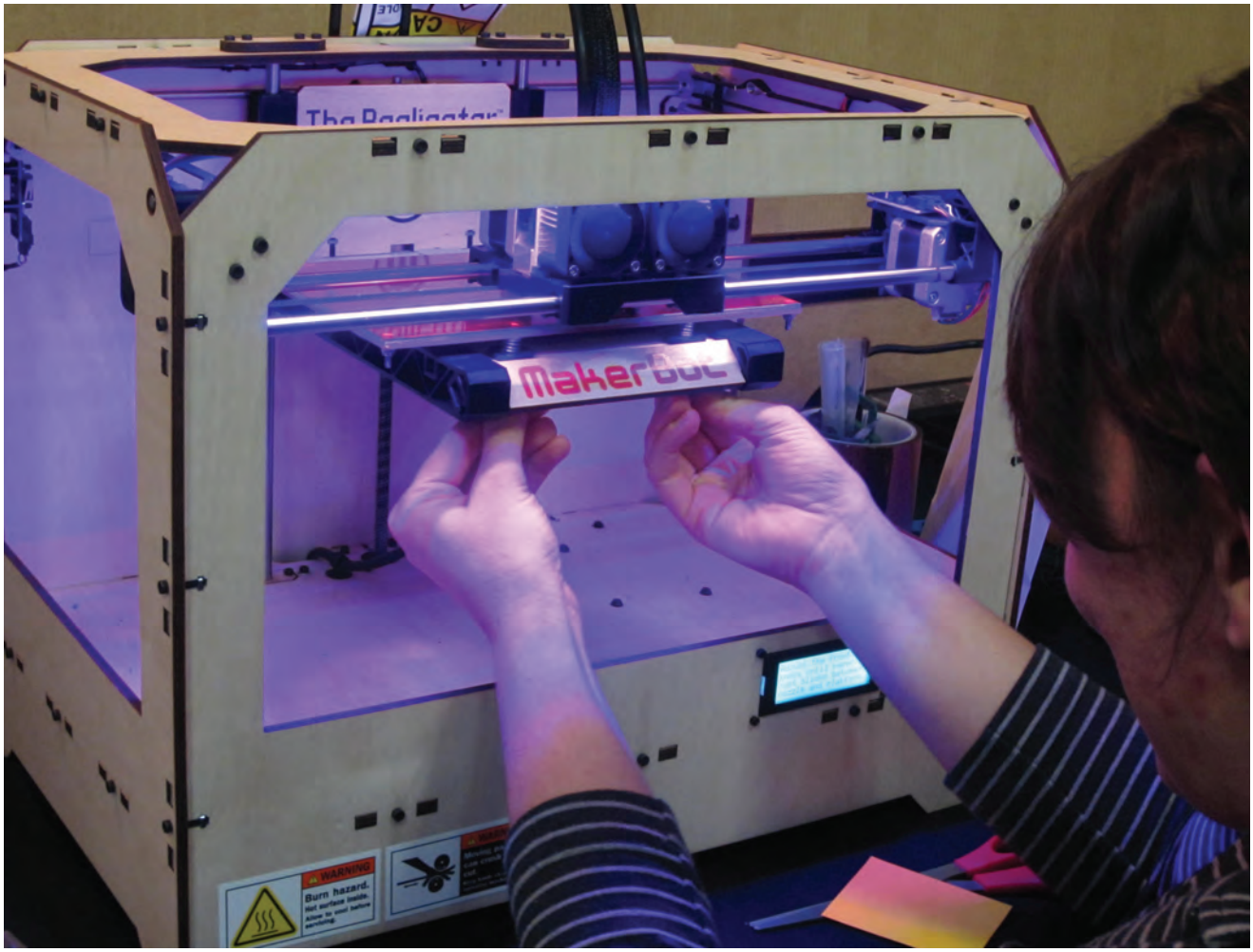
There's something about what happens to your relationship to an object, after you've spent some time photographing, hacking and printing it, that makes [it] feel like it's "yours."

—Don Undeen, Manager of Media Lab, Metropolitan Museum of Art.

WHAT THIS MEANS FOR SOCIETY:

- Some people, like Anderson, predict that the development of 3-D printing will be as **profoundly disruptive** as the introduction of the factory, revitalizing American manufacturing through local, low-cost, highly specialized, on-demand production and mass-customization. This may cause the loss of some traditional manufacturing jobs, but also create new jobs and perhaps reverse the flow of outsourcing.
- We are still waiting to assess the economic ripple effect of new products and skills developed by do-it-yourself printers, or the community impact of shared printing resources at centralized locations like Fab Labs, museums and libraries (with 3-D printers right next to the photocopiers), printing stores modeled on the neighborhood Kinko's, or adopting of 3-D printing by existing chains such as **Staples**.
- 3-D printing is already spurring a minor renaissance in homebrew inventing and personalized design, as it makes prototyping and testing designs cheap and easy. People are

A MakerBot Replicator.



Courtesy of **TechSoup for Librarians** on Flickr

Courtesy of Jess Gartner Photography 2012

Participants at the Art Bytes hackathon at the Walters Art Museum in Baltimore.

already printing **sunglasses**, **bikinis**, burritos, shoes, lamps, cars, even **functional kidneys**! On a larger scale, architects and builders are exploring the potential for 3-D printing to support green design by printing components on-site from **recycled plastic** or **sand, dust and gravel**.

- Like other data-sharing technologies, however, 3-D printing poses challenges to the existing doctrines of **intellectual property**, especially copyright and fair use, as it becomes ever easier to scan, replicate and modify designs. Patent fights, lawsuits for copyright infringement and battles over **DRM** (digital rights management) technologies are almost a certainty, with a chilling effect on creative innovation.
- By bypassing existing channels of production, distribution and control, 3-D printing may disrupt everything from health care (with **printable drugs**) to law enforcement (with **printable guns**).
- Finally, the proliferation of 3-D printers will add fuel to the ongoing debate about whether Americans simply **have too much stuff**.

WHAT THIS MEANS FOR MUSEUMS:

- 3-D printing affords opportunities for the public to make use of digital data derived from museum collections, creating new ways for artists and other Makers to interact with museum resources.
- 3-D printing is a valuable tool for museum fabrication, especially when museums need unique mounts for exhibits or replicas of fragile/rare material for display or programming. It can also enhance the interpretation of collections. For example, **digitally printed replicas of fossils** not only reproduce interior details but can be scaled up in size for easier examination.
- Fab Labs and other **Maker Spaces** open new opportunities for community engagement and museum education. As a bonus, the focus on tangible stuff may spur renewed interest in the physical collections held by museums.
- This form of small-scale, in-house manufacturing even opens up **new possibilities for museum stores**, allowing them to test designs based on museum collections before committing to commercial production. Or a museum store could create the ultimate in personalized memorabilia: Choose the specifications for your favorite object and have it printed on demand. (Proof of concept: A pop-up gallery in Japan has already introduced a 21st-century version of the **photo booth**, turning scans of visitors into portrait statuettes at more than $250 a pop.)

MUSEUM EXAMPLES:

- In April 2012, the Metropolitan Museum of Art hosted what we believe was the first 3-D scanning and printing museum "hackathon." For **#Met3D**, the Met invited artists and technical staff from MakerBot Industries, a leading manufacturer of small 3-D printers, to join museum staff in assessing the potential of the technology to engage artists and visitors with the museum's collections. The Met has also made digital data for some of its objects available at **MakerBot's first retail store**.
- The Walters Art Museum in Baltimore also invited hackers into the museum in September 2012 for **Art Bytes**, challenging them to create applications "to enhance museum programs or address challenges related to art education and accessibility," with $5,000 in prizes at stake. One contestant brought his own MakerBot Replicator and teamed with a 14-year-old and the teen's father to scan and print 3-D miniatures of a statue in the collection.
- The **Art Institute of Chicago** decided to focus on familiarizing staff with additive manufacturing, while also holding demos for the public. They made the happy discovery that the 360° digital photos of collection objects they already had on hand (created for an iPad app highlighting the European decorative arts collection) could easily be converted into a 3D-printable archive.

- Digital design templates can be **made from digital photos**, which may up the ante on debates over whether to allow or encourage photography in museum galleries.

MUSEUMS MIGHT WANT TO ...

- Encourage staff (exhibit designers, educators, everyone else) to evaluate how 3-D printing could be applied to their own work. Provide training and support to experiment with this emerging technology. Think about borrowing or buying a small 3-D printer.
- Incorporate the creation and sharing of 3-D scans of objects into your digital strategy: What data will be collected and stored on which objects, shared with whom, at what cost (if any) and with what permissions?
- Reach out to local communities of hackers, Makers, artists and educators and ask them how they would use 3-D printing to engage with your collections.
- Consider opening a Fab Lab/Maker Space or hosting a "hackathon" (see above for examples).

FURTHER READING:

Chris Anderson, ***Makers: The New Industrial Revolution*** (Crown Business, 2012).

Neil Gershenfeld, **"How to Make Almost Anything: The Digital Fabrication Revolution,"** *Foreign Affairs* (November/December 2012).

David Rejeski, **"The Next Industrial Revolution: How We Will Make Things in the 21st Century and Why It Matters,"** *Wilson Center Policy Brief* (Wilson Center, November 2012).

The Great Unbundling

Academic Credentials Go Micro: Will Museums and Formal Education Converge?

Twenty years from now, résumés may look quite different than they do today. Now the traditional white-collar résumé leads with the names of alma maters and dates of graduation, but **the future c.v.** could be a portfolio of "microcredentials" harvested from a wide variety of sources, representing a mix of face-to-face classroom learning, online coursework, self-administered exams and real-world experience. Classroom time, credits and credentials won't have to be tied together. What role can museums play in building the résumé of the future?

The rising cost of higher education, the burden of student loan debt and the high unemployment rate are all driving students to look more closely at the **return on their tuition investment** in a college degree. While a college degree still strongly correlates with future employment and income, many jobs that are going **unfilled in this weak economy**—including trucking, medical support, auto repair and a raft of manufacturing trades—require something more akin to community college or vocational training than a four-year liberal arts degree. An increased emphasis on **competency-based learning** (i.e., away from the focus on "seat time" as a mark of accomplishment), at both the K-12 and postsecondary levels, is driving educators and learners to rethink traditional diplomas.

Meanwhile, online education is proliferating rapidly, with a significant move in the past few years from closed distance-learning systems—which have been available since **before the creation** of the World Wide Web—to increasingly open systems. With this growth comes increased potential for students to assemble their own curricula and create their own education on schedules that fit their particular circumstances. The spread of **broadband access**—even in rural communities, poor urban neighborhoods and less-developed countries—makes this content accessible and distance education far more functional than in the past. This opens up a range of options for enhancing traditional coursework with online content, including self-paced virtual classes without any instructors, "flipped" classrooms (where the students stream video lectures on their own time and class time is spent on discussion) or a hybrid approach that has half-jokingly been called **"The NPR Model of Higher Ed"**: combining the best lectures and online support from top universities with local content, face-to-face interactions and the social aspects of a "campus" experience.

Universities have been posting lectures and course materials online for **more than a decade**, starting with MIT's OpenCourseWare project. What's new are MOOCs: Massive Online Open Courses that are scaled to enroll as many as 100,000 students and include opportunities for both active participation and student assessment. One consortium, **Coursera**, hosts free content from 33 top universities in seven countries, including Stanford, Columbia, Princeton and Johns Hopkins, and invites people to "take the world's best courses online, for free." MOOCs are also hosted by other universities, nonprofit organizations like the **University of the People** and for-profit

Courtesy of the **HASTAC Initiative**

Some ways that digital badges verify student accomplishments.

Courtesy of **TheBestColleges.com**

ventures like **Udemy**. They jockey for position in the same crowded online space already occupied by **tuition-based** distance education from universities, training webinars from companies and professional associations, instructional videos from the **Khan Academy** and **Howcast**, and much more.

New forms of online learning are, in turn, inspiring alternative forms of online credentialing such as **digital badges**—a kind of virtual credit that learners can display on a digital résumé, webpage, LinkedIn profile, etc., with an embedded link to information about exactly what the credit means and what the learner accomplished in order to earn it. (Digital badges can also reflect real-world experiences, which is the focus of **Badges for Vets**, designed to help translate military training into civilian credentials.) The badges are intended to recognize, assess, motivate and evaluate learning. In 2012, Mozilla launched an Open Badge Infrastructure project to create a common structure that will let any organization issue, manage and display badges across the Internet; the MacArthur Foundation complemented this with a $2 million "badges for learning competition" to fund specific badging projects. At least six museums made it past the first round of competition, and two Smithsonian museums (the National Museum of Natural History and the Cooper-Hewitt) **received project funding**.

Independent of the new technologies and challenges to the organization of postsecondary education, the Millennials are reassessing their relationship to higher learning. While college costs rise and alternatives appear on all sides, Millennials evince a desire to do real, meaningful work right away—and wield real authority in the workplace—rather than starting at the bottom of traditional career structures. (A **2011 poll** by the Kauffman Foundation showed that 54 percent of Millennials in the U.S. either want to start a business or have already started one.) This, plus an unwillingness to shoul-

der significant debt, may encourage more young adults to forgo college at 18 and **leap straight into the workforce**, trusting that the portfolio of accomplishments they build will be a good substitute for a traditional degree when they apply for later positions. In the end, **employers control** whether and how fast these alternate modes of training and credentialing catch on. As soon as employers show they are willing to accept online courses (even free ones) and portfolios of independent work in lieu of traditional degrees—well, that sound you hear is the foundation of the ivory tower, cracking.

WHAT THIS MEANS FOR SOCIETY:

- Postsecondary education, with its **familiar division** between two-year and four-year colleges (plus vocational schools and continuing education units at colleges), may fragment even further into a variety of viable options. By opening new educational niches and enabling students to choose training they can afford, this revolution could redress some of the current inequities of access, increasing the ability of young people to rise into or hold onto the middle class.
- As traditional credentials become unbundled, opportunities for *re-bundling* will open as well, with an emerging role for new intermediaries to help people make sense of all their educational options and service providers. These intermediaries—which will probably include **existing agencies**, such as traditional colleges that vet prior learning and continuing education—can also provide employers with a certain level of assurance that the credentials are valid and appropriate.
- As more young people opt out of the traditional college experience while jobs needing specific, specialized skills go unfilled, we could see the resurgence of **apprenticeship programs** and targeted training. Already, some employers are turning to **"upskilling"** to train workers to fill positions. Partnering with nonprofits, government and community colleges, companies are rediscovering their role in providing targeted training for their workforce needs. At least one nonprofit, **Enstitute**, is formalizing the apprenticeship model, providing a low-cost, two-year apprenticeship program that "provides an alternative path to traditional post-secondary education."
- As more postsecondary education and career training is delivered in virtual environments, there will be pressure to provide physical spaces and opportunities for localized face-to-face learning and social interaction—and not necessarily on existing campuses.

WHAT THIS MEANS FOR MUSEUMS:

- When any learning, on or offline, can be converted into a recognized workplace credential, museums are less likely to be confined to the **fringes of the formal education system** and more likely to move into the mainstream. Microcredentialling through digital badges (or other systems of recognition) is a window of opportunity for museums, a way to validate the education that draws upon their digital resources and education staffs. The fragmentation of credentials could also increase the value and visibility of non-degree training that museums already offer, like in-service teacher training.
- Museums need to be aware that third parties can incorporate a museum's online content into courses (open or commercial), whether or not the museum itself decides to offer structured digital learning opportunities. How will museums monitor and control such use of their resources?
- Museums need to come up with a business model for digital content that makes sense

Courtesy of the Smithsonian Quests Program.

Students completing a quest to earn a "Collect & Classify" badge in the Smithsonian's Tree Hugger badge series.

and then do a good job of explaining their reasoning to educators and students. How do we reconcile a world where many people feel that content **ought to be free** with museums' need to cover the costs of digitizing and interpreting their collections?

- The three biggest challenges to the future of unbundled digital learning are finding viable business models, maintaining the quality of content and instruction, and assuring the credibility of credentials. The expertise of museum staffs and the **extraordinary trust** that people place in museums as credible sources of information can help address at least two of those challenges.

MUSEUM EXAMPLES:

- The Smithsonian's **Cooper-Hewitt, National Design Museum**, in partnership with LearningTimes, will use its award from the HASTAC/MacArthur competition to integrate digital badging into an existing DesignPrep program for underserved high school students in New York City. They plan to award badges for student achievements in specific design disciplines and overall design thinking, reflecting competencies for in-person and Web-based learning. Some of the badges will be accredited by the Council of Fashion Design in America and AIGA, the professional association for design.
- The National Museum of Natural History is also working with LearningTimes to develop **NatureBadges: Open Source Nature & Science Badge System**. This badge system will connect the onsite, physical museum experience to digital tools for lifelong learning and engagement. The museum intends to become the hub for a strong international network of science and nature badges.
- The American Museum of Natural History **offers online courses** that are recognized for graduate and continuing education credit at a number of virtual and brick-and-mortar universities. In 2012, the Museum of Modern Art partnered with the University of Alaska to offer **professional education credits** to teachers enrolled in online classes; the teachers did not have to be in New York or Anchorage.
- In the physical world of learning, the **Hill Aerospace Museum** (part of Hill Air Force Base in northwestern Utah) is providing local high school students with in-depth training in aircraft repair as part of an aeronautical mechanics course. According to curator Nathan Myers, "Our museum is a good teaching tool, because [students] get a good representation of a whole aircraft. These students could be our future workers on the next models of aircraft, and this can be their start." (Plus, it may be the coolest shop class ever.)

"[Digital badges have the] potential to propel a quantum leap forward in education reform.... By promoting badges and the open education infrastructure that supports them, the federal government can contribute to the climate of change that the education, business and foundation sectors are generating."

—***Arne Duncan***, *U.S. Secretary of Education*

- Museum attendance is highly correlated with a college education (though it's not clear how much the social experience of college contributes to this). If more young people decide to bypass the traditional college experience, museums may have to work harder to attract their attention.

MUSEUMS MIGHT WANT TO ...

- Inventory the museum's digital resources and consider how these resources might be used to support online courses, whether created and managed by the museum or by others.
- Identify potential partners who might work with the museum to make its resources—collections, digital resources and staff expertise—available to learners at all levels.
- Consider the local job market and any gaps between training and employment in the communities you serve. What can the museum do, within the limits of its mission and resources, to help fill the gaps providing specialized training, on its own or in collaboration with others?
- Consider "college-age" as a prime audience for your museum, and engage this group either by working with universities and other online education providers, or by supplementing the services offered by these providers.
- Think about the educational advantages of physical spaces, too. "Unbundling" isn't just about digital badges and virtual content; it's also about distributed face-to-face learning and real-world experiences. Can your museum be part of a distributed campus? Can you provide apprenticeships or other kinds of vocational training opportunities? Learners who rely heavily on virtual education will be looking for physical places to meet up with instructors and fellow students or explore additional sources of information. Museums can **help fill this role** for higher education—as they already do for **home-schoolers**!

FURTHER READING:

7 Things You Should Know about Badges (Educause, 2012).

Kevin Carey, **"A Future Full of Badges,"** *Chronicle of Higher Education* (April 8, 2012).

William B. Crow and Herminia Din, ***Unbound by Place or Time: Museums and Online Learning*** (AAM Press, 2009).

The Future of Higher Education (TheBestColleges.org, 2012) **http://www.thebestcolleges.org/the-future-of-higher-education/**.

Recombinant Education: Regenerating the Learning Ecosystem (KnowledgeWorks, 2012).

Siva Vaidhyanathan, **"A New Era of Unfounded Hyperbole,"** *Cato Unbound* (Nov. 16, 2012). This article offers a more critical look at the MOOC trend.

Courtesy of TOTeM Labs

The Tales of Things project enables users to attach "memories" to any object via QR codes.

When Stuff Talks Back

The Rise of Networked Objects and Attentive Spaces

Museums, with their collections and galleries, know something about objects and spaces. But what happens when the objects can "talk" to each other and the spaces know who you are and what you're doing? The "Internet of Things" and the development of location- and context-aware technologies are pointing the way to a new order of complex interactions that will erase the gap between networked digital devices and the physical world of objects and human beings. Soon your mobile smart device will tell you not just "you are two blocks from the art museum" but "a painting you may like is in the next gallery, and a reproduction is available in the museum store," while automatically downloading the catalogue record. Personalized, proactive and responsive networks could give museum "interactivity" a whole new meaning.

The **"Internet of Things"** is a network of digital information closely tied to specific objects and places. The data itself is not sufficient, however—the network is brought to life by gadgets such as sensors and transmitters that connect these "things" to the Internet or local networks, enabling them to exchange information and trigger actions.

In other words, it's becoming easier and easier for objects to collect information and then share it with people or other objects via communication networks. Humans can then interact with the objects via mobile devices using a variety of transmission technologies (cellphone towers, wi-fi or WiMAX, Near Field Communication [NFC] transmitters, even electrical wiring), or merely through physical proximity. Two-dimensional barcodes (like the familiar QR grids) and RFID (Radio Frequency Identification) tags, invented to track inventory but already finding many applications in museums, were relatively passive **first steps** in this direction.

Experts project that as many as **100 billion devices** will be electronically connected by 2020, each with a unique digital identity or IP address. Most will be engaged in purely "machine-to-machine" (M2M) communications, though some of these machines—from smartphones to wristbands to surgical implants—will be carried by human beings. Sensors will gather environmental data (which could be nearly any change of physical state, including temperature, proximity, movement, duration, frequency, etc.), the data will be shared and processed via digital networks, and other machines will be directed to make a response.

The variety of potential M2M exchanges is impressive: Your refrigerator will monitor the age of groceries and send you a text message to replace the expired milk; your **garbage can** will know when you have discarded an empty cereal box and place an automatic order for more; **hospitals** will

Photo courtesy of Kent Phillips/Walt Disney World

Disney's new Magic Band may replace tickets and track visitors at their attractions.

Images courtesy of the Alexandra Institute

The Internet of Things comic book.

switch from paper bracelets to biometric ones that help keep track of patients and forward data from monitors to electronic records; **coffee shops** will recognize the proximity of your cell phone, look up your purchase history and text a customized coupon to your phone or the cash register by the time you reach the front of the line; **grandma's** pillbox and stove will have monitors that track interruptions in her medication and eating habits and alert a doctor; **Disneyland** will replace tickets with wireless wristbands that not only provide access to the rides and attractions but track your preferences, generate customized discounts and trigger automatic social media updates.

A closely related development, both conceptually and technically, is indoor navigation, a.k.a. **"indoor GPS"**—a **cluster of technologies** that allow people to map their locations while indoors and access location-specific information. With some of the emerging systems, sensors can also gather information about people navigating a space, which can then be compiled and "mined" to learn new things about human behavior. (One creepy manifestation: stores that use **mannequins** to collect intel on their customers.)

These location-aware technologies, combined with NFC (which allows for the transfers of data only at close range), make M2M exchanges portable and site-specific. Thanks to global positioning satellites, social networking and the Internet, your smartphone can already tell you what restaurants (or museums) are nearby, when they are open and

"Museums aren't unfamiliar with this—many have been using RFID for collections tracking for as much as a decade. What they are unfamiliar with is the public facing usage of these technologies."

—Seb Chan, Cooper-Hewitt Museum

how they are rated by your network of friends. Indoor GPS is an especially **promising technology for museums**, because it brings this robust location-awareness into buildings, solving traditional wayfinding quandaries while augmenting the opportunities to share information with visitors and prompt interactive exhibits. A growing number of museums already have their **floor plans integrated into Google Maps**, providing a more or less seamless transition from exterior GPS to interior navigation via smartphones and tablets.

WHAT THIS MEANS FOR SOCIETY:

- At the **macro scale** of factories and international supply chains, the CEO of General Electric predicts a new industrial revolution built around "an open, global fabric of highly intelligent machines that connect, communicate and cooperate with us."
- On a more local scale, the promise of "smart buildings" and "smart cities" that use networked data collection and analysis to operate more efficiently and effectively may soon come to fruition. Global investment in **smart city infrastructure** is projected to top $108 billion by 2020. Major initiatives by IBM (Smarter Planet) and Cisco Systems (Smart+Connected Communities) are exploring how M2M networks can expedite transportation, improve safety, create sustainable communities and otherwise enhance the quality of life. (So far, cultural organizations have barely figured in these initiatives.) Although many of the "smart cities" projects were launched by multinationals with shallow roots in particular cities, **urban theorists** and **local activists** are exploring more grassroot approaches.
- On a personal scale, integrated monitoring, data analysis and decision-making in fields such as medicine, education, personal health and fitness—not to mention retailing—will lead to many customized yet automated interactions. There is a certain **Orwellian specter** in all this: Will people become inured to objects and spaces that collect and share information about them, or will we develop a stringent standard of privacy in which people must opt in to the ubiquitous monitoring grid? And will people care if the data is being monetized?

WHAT THIS MEANS FOR MUSEUMS:

- Interactive objects and **displays** are a natural extension of the many types of interactive exhibits already presented by museums. Location-aware devices are a natural extension of museum wayfinding.
- M2M communication could revolutionize collections care, storage and preservation, as an ever-more sophisticated (and affordable) network of sensors becomes capable of tracking the location and condition of objects. Sensors could track **environmental conditions** or detect the presence of chemicals that indicate deterioration of collection materials, triggering a response before the problem becomes acute. Sensors attached to objects on loan could transmit real-time data back to the lending institutions.

- M2M could up the game of museum security, using monitors on the **soles of shoes** or **wearable amulets** to verify the identity of staff via unique biometric indicators, and thus control access to museum spaces, equipment or data.
- "Proximity marketing" through location-aware devices could become a new tool for museum marketing. M2M will help organizations deliver customized content to people who have opted to receive such messages on their smart devices—potentially at a fraction of the cost of traditional marketing campaigns. For example, a museum store could recognize passersby and invite them to do some Christmas shopping or buy a present for a spouse's upcoming birthday. Optical sensors can even be used to spot potential customers **without their consent**. (Unnerving, but potentially effective: IBM research shows that 72 percent of consumers will act on such "calls to action" if the message is received **in sight of** the retailer.)

MUSEUM EXAMPLES:

- In 2012 the **Louvre** in Paris partnered with IBM to use sensors, real-time data analysis and other M2M tools to make a smarter museum building. A "building whisperer" from IBM is working with the museum on new systems to protect the art, save energy (as much as 40 percent) and cope with more than 8 million visitors per year. A network of sensors and software coordinates planning, cleaning, maintenance, heating, lighting and even the locks on more than 2,500 doors.
- The **Museum of Old and New Art** in New Zealand has dispensed with exhibit labels and instead provides each visitor with the "O"—a modified iPod Touch loaded with an app that draws on ubiquitous wi-fi and active RFID technology to deliver interpretation about nearby artworks. This not only creates a seamless experience for visitors but provides the museum with data on how many people have viewed which works (and how many times), how users remix the provided information to create their own tours, and what they choose to "love" or "hate" about the museum.
- The **Smithsonian Institution** is using indoor positioning systems to enable visitors to navigate within and between its many buildings, providing step-by-step directions to stairs, restrooms, food service and other amenities. At the **Fernbank Museum of Natural History**, the indoor GPS app not only offers maps, games and interpretive text but generates the "sounds of crickets and stomping noises … [when visitors] walk by the large Tyrannosaurus rex statue in the museum lobby."
- The **TOTeM project** (Tales of Things and Electronic Memory) brought together several museums in the U.K. to experiment with "Tales of Things," a platform originally developed for Oxfam's charity resale shops that allows donors to tag donated goods with a personal story retrievable via smartphones and other devices. In the museums, the platform allowed visitors to tag artifacts with their own memories and observations (bypassing the curators), which remained connected with the physical objects through a QR code. (The barcode will become unnecessary in the future as devices get better at recognizing unique objects.)

"When machines can sense conditions and communicate, they become instruments of understanding."

—***Jeff Immelt***, *CEO of General Electric*

- Museums have struggled for years to provide an accurate measure of attendance. Now the potential exists not only to *count* how many people are in the museum or on the grounds, but to *track* their routes, dwell time, even their **physiological reactions** to what they view. Will this create an even greater competitive divide between the tech haves and have-nots in the museum world, as only some museums will have the resources to create smart environments or collect, analyze and use the large amounts of collected data to inform their decision making? Will the availability of networked sensors exacerbate the tension between exhibit decisions based on aesthetics and expertise versus the cold, hard numbers of audience response?

MUSEUMS MIGHT WANT TO...

- Infuse long-term planning for facilities and IT with decisions about whether and how the museum will jump on the M2M bandwagon—and to what end. If appropriate, plan for long-term investment in appropriate infrastructure such as ubiquitous wi-fi (or other kinds of networks), monitoring sensors and software.
- Consider how M2M expands the ability of museums to augment the indoor visitor experience but also transcend the exterior walls by linking to information about objects and locations outside the museum and gathering information about how people use the neighborhood surrounding the museum.
- Play a role in exploring the ethical implications of these technologies as well as any social/historical precedents.

FURTHER READING:

Francie Diep, **"'Indoor GPS' Coming to Mobile Devices in 2013,"** *TechNewsDaily* (March 13, 2012).

Adam Greenfield, *Everyware: The Dawning Age of Ubiquitous Computing* (New Riders Publishing, 2006).

Mirko Presser, ***Internet of Things Comic Book: Special Edition*** (Alexandra Institute, 2012).

Chris Speed, et al., **"Disrupting the Internet of Things"** (presentation at the Digital Futures 2012 conference, Aberdeen, Scotland, Oct. 23–25, 2012).

Even the donkeys are wi-fi-enabled at Kfar Kedem historical park in Israel.

Disconnecting to Reconnect

Can People Unplug from a Hyperconnected World?

In our always-on, hyperconnected world, people are beginning to assess the potential downside of being tethered to the Internet and hand-held devices. Turns out, however, that **digital detox** isn't always easy; the umbilical Internet is literally addictive and cutting the cord takes real effort. The desire to unplug opens opportunities for museums to flaunt one of their classic strengths, as places of contemplation and retreat.

"I think this could be the way we live in the future: Connectedness and disconnectedness will coexist in peaceful harmony, with unobtrusive devices and mind sets that consciously (and unconsciously) shift as healthy lifestyle choices. People tomorrow may take an hour or two every day to be unplugged, free from digital input."

—Kathleen McLean, Principal, Independent Exhibitions

It's easy to cite statistics about the increasing ubiquity of digital devices in modern life—not just in the United States or other developed countries but across the entire world. Americans spend **more time than ever** experiencing the world through electronic screens, voraciously consuming and sharing, via TVs, game consoles, computers and various portable devices. **Experts project** that 57 percent of the U.S. Internet population (age 8–64) will own a smartphone by spring 2013, and more than two-thirds of smartphone owners already say they "cannot live without" the devices. (A third of adults also say they would **rather give up sex** than their cellphones, at least for a week!) Now tablet use is booming, and futurists imagine a plausible future of **wearable computers and bio-implants**, where everyone is plugged in all the time.

Many museums are adapting to this ubiquity by creating new opportunities for engagement that can *only* be experienced through connected devices. These include experiments in augmented reality and charitable giving via cellphone (two trends we explored in *TrendsWatch 2012*), location-aware technologies (see page 24), QR codes or other information triggers in the galleries, phone-based tours, games, social media sites, etc. When people bring their own devices to museums, they expect to be able to connect. Public demand for mobile data services has already convinced many coffee shops, hotels, conference centers, airports—and **now museums**—to offer free, reliable wi-fi networks. (The most extreme example of this in the museum world is probably the **wi-fi hotspot on an ass** introduced by a living history museum in Israel, designed to make it easier for visitors to tweet and update their social-media accounts while interacting with costumed interpreters in the middle of a desert.)

But if the pendulum has swung towards hyperconnectivity, we also see signs of a swing in the opposite direction—a backlash against digital immersion and in favor of quiet contemplation and face-to-face contact. The backlash embraces educators who worry about the diminished attention span and social skills of their students, **moms** who see "both the opportunities and challenges that result from the proliferation of technology," **museum traditionalists** who want to keep the visitor's focus on authentic objects and **committed humanists** of all stripes. Even the most connected generation in America is experiencing connection fatigue, with 60 percent of 18- to 29-year-olds saying they **"feel guilty"** about the amount of time they spend on cell phones, social media sites and the Internet.

Commercial marketers have been quick to act on the insight that "consumers rely so heavily on multi-screen search, e-mail and social networks for negotiating their personal and professional lives that there is a growing desire to take a break from being 'always on.'" Global brands like McDonald's now **promote family time away from cellphones**. A **restaurant in Los Angeles** offers a discount for diners who are willing to surrender their cellphones for the duration of a meal. Hotels and resorts are offering special **unplugged vacations**; one resort even calls it a "digital detox." A monastery in Washington, D.C., has created a rental

Photo courtesy of Kfar Kedem

Courtesy of University of Colorado Museum of Natural History

The BioLounge at the University of Colorado Museum of Natural History.

"hermitage" on its grounds that was booked solid as soon as it opened last fall. Meanwhile, designers have introduced new technologies to discourage digital connections (e.g., a **special wallpaper** that blocks wi-fi signals) and encourage quiet social interactions (e.g., a portable **"confession booth"** designed for privacy and seclusion in noisy shared spaces).

WHAT THIS MEANS FOR SOCIETY:

- There is contradictory evidence about the impact of hyperconnectedness, especially when it comes to children and young adults. Smartphones and the Internet either **sap their attention spans** or turn young people into **sophisticated information-seekers** and problem solvers. Social networking can either **promote maturity and sympathy** or **"kill our desire to connect,"** leading to a kind of fidgety loneliness in the midst of constant updates and "likes."
- As a society, we may have to find ways to recognize **digital addiction** and provide support for people to disconnect, such as the nonprofit organization Reboot's recent **National Day of Unplugging**.
- Involuntary disconnection may be a small bright spot in the aftermath of increasingly frequent natural disasters. After Hurricane Sandy in October 2012, thousands of preteens, teens and their elders found themselves **unplugged**—and they survived. While it "drove some children crazy … others managed to embrace the experience of a digital slowdown."

WHAT THIS MEANS FOR MUSEUMS:

- Museums may be caught between contradictory demands for connectivity and contemplation inside the galleries. Temporal or spatial partitioning (e.g., limits on where and when

"This is a great opportunity for museums to evaluate how those with and without devices experience exhibitions and whether educational and/or other objectives of exhibitions or other programming are realized with and without the devices."

—Pat Kociolek, Director, University of Colorado Museum of Natural History

visitors can use digital devices) may be necessary to navigate these conflicting expectations.

- However, museums should be wary of **sending mixed messages**, such as providing interpretation via high-tech devices on one hand, while banning teens from bringing phones into the museum (or telling adults to switch off their phones) on the other.
- Museums should still pay attention to all the projections about mobile devices, embedded devices, augmented reality, social media, etc., as highly likely futures. But they should also pay attention to the educators, critics, philosophers, museum-goers and others who lament the loss of quiet, contemplative, unconnected spaces in society such as those that museums have traditionally provided.
- The "off-line niche" may be a viable refuge for museums that find themselves losing the connectivity arms race with the media-saturated world outside their walls, as they compete with other museums as well as alternative leisure activities. This competition is especially challenging for smaller and poorer institutions, as **summarized** by a staff member at the Fort William Henry historic site in upstate New York: "Once one museum does, others don't want to be far behind. When kids come, a lot of them have seen the fancy stuff. We don't want to look dated. For the younger generation, they don't necessarily know how to relate to some of the older presentations." If you can't win the game, change the rules.

MUSEUMS MIGHT WANT TO ...

- Remember that visitors come to museums with different preferences for noisy, connected, quiet and solitary experiences. Museums can find ways to satisfy these different preferences with specific times or places for "unplugged" visits—such as Un-tech Tuesdays ("don't bring your own device") or galleries in which mobile devices are never allowed. Following the lead of the travel industry, museums could provide options to voluntarily unplug, encouraging visitors to deposit their mobile devices in lockers when they enter, or providing individual **phone vaults**.
- Become **unapologetically disconnected**, marketing the museum as a place where people can always unplug from the Web to concentrate on the exhibits and each other. These museums can be cheered by a **recent study** showing that solitary visitors to art museums (i.e., no companions or even devices) "spend more time looking at art and ... [experience] more emotions."
- Decide whether they have a role to play in sharing the latest thinking on the pros and cons of constant connectivity, equipping visitors to make informed choices for themselves and for their families about **appropriate limits** to screen time.

MUSEUM EXAMPLES:

- Museums are creating interactive physical experiences that are so engaging there is no time to tweet or text in the midst of the action. For example, the National Building Museum invited architects, landscape designers and building contractors to create a **12-hole mini-golf course** that challenged visitors to break par 4 while demonstrating elements of urban design.
- Eight museums have been recognized by the Association of Children's Museums **"Good to Grow"** initiative for their work to promote healthy behaviors for kids, including the reduction of screen time (TV, computers and phones).
- Bucking trends (and arguably trying to stem a relentless tide), the Musée d'Orsay has **banned all photography** in the museum, including non-flash, cell phone pictures of non-copyrighted works. (This hard-line stance spawned a movement, the Orsay Commons, that periodically organizes **mass disobedience** to protest the ban.) While photography per se is not a connectivity issue, the huge boom in amateur photography has been driven by the desire to share experiences with friends in real time via social networks like Facebook, Flickr and Instagram.
- The Vatican Art Museum has "installed" **two priests to answer questions** (as docents often do) but also provide aesthetic and spiritual guidance.

Courtesy of Kit Kat/JWT Amsterdam

Kit Kat sponsors wi-fi-free zones in downtown Amsterdam.

FURTHER READING:

Sight, a short film by Eran May-raz and Daniel Lazo, creatively explores the consequences of a world where too much digital connection overwhelms our relationship with other people and the physical world.

Pico Iyer, **"The Joy of Quiet,"** *New York Times* (Jan. 1, 2012).

Kathleen McLean and Wendy Pollock, ***The Convivial Museum*** (Association of Science-Technology Centers, 2011).

George Prochnik, *In Pursuit of Silence: Listening for Meaning in a World of Noise* (Anchor, 2011).

Courtesy of the Natural History Museum of Los Angeles County; rendering by Mia Lehrer + Associates

The Natural History Museum of Los Angeles County's new North Campus plaza will replace a parking lot with an urban nature space.

The Urban Renaissance

What Does It Mean for Museums?

John Cotton Dana—still the greatest theorist of urban museums—thought that vibrant cities were a challenge for museums because the "museum-city [is] far richer in every respect than any city-museum can ever be." The relationship between museums and the metropolis has always been complicated. As cities change, museums have to change with them, including rural and suburban museums. And cities are changing dramatically as people rediscover and rethink the urban core.

The United States is experiencing a reverse exodus back to the cities. After decades of population decline, the downtown areas of the largest metropolitan areas (those with 5 million or more residents) experienced **double-digit growth rates** between 2000 and 2010. "Downtown is becoming a place" again, as **one blogger** put it.

Courtesy of SmartSpace

In San Francisco, SmartSpace is designing micro-apartments as small as 160 square feet.

This is part of a larger global tilt towards urbanization: By 2050, 75 percent of the earth's population will live in cities. North America's population is *already* 82 percent urban, and this will continue to climb, reaching nearly **90 percent** in the next 40 years. The current distribution of museums presents a somewhat different picture, however; according to preliminary data compiled by the Institute of Museum and Library Services, 58 percent of U.S. museums are located in metropolitan areas with more than 250,000 residents and 17 percent in exurban or rural areas with fewer than 20,000 residents.

What is driving this urban growth? **Young people** (age 25–29) are moving to the city in search of jobs. **Older people** (especially those over 60) are moving to the city because they understand that urban centers "could actually be the best possible environment for older people," thanks to the ease of transportation and the access to health and cultural resources. And members of the "creative class," whatever their age, are **drawn to many cities** by *what's there* (built environments that stimulate), *who's there* (diverse people, with many opportunities to interact) and *what's going on* (cultural vibrancy, especially in outdoor or other public spaces). Museums, of course, can and do contribute to the magnetism pulling all three of these population segments to the urban core.

The trend towards "reurbanization" is already **shaping the future** of regional economic development, housing, transportation—even where and how we choose to spend our leisure time. In what is sometimes called the "reverse donut" effect, suburban populations are moving back to the urban cores that were abandoned in the late 20th century. This is reinforced by another trend partly driven by rising energy costs: **away from the individual ownership of cars** and towards smaller, denser housing clustered around public transportation. Even suburbs are catching **the city vibe**, as suburbanites demand more urban amenities such as walkability, mixed-use buildings, civic centers and street culture.

However, the need to revitalize and renew city neighborhoods—some of them severely damaged by the mortgage loan crisis and subsequent recession—exceeds the pace and available funding for traditional urban planning. Social media and the open-source movement plus old-fashioned activism have fueled new experiments in crowdsourced urban design and rapid prototyping. In spring 2012, Paris became a **laboratory for urban innovation**

Courtesy of **Michael Lehet** on Flickr

Art on Track turns the quintessential urban space (a Chicago El car) into a **gallery**.

with 40 prototypes in public places around the city, experiments that ranged from bike sharing to model public toilets to interactive wayfinding kiosks. That experiment was driven by municipal authorities, but the growing movement known as Radical or **Tactical Urbanism** encourages ordinary people to take urban design into their own hands. (Somewhere between the official and the guerilla versions was an experiment on Long Island that led to a **new motorcycle museum** backed by local notable Billy Joel.)

WHAT THIS MEANS FOR SOCIETY:

- Cities are re-examining the urban landscape and the zoning regulations that have shaped urban spaces for decades. Height limitations, the mix of allowable uses, parking-space requirements and the minimum size for apartments are all being reconsidered. All signs point towards increased density as cities compete to see who can introduce the smallest housing units (275–300 square feet in **New York**; perhaps 200 square feet or less in **San Francisco** or **Washington, D.C.**). Whether these micro-units are targeted at the homeless, recent graduates, Millennials looking for an affordable way to move out of their parents' houses or long-term tourists, they are going to drive more demand for socialization in spacious, congenial **"third places."**
- The new city will be shaped by new technology. Urban designers are inventing the "smart city" of the future bit by bit (or is that byte by byte?). Ubiquitous monitoring and real-time data collection will create urban networks that allow buildings to **sense and adapt** to the people living in them, **manage traffic flow**, and respond to crime and other urban dangers. This may create a more efficient city, but erode traditional urban values of autonomy and anonymity.

WHAT THIS MEANS FOR MUSEUMS:

- The trends towards smaller living spaces and reliance on public transportation create an opportunity for museums to work with real estate developers as key partners. Inhabitants of micro-living units will be looking for public spaces in which to socialize, hang out or enjoy cultural experiences; developments that provide easy access (or proximity) to these amenities will be most desirable to consum-

MUSEUM EXAMPLES:

- Some museums already play a role in urban planning, fostering what urban planner Larry Beasley calls "urban connoisseurship," even acting as agents of **"urban intervention."** In Connecticut, the **Fairfield Museum and History Center** teamed with students from two local schools to create proposals and an exhibit to influence Bridgeport's urban planning process. In New York, the **Museum of Modern Art** invited a group of architects, urban planners and ecologists to create the exhibit "Foreclosed: Rehousing the American Dream," about the possible future(s) of urban communities clobbered by the recent financial crisis.
- The BMW Guggenheim Lab, an over-sized pop-up that debuted in New York City in 2011, is still traveling the world, instigating informal urban experimentation. Billed as an "urban think tank, community center and public gathering space," the Lab has published a glossary titled **100 Urban Trends**.
- Museums in the nation's two largest cities (and probably lots of smaller places) are turning intimidating exteriors into welcoming park spaces, connecting them more fully with the surrounding urban fabric. The **Metropolitan Museum of Art** is renovating its front plaza with new trees, fountains and seating areas. The **Natural History Museum of Los Angeles County** is replacing a parking lot and acres of concrete with a hands-on outdoor lab devoted to local ecology.
- The **San Antonio Museum of Art** helped drive that city's "Better Block" pop-up neighborhood improvement project. This initiative, also active in other cities, is designed to "redevelop communities [to] enable multi-modal transportation while increasing economic development."
- Museums are turning to urban spaces as inspiration for their own educational work. This can be as simple as relying on **hyper-local examples or artifacts** for exhibits, or sponsoring community-based programs, or creating **pop-up experiences** in underused sites. Still more radical, a group of educators and urbanists has "propose[d] to build a science museum in the city of Indianapolis using the **city itself as the museum space**."

ers. If museums can help make microhousing livable by offering the social space these units lack, why shouldn't museums share in the profits reaped by developers?

- Urban museums already rely on mass transit to get many visitors to their doors. As fewer people own cars, suburban and rural museums will have to pay more attention to public transportation as well. Tour buses, shuttles, car-sharing services and public transportation may become the preferred modes of getting to outlying attractions. Both urban *and* suburban/rural museums need to take part in the policy, planning and funding debates that affect these forms of transit and prepare to be effective advocates for the needs of their audiences.
- Even as cities focus scarce resources on urban development and cultural infrastructure, people are beginning to question the **expensive, inflexible "starchitecture" projects** of the past few decades. Such projects have burdened many cultural organizations with debt while under-delivering on their promise of better cities.

MUSEUMS MIGHT WANT TO ...

- Be self-consciousness about their physical location and how that affects access by users and access to resources. This is true for all museums, not just urban institutions. We need to think about transportation needs and tourism habits in a future that may not include universal car ownership.

"Museums and other cultural institutions can become that sought-after third space—a shared space where we can learn, build social capital and share ideas."

—Scott Kratz, Vice President for Education, National Building Museum

- Consider the role (or potential role) of the museum as a provider of specific urban services and amenities, as a site for discussing changes in cities and creating forums for public input and planning, and as an agent for creating more livable places.
- Focus on making the museum a convivial "third place" where people want to hang out and interact (increasingly important for people living in micro-sized housing units or simply feeling the isolation of urban life). This could include using open space inside or adjacent to your facility for concerts, festivals or other gatherings.
- Make decisions about new building projects in the context of the changing demographics and infrastructure of the city. As Dana pointed out in 1920, museums in cities should strive to be "central and useful … near the center of the daily movement of the citizens." Does the city need one major new facility designed by a name architect? Would a more modest, flexible building be easier to adapt, abandon, reuse? Would the city neighborhoods be better served by a network of smaller, distributed spaces?
- Remember that a relative increase in population in cities means a relative decrease in population somewhere else. Should rural and suburban museums be worried about this? Will we need fewer cultural organizations in some depopulated areas? Can rural museums play a vital role in stabilizing local communities and driving tourism to exurban areas?

FURTHER READING:

Larry Beasley, **"The Museum as the City and the City as Museum."** Beasley is an urban planner; this is an edited transcript of his keynote address to the International Council of Museums' CAMOC conference at the Museum of Vancouver, Oct. 24, 2012.

Richard Florida, **"What Draws Creative People? Quality of Place,"** *Urban Land* (Oct. 11, 2012).

Mike Lydon, et al., ***Tactical Urbanism 2: Short Term Action, Long Term Change*** (Street Plans Collaborative, 2012). A free resource guide with case studies and detailed suggestions for making cities more livable and vibrant.

Joanna Woronkowicz, et al., ***Set In Stone: Building America's Generation of New Art Facilities, 1994–2008*** (Cultural Policy Center, University of Chicago, 2012). An analysis of the cultural building boom of the late 1990s/early 2000s, designed to assist people involved in the planning and management of cultural building projects (including new museums).

Author credits

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The Alliance's **Center for the Future of Museums (CFM)** helps museums explore the cultural, political and economic challenges facing society and devise strategies to shape a better tomorrow. CFM is a think tank and R & D lab for fostering creativity and helping museums transcend traditional boundaries to serve society in new ways. For more information, visit **www.futureofmuseums.org**.

The **American Alliance of Museums** has been bringing museums together since 1906, helping to develop standards and best practices, gathering and sharing knowledge, and providing advocacy on issues of concern to the entire museum community. With more than 21,000 individual, institutional and corporate members, the Alliance is dedicated to ensuring that museums remain a vital part of the American landscape, connecting people with the greatest achievements of the human experience, past, present and future. For more information, visit **www.aam-us.org**.

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