
Libraries in the Exponential Age

Moving from the Edge of Innovation to the Center of Community

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This report is written from the perspective of an informed observer at the Aspen Institute Roundtable on Library Innovation. Unless attributed to a particular person, none of the comments, ideas or recommendations contained in this report should be taken as embodying the views or carrying the endorsement of any specific participant at the Dialogue or their affiliated organizations.

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Libraries in the Exponential Age

Moving from the Edge of Innovation to the Center of Community

Executive Summary

Urban or rural, public or private, large or small, libraries are living in a moment in which they are juxtaposed between their traditional role as a respected cultural institution and their emerging role as a dynamic platform for progress. In an age where innovation occurs at the speed of thought, how can libraries embrace technology as well as employ it to build stronger communities? Library innovation will transform the individual and collective institutions, but more importantly, it also will transform communities.

In August 2015, the Aspen Institute's Communications and Society Program, with support from the John S. and James L. Knight Foundation, hosted a Leadership Roundtable on Library Innovation, part of the Institute's Dialogue on Public Libraries project. Leaders and policy makers from government, business and civil society were charged with exploring ways to accelerate the transformation of public libraries, with the realization that transformation will be driven by three factors: (1) new narratives about the library's role in society, (2) a culture of innovation that promotes new relationships, new networks and new forms of participation, and (3) committed, transformative leadership within the library profession as well as from other community partners including government, media, technology and civic stakeholder groups.

At the Leadership Roundtable, working groups were each asked to explore innovations in library practice in one of three areas where the library serves a critical role in communities: Access and Inclusion; Learning and Creativity, or Public Forum and Citizenship.

The resulting discussions concluded: Technology must become a core competency for libraries, not simply a service offered to patrons. Using yesterday's tools to meet patrons and community needs is an antiquated model; today's libraries must anticipate the future needs of clients and community, and innovation is the GPS. Technology is only one part of the equation; technology must be joined by new thinking on the development of human capital in the community and in the library.

The organizational culture of libraries (as is true for most companies and movements) enables true innovation to occur only on the edge of the organization where staffs are less encumbered by expectations of maintaining prescribed pathways. The challenge for libraries is to shatter the organizational paradigm and create new ecosystems that permeate the organization and invite and nurture innovation.

Three roundtable working groups each created strategies through which libraries would be grounded in community priorities and democratic values. The strategies, *Superconnectivity*, *America's Civic Square* and *App-Library*, each focus on libraries embracing technology as a means of anticipating and addressing community needs. The results would move libraries from a transaction-based way of thinking to a mindset of innovation. Consequently, libraries would become an essential platform for navigating and enhancing life.

The strategies succeed in identifying ways to give libraries a national voice, recognize opportunities for collaboration and integrate new and different library champions.

- *Superconnectivity* recognizes the need to address the wealth gap in order to overcome the inequality of access, inclusion and engagement. The main components of Superconnectivity would be (1) technology ~ libraries would provide high-speed (10G) connectivity, not available elsewhere; (2) people ~ staff would be re-imagined as community activators who facilitate the development of relationships and collaboration; and (3) public space ~ technology and materials would make superconnected libraries collaborative spaces.

Under the banner of “Librarians for America,” the library would serve as an experimental laboratory, attracting a diverse population to test the limits of their imagination. Superconnectivity would create unparalleled access, enable collaboration and increase economic prosperity.

- *America's Civic Square* would address libraries' responsibility in the current fragmented media environment to provide a platform for civil discourse and debate. Through a network of libraries across the country, *America's Civic Square* would provide a social and technological platform that could be leveraged locally and nationally.

As America's Civic Square, libraries would have an opportunity to curate national and local conversations. Without taking a position on issues, they could build upon their existing assets to address issues as they arise. They would become critical resources by providing data and information and facilitating conversations.

- *App-Library* would use the metaphor and structure of the app environment to design library environments that augment formal education by developing opportunities for learning and creativity in libraries. Anyone could contribute content to App-Library, although libraries would vet the information to ensure it aligns with library and community needs. Once content is approved, App-Library would provide its assets to partners so they can carry out the desired educational experience.

With its two-way process, App-Library would ask for feedback about usage and participation. That feedback, combined with more formal metrics, would enable libraries to update the apps to better reflect the needs and interests of the community.

The three strategies developed by the roundtable working groups look at the evolution of libraries through a lens of innovation. Building on the strengths of libraries, these strategies identify tangible, attainable processes through which libraries can become catalysts for creating and sustaining resilient communities.

However, the roundtable participants acknowledged that to progress from idea to execution requires fundamental, systemic changes in the library system as a whole. The considerations include adding financial resources, changing educational curricula in schools of library science, embracing innovation as central to the libraries' mission, developing metrics and empowering everyone involved to become agents of change.

With a clear vision and confident leadership, the group concluded, libraries have the opportunity today to reposition their role in the community, becoming the top-of-mind resource for providing the tools, space and culture to anticipate and prepare for the needs that will strengthen the communities they serve. This is the defining moment for America's libraries.

Leadership Roundtable on Library Innovation

INTRODUCTION

In August 2015, the Aspen Institute Communications and Society Program, with support from the John S. and James L. Knight Foundation, convened the Aspen Institute Leadership Roundtable on Library Innovation, part of the Institute’s Dialogue on Public Libraries project. The three-day roundtable brought together 30 dynamic leaders who are re-envisioning the ways in which public libraries work to enhance the lives and advance the development of individuals, communities and the nation. Participants came from the fields of libraries, technology, philanthropy, education and design (click [here](#) for complete list of roundtable participants).

The premise of the Leadership Roundtable on Library Innovation is that the transformation of public libraries will be driven by three key factors: (1) new narratives about the library’s role in society, (2) a culture of innovation and adaptation that fosters new relationships and embraces new forms of knowledge, technology and participation and (3) committed, transformative leadership from the library profession and partners in government, civil society and the private sector. The transformation of public libraries reflects the transformation of communities themselves. The idea of *library innovation* in this report reflects the potential for libraries to drive innovation in communities while speaking to the need for transforming library practice and library institutions themselves.

The vision of the library as a platform for innovation crystallizes two objectives: (1) to expand opportunities for diverse groups of people to pursue curiosity, collaboration and experimentation and (2) to create an evolving architecture and tool set for the community itself to participate in knowledge flows and benefit from the learning and innovation that occurs. Specifically, roundtable participants explored how new approaches to designing and managing the knowledge and collaboration infrastructure of public libraries could significantly strengthen economic, educational and social outcomes. In considering this charge, roundtable participants focused on three key aspects of the public library mission—access, learning and community engagement—as they developed a set of practical strategies for strengthening community-based ecosystems for innovation.

This report examines the challenges and opportunities that are shaping the transformation of public libraries and their communities in an exponential age. It summarizes the roundtable discussions and presents three practical strategies for shifting the library to the center of community platforms for innovation.

Acknowledgements

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The author wishes to acknowledge and thank the 30 experts who gathered in Aspen to provide their insights and who are listed at the conclusion of this report. In particular, special thanks go to John Seely Brown, Michelle Ha Tucker, Mary Lee Kennedy and Brian Bannon for their thought-provoking and discussion-generating presentations during the Roundtable. She also thanks Charlie Firestone, Executive Director of the Aspen Institute Communications and Society Program, for masterfully moderating the roundtable, Ian Smalley, Senior Project Manager, for the Aspen Institute Communications and Society Program, who was responsible for managing the meeting and report, and the support of the Aspen Institute Communications and Society program team.

LEVERAGING THE EXPONENTIAL EDGE

What happens if you shift the library to be the center of the community platform for innovation?

As this report explains below, the exponential age in which we live requires a mindset and disposition toward innovation. “The exponential age provides us with tremendous social opportunity, but with tremendous social and institutional challenges as well,” said John Seely Brown, Independent Co-Chairman of the Deloitte Center for the Edge and Visiting Scholar and Advisor to the Provost at the University of Southern California (USC), in his opening presentation to the roundtable. [Click to view [John Seely Brown's](#) presentation.]

The exponential age is characterized by a shift from an S-curve world to a world where there are sequences of rapid punctuated evolutions. This can be thought of as a curve of continuous change. Brown explained that, in an S-curve world, a broad change in institutional trajectory is followed by 60 to 80 years of relative stability, providing sufficient time to reinvent social practices in the wake of change. With the curve of continuous change, waves of rapid change lasting about 18 months each follow one right after the other, presenting tremendous institutional challenges. These include capital and operating expenditure challenges, staffing challenges and design challenges. “Yesterday’s cutting edge is today’s dust bin,” Brown wryly observed.

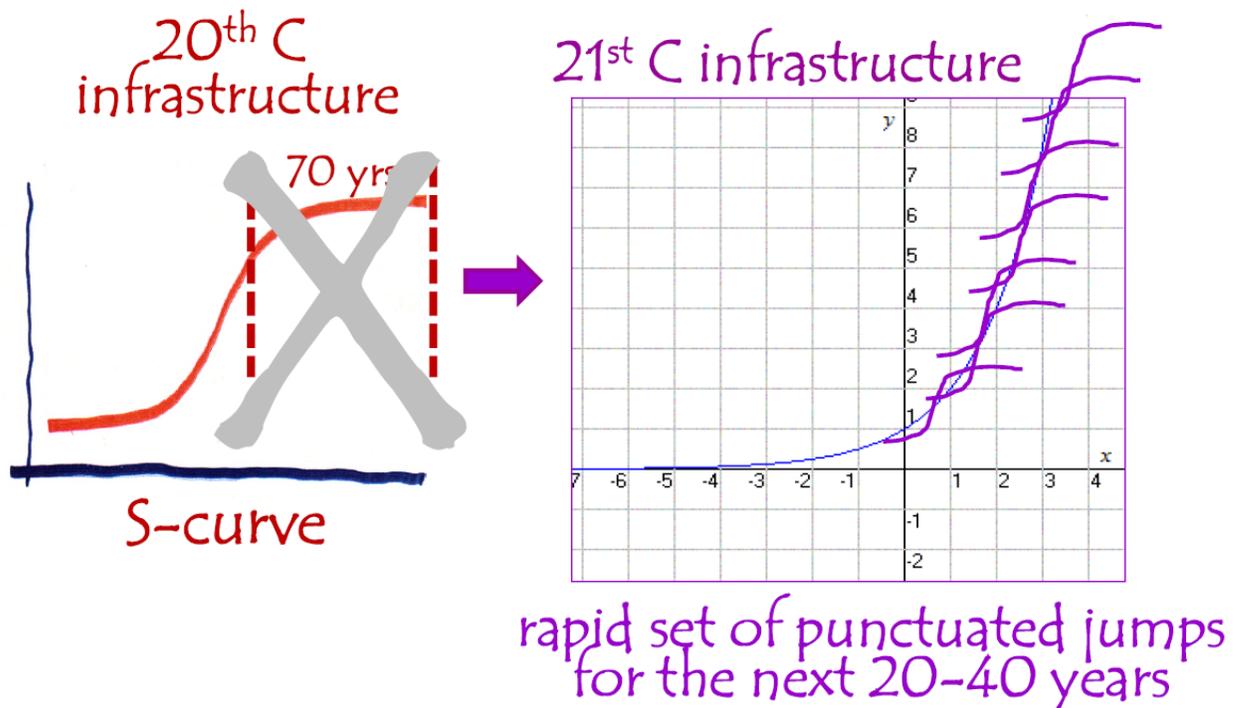


Figure 1: S-curve vs. curve of continuous change. Source: John Seely Brown

Brown highlighted another hallmark of the exponential age—a shift from stocks of knowledge to a world of knowledge flows. Where knowledge was once stable for many years, now the half-life of a skill is estimated to be about five years. Learning is centered on the creation of tacit (as opposed to explicit) knowledge and genres are fluid. Reading context is as important as reading content. Imagination and curiosity are assets. For some individuals, the greater challenge may be *unlearning* old ideas and skills rather than acquiring new ones. This situation presents challenges to formal schooling and the community’s ability to build in a timely fashion the institutional architectures that support formal learning.

Innovation provides a competitive advantage in a knowledge-based economy. Libraries have the potential to be platforms for innovation and entrepreneurial activity in the community. However, like the community itself, libraries must foster a culture of innovation and look to ways to foster new thinking and experimentation at the edges of institutions and connect them to the centers.

Drawing from research on his most recent book, *The Innovators: How a Group of Hackers, Geniuses, and Geeks Created the Digital Revolution*, as well as his biographies of famed innovators Steve Jobs, Albert Einstein and Benjamin Franklin, Aspen Institute President Walter Isaacson provided a frame for understanding how innovation, particularly disruptive innovations, emerge. The idea of a genius working in quiet solitude until the Eureka! moment is not how most innovation occurs. Instead, Isaacson observed, “innovation is a team sport.” New breakthroughs emerge from having the right people interacting in the right ecosystem for innovation.

He said the right ecosystem takes into account the following three axioms:

Creativity comes from collaboration.
Collaboration works best in person.
Innovation requires vision with execution.

Cultures of innovation are shaped by members who bring the diverse perspectives and experiences of the tribes that they come from: designers, geeks, artists, tinkerers, engineers. Members of these ecosystems are highly curious individuals. Moreover, the ecosystems of which they are a part do not require them to seek permission to pursue their curiosity or experiments. Isaacson observed that individuals who operate at the intersection of two diverse realms such as art and science are positioned to imagine possibilities that others frequently cannot imagine.

Institutional innovation often occurs at the edges of institutions where there is less need to seek permission and it is easier to form new collaborations among diverse groups. People at the center of institutions are rewarded for moving along prescribed leadership pathways and maintaining the core functions of the institution. The unique characteristics of working and playing at the edge create more fertile ground for nurturing ecologies of innovation.

Libraries are natural partners for innovation. “Forming communities and collaboration is the core of what libraries do,” said Isaacson. More and more, libraries are marking a return to the institution’s origins. “Public libraries didn’t start out as only repositories for books. They were places for dialogue and conversation. They were ‘knowledge tanks,’” said Mary Lee Kennedy, Chief Library Officer at New York Public Library.

The innovation challenge in institutions such as the library is how to move breakthroughs that occur at the edges into the whole organization. For communities, the challenge is not only connecting the edges and the core more effectively but connecting the edges of multiple organizations to one another. Libraries can provide solutions to these challenges.

What if you shift the library to be the center of the platform? “Then it’s at the center of the entire ecosystem,” said John Seely Brown of the Deloitte Center for the Edge and USC, and it is well-positioned to connect its edges with the innovators working and playing at other edges in the community. A network of partners with the library at the hub forms an ecosystem for innovation ready to enhance access, inclusion, learning and civic life in the community.

How do innovators in libraries and communities leverage the edge and let it pull the core to them? Brown offered the following ideas:

- Don’t ask permission. Get something going rapidly and show what you can get done, then ask for forgiveness.
- Show what you can do by spiral development. Don’t go for perfect.

- Keep metrics for you and others. The right metrics for measuring success can bring tremendous credibility.
- Show rapid learning.
- Leverage open source and being open.
- Engage a wide collection of participants, fostering diversity and collaboration.
- Exploit cloud computing and social media—technologies that connect.

Philipp Schmidt, Co-Founder of Peer 2 Peer University (P2PU) and Director of Learning Innovation at the MIT Media Lab, discussed how these insights have played out in P2PU’s partnership with the Chicago Public Library (CPL). Schmidt said that moving quickly and not seeking permission—no lawyers involved, not even a memorandum of understanding (MOU)—has allowed for more time and attention to make sure the partnership would work and avoid getting hung up on the details. “What’s clear is that we are in the second iteration of the project and we are skating quickly and learning faster that we would have if there was structure,” said Schmidt.

The support of CPL leadership, especially at the branches, has been an important factor enabling people to experiment. The experiment gained legitimacy with the backing of CPL leaders and participants were not afraid to make mistakes. Finally, ownership of the project at CPL was vital. “The library directors knew what they wanted from the beginning of the project,” said Schmidt.

A DIFFERENT KIND OF LIBRARY

Why are we talking about a different kind of library? When I think of libraries the way I’ve learned about them over the last two years, they seem to be a 19th century concept with a 20th century structure and ill-equipped to deal with 21st century issues.

Reed Hundt, CEO, Coalition for Green Capitol

The prevailing view of the challenges and opportunities facing institutions in the digital age, including libraries, is through the lens of digital disruption. New technologies and the new business models that follow undercut the established value proposition of existing institutions, leaving them vulnerable to obsolescence or failure. If one’s understanding of the library’s value is based solely on “getting information” (in a traditional form like a book or through the latest digital technologies), then the long-term health of libraries appears to be at risk. Competitors with modern business models like Amazon and Google often do a better job of delivering information when and where it is needed. Headlines reinforce the aura of library vulnerability—“Are libraries still relevant?” “Do we still need libraries?” “Will libraries outlive books?”

An evolving vision of libraries grounded in community priorities and democratic values sees the library not as a victim of digital disruption, but as a platform for navigating and enhancing life in

the exponential age. “Our vision of libraries is itself in a state of flux. Our priorities and values are actually stable,” said Brown.

In his book, *BiblioTECH: Why Libraries Matter More Than Ever in the Age of Google*, John Palfrey, Head of School at Phillips Academy and a member of the board of directors of the Berkman Center for Internet and Society at Harvard University, raises the conversation surrounding libraries to a more constructive level. Palfrey writes:

“...the library as an institution has been fundamental to the success of our democracy. Libraries provide access to the skills and knowledge necessary to fulfill our roles as active citizens. Libraries also function as essential equalizing institutions in our society. For as long as a library exists in most communities, staffed with trained librarians, it remains true that individuals’ access to our shared culture is not dictated by however much money they have.” (Palfrey, 2015, p. 9).

It is this uniquely democratic character and mission that provides the lens through which to consider the development of the library platform for innovation. But for libraries to succeed, they need to re-imagine what the problems are that they are trying to solve.

“We are a country of private wealth and public poverty,” said Reed Hundt, CEO of the Coalition for Green Capital. “I think libraries are at the cutting edge of the equality of wealth and education.”

“One thing that is really fascinating about libraries is that they are so widely distributed. Here you have this massive distribution network in an economic and social landscape of extreme concentration. Wouldn’t it be great if we could take this distribution network and have it be one that serves the purpose of proxy for innovation—a new business proposition?” asked Hundt. “It’s an environment of literacy and one of access and collaboration, one of extended broadband, having a number of public services. Instead of the MLS behind the desk, you would actually have many other people providing services in that same physical space. And so you’d think about that space very differently than the historic perception of libraries,” said Hundt.

Besides their wide distribution of physical infrastructure, public libraries bring other unique benefits as community innovation platforms. Libraries touch people throughout their entire lifetimes, from birth to old age. Libraries’ power comes from their bottom-up, grassroots organization. Libraries are adept at scaling diversity. In contrast to libraries, “digital is not good at scaling diversity,” said Jake Barton, Principal and Founder of Local Projects. Comparing libraries to Google and Facebook, Barton added, “the network of libraries could be the most diverse.”

INNOVATION BY DESIGN

How can we infuse library institutions with principles and approaches that will develop and sustain a culture of innovation?

Like other professions, libraries have developed a culture with a distinct set of values, approaches and behaviors. Library practices have traditionally been centered on the work of building and maintaining collections, and interactions with users and other institutions have been largely transactional although this is beginning to change. As the role of the library evolves beyond access and lending to providing a platform for learning, innovation and creativity, libraries need to think in dramatically different ways and develop new approaches to their work in line with this changing role.

Roundtable participants explored design thinking and its human-centered approach to innovation as a means to understand how libraries can move from a focus on transactions to building networks, relationships and a mindset for innovation.

Michelle Ha Tucker, Portfolio Director at IDEO, has worked for the past three years with the Chicago Public Library and Aarhus Library of Denmark. (This work led to the development of a Design Thinking for Libraries Toolkit.) Tucker led the discussion with a presentation on how librarians can interact with design thinking. [To view a variety of design thinking models within Tucker's complete presentation, click [here](#).]

Design thinking reflects three general modes of thinking:

Inspiration: framing a challenge.

Ideation: based off the challenge to generate ideas.

Iteration: putting ideas out to the world and iterating upon them with other users, often through co-creation.

The aim is to create lots of different choices and possibilities and then filter and narrow them down. From the fog of synthesis, the user of design thinking identifies the opportunities that are the most rich for impact.

Tucker identified three reasons why public libraries may be exceptionally well suited to adapt design thinking to creating ecosystems for innovation within the institution and the community at large.

- ***Libraries are a living lab.*** They have space dedicated with a steady stream of users to observe, ask questions of and experiment with on a day to day basis. They allow for live prototypes, short cycles of experimentation and co-creation.

- **Librarians are great service designers.** Librarians know the community best. “If there’s anyone who is well-suited to evolve what a library is and address the needs that are out there, it is the librarians themselves,” said Tucker. Leaders need to empower frontline employees in a distributed way to create better solutions.
- **Libraries are networked community infrastructure.** “The best solutions that arise from design thinking are highly systemic, complex and cross institutions,” said Tucker. Libraries are well positioned to connect these institutions to make those partnerships happen and may even carry out some of the larger solutions that are systemic.

While libraries share a natural affinity with some aspects of design thinking, there are tensions that can arise depending on the specific library and place.

Public Libraries	Design Thinking
Expectations and evaluations of public sector performance are shaped through reflections on historical data and benchmarking.	Design thinkers focus on making the future feel more real now.
Research in the library context is often about answering questions.	Research in design thinking is about opening up new questions and being comfortable with ambiguity.
Risk-taking is avoided.	“Failure” is embraced.
Library staff based in structural and operational teams.	Design thinking driven by strategic teams that are multi-disciplinary.

Michelle Tucker provided several “thought starters” for resolving these tensions.

- **Hire X-shaped people.** Traditionally, organizations have looked to hire T-shaped people. These individuals have a depth of knowledge and experience in one top area, with an affinity for working well with others down the line. Tucker said that IDEO is hiring more X-shaped people. These are people who adapt their expertise in two industries or disciplines, and then own the knowledge space where that intersection is. Walter Isaacson similarly made the point that some of the most powerful innovators are people who work at the intersection of disciplines like art and science, people who can do both. These will be the leaders of change in libraries.
- **Reframe on innovation.** “Innovation” itself can be a scary word given the high level of attention and expectation that surrounds the concept. If “innovation” is reframed as a verb, seen as a continual act of *doing* rather than as something that is always new, this may alleviate some of the fear. Tucker said that innovation may be as simple as “taking a shiny object and making it appropriately contextualized to your library. This is innovation because it is about reading context,” said Tucker.
- **Think big, but act small.** “Change happens by empowering people at a front-line level, and then creating lots of small experiments that eventually bubble up to a large scale movement,” said Tucker.

Chris Barr, Director of Media Innovation at the John S. and James L. Knight Foundation, agreed that libraries need more people innovating more often but struck a note of caution. “When we think about human centered design, the way it’s presented here as a design process is problematic,” said Barr. “We’re talking about organizations that have tons of processes. What I think is really important is that we talk about design as a way to enhance these processes, what tools we put in place to do the work smarter. Innovation work isn’t a one-stop shop. It’s something that is part of what we do and we are acting with it as a verb—it needs to become a part of the things we do, not a place we go to when we have to solve an issue.” In other words, innovation needs to become part of the library’s DNA.

FROM DESIGN TO PRACTICE

How can innovation become part of the library’s DNA?

The themes of library as people, place and platform continually resonated throughout the discussions, serving as touchpoints for exploring and developing a path to infusing innovation into the library’s DNA. This included discussing the library as a hub of the community, a physical and social space that fosters new relationships and strengthens the human capital of the community. These themes carried through discussions of service provision through mentoring (and reverse-mentoring), connecting, guiding and curating. And they applied to discussions of making the most of digital technology and creative media for learning, making and other activities, recognizing that people are not just consumers of information but creators and citizens as well.

John Bracken, Vice President of Media Innovation at the John S. and James L. Knight Foundation, focused attention on the interplay between human capital and technology, pushing the discussion to address more directly notions of agency that John Seely Brown discussed in his opening presentation and that are sometimes missing from terms like connector and platform, which can convey a certain level of passivity. “We talked about the library. We haven’t talked about the human capital that much. The corollary to that is technology. The real impact of technology and technology products is not the technology per se, but the social capital and the behavioral change,” said Bracken.

The remainder of this report addresses the human capital and technology issues surrounding the library’s role as an engine for innovation in the community. It explores ways in which libraries and their communities can attract, inspire and enable the talent needed to foster innovation. It considers new approaches to designing and managing the technical, knowledge and collaboration infrastructure of public libraries. Finally, it provides some perspective on the need for better measures of performance for libraries in these areas and their alignment with resources to support this work going forward.

HUMAN CAPITAL

In moving from the more conceptual discussion of innovation to the practical strategies for implementing new practices for library innovation, the discussion frequently returned to the theme of *people*. “I’m really struck by the conversation around training the next generation of librarians,” said Andrew Sliwinski, Engineering Lead of MIT’s Media Lab. “If we are talking about an institution that is built on people, and most libraries are in small communities, maybe we should focus on the individuals in libraries. The minimal viable culture can start with one person.”

A focus on human capital includes the development of both internal and external relationships and the allocation of resources to human capital needs in order to foster the *right* ecosystem for innovation that Walter Isaacson highlighted earlier. These are essentially issues of leadership inside and outside of the library profession, whether this leadership is exercised on a top-down or bottom-up basis.

Internal Issues

Permission Frameworks. Libraries individually and as a profession need to do a better job of enabling personnel at all levels of the organization to take risks and infuse innovation into the DNA of the institution. Support needs to come from the upper levels of library leadership so that staff at all levels recognize the institutional buy-in and openness to innovative experiments. Library leaders should develop and implement “permission frameworks” as part of an overall Innovation Playbook for Libraries—i.e., establish clear goals, objectives and values for employees to strive for, and then grant employees the flexibility to experiment and seek innovations in the way that duties are carried out consistent with those goals and values. As part of these permission frameworks, the Innovation Playbook should include allocations of time and the provision of structural support to library personnel engaged in collaborative work at the edges without the expectation that the work will be done “on the side.”

Bonnie Tijerina, Researcher at the Data & Society Research Institute and a library professional development expert, called on library stakeholders to create networks where librarians can feel that there is internal support for the “edge” work that they are doing. “In talking about the edge of the edge, what I’m noticing is that I have individual librarians that come to me to be a fiscal agent to do what they’re doing because they are not getting the support from their associations or organizations. Librarians want to improve their education and their network-building,” she said. Tijerina suggested the creation of communication channels to provide feedback to library leaders about those on the outskirts who are coming to professionals like her for support.

Julie Sandorf, President of the Charles H. Revson Foundation, reflected on the shift in New York City’s public libraries. “The three library systems in New York seemed to be totally top down and all about asking for permission. That has changed pretty dramatically, and I would say it had to do with leadership. So, it’s not just the edge. It’s about bringing in leadership staff to look at

things from the bottom up. There are ways to take risks and have the confidence in your staff to promote cross-fertilization. The Bronx needs to know what's happening in Brooklyn and vice versa.”

New Tools for Librarians. Mary Lee Kennedy spoke of the importance of giving staff tools to empower them to meet the new demands placed on them. When library staff saw the need to educate immigrant populations on financial literacy, NYPL provided “knowledge security” in the form of financial literacy experts who provided tools and training alongside the frontline library staff. “We give library staff permission to not have to be good at everything, and we bring users the expert skills they need,” said Kennedy. The example cited by Kennedy speaks to the ability of the library to identify the needs of its community and then align its resources, even to the point of engaging partners outside of the library, to meet those needs.

Library Workforce Pipeline. There are disconnects between the product that schools of library science are producing and the needs of the public library institutions who are the intended customers. Multiple participants voiced their concerns that library schools are not producing the trained personnel with the skills and dispositions that libraries need today. It reflects concerns over the types of people being recruited into library science education programs, and the curriculum of the schools of library science. This means that library managers are left to go out into the labor force and bring in the people they need. From an innovation standpoint, this is not necessarily a bad thing, as it can introduce new expertise and new X and T people into the library workforce. In the longer term, however, a poorly aligned system for training the next generation of librarians should raise serious concerns not only within libraries but among the stakeholder groups that libraries interact with and serve.

“What I heard is that this has to come from library schools. These are big things that will take time,” said Bonnie Tijerina.

In response to participants commenting on the need for different types of applicants, Tijerina indicated that her non-profit research institute sees many resumes from people with library degrees looking outside of physical libraries in order to do work in the spirit of library values that inspires them.

“There are a lot of inspired, passionate people with library degrees or without library degrees,” said Tijerina. “Maybe we don’t have the organizations who are attracting them. Are libraries thinking about where the problems lies in terms of attracting the right people?”

Brian Bannon, Commissioner and CEO of the Chicago Public Library, cast the issue in a much broader way, as analogous to looking at the larger ecosystem for developing skills and talent for workforce development. “There is a whole series of interventions of preparing kids for kindergarten, for third grade, as teenagers, etc. That analogy for me is how I would think of the workforce challenge for libraries—thinking about the pipeline for libraries. Look for other

feeders for institutions that are non-librarians. There is organizational work to be done...for analysis and improvement.”

Bannon said it is equally important to build a culture that people want to be a part of. He mentioned that CPL brought in an outside consultant to do a culture check. The results reflected a high response about mission. “Many people show up every day because they care about the mission,” he said.

Honoring Best in Class Library Staff. Julie Sandorf suggested that a relatively simple way to attract and inspire great library staff is to publicly honor and recognize the best in class. Sandorf detailed an annual awards program for library staff that the Revson Foundation supports that publicly recognizes the excellent work done by branch staff in New York City libraries and rewards the best in class winners with money to use any way they want use it. The program is designed to solicit community nominations and stories about their experiences with branch staff.

“The awards are from their patrons. It wasn’t just the money but the pride and recognition among their peers and community that they are special,” that has made this a special program, said Sandorf. “Last year we received 14,000 stories. The single most common theme was—my library is the place that I get to meet the other, like the new young mom who meets the old Polish grandmother. The library is the one place where people go that’s free and open other than parks. That social cohesion role should not be underestimated.”

“The opportunity for innovation to make a difference for their users, staff empowerment to do so and recognition of their contributions are what drive library staff to become the local superheroes that they are,” added NYPL’s Kennedy. “The Revson annual awards program is a super-connector on a relationship level. The recognition makes a huge difference. Librarians are very mission focused. Recognition by their constituents is so important.”

Librarians for America. Reed Hundt proposed a “Librarians for America” program, modeled on the successes of Teach for America and Code for America. The organization would attract people from outside of library organizations who would bring different skills and embed new DNA in the staff and culture of libraries.

The proposal to create Librarians for America speaks to a larger issue concerning the relatively weak national voice of libraries. Public libraries in the United States are quintessentially local institutions that are overwhelmingly funded and supported with local resources. (School libraries are also highly local. Other types of libraries tend to be highly specialized and focused on service to specific narrow communities.) But libraries present not only a local value proposition, but a national one as well. There is a tension in the local-regional-national outlook of libraries, librarians and their supporters that needs to be addressed by the field.

“I’ve worked inside and outside the profession. I think part of the tension around outlook is the public dialogue about librarians, brand perception, marketing and challenges with a truly national, coherent voice,” said Mary Lee Kennedy. “When you look at the top careers, librarians are way at the bottom of the lists. A public marketing campaign needs to show the cool things librarians actually do. Some of this has to come from outside of the library organization, from other people who use the library. The voice cannot be our own alone.”

One participant added, “The funding is very localized, the workforce is very localized; perhaps recruiting needs to be more national.”

External Collaborations

Libraries have a long history of working together and with external community partners through a variety of consortia, associations, interlibrary loan arrangements, alliances and other partnerships. However, the purpose driving these partnerships rarely has anything to do with nurturing ecosystems for innovation and learning. Roundtable participants considered issues surrounding partnerships and other collaborative relationships that can strengthen cultures of innovation.

There is no steadfast definition of what constitutes a “collaboration.” It is simply the act of working with someone to produce or create something. Libraries can collaborate with other libraries or with non-library partners around a common goal or set of goals. While partnerships can be hard—they take a commitment of resources, hold partners accountable to one another and require adapting to different styles and cultures—they are essential for public libraries to realize the vision of the library platform at the center of communication innovation. Partnerships and collaborations create opportunities for libraries to connect the edges of organizations and institutions across the community. They create the dynamic through which the right ecosystem for innovation can emerge.

The Readers First initiative is an example of cross-library collaboration. With close to 300 current members, the initiative was started by NYPL and a handful of others who decided to use their collective buying power to create competition in the e-book market where previously there was none. The Digital Public Library of America (DPLA) is another example (see <http://dp.la>). Hackathons are another type of successful collaboration in which libraries work with with community partners and perhaps other libraries to create an environment for inventing and making technology-based solutions for personal or community needs.

External partnerships can present their own set of challenges. Felton Thomas, Director of the Cleveland Public Library, noted that oftentimes libraries are treated like “the little brother” in these relationships when, in reality, the library is likely to have more power and influence in the community than the partner does. Urban Libraries Council President and CEO Susan Benton suggested that libraries and their partners in public-private partnerships build structures to ensure that the partnerships are living up to the objectives.

Library leaders from New York, Philadelphia, Cleveland, Chicago and Los Angeles shared examples of how their systems are taking action to reposition the library in the community while fostering a culture of innovation within the system.

Brian Bannon, Commissioner and CEO, Chicago Public Library

One of the things we learned from the work with IDEO was allocating the time to people to do the work, and to give them the support and structure around it. The original idea was that they can do it on the side. But no, you can't do it on the side. You have to invest in people and give them the time. There was a huge change in our organizational culture as a result of doing this—allocating the time to the support line folks, and that's how change happened.

What we have really been grappling with is doubling down on developing a more sophisticated system for identifying opportunities to improve the current state. We are also trying to build systems to identify those opportunities through people outside our organization and using these people to help us innovate and think in a new way. We have people on the ground to help us—how to test, how to question. Success in putting the structure there.

Mary Lee Kennedy, Chief Library Officer, New York Public Library

We put forth some pretty large objectives in terms of education in high need neighborhoods and in the digital realm. We had to focus on what we can uniquely bring into the ecosystem. We set a strategic direction, not a plan, and examined the value we bring in community. Can we build on our strength? Can it be achieved in two years? Can we create significant benefits for our users on our own or in partnership with others? NYPL is focused on four areas: Access, Reading, Learning and Creating. Additionally, thanks to the Revson Foundation we have a staff innovation fund. Staff are innovating at the edges. The intention is to enable staff, such as giving them the tools to address the opportunities they see to make a difference in their community.

Felton Thomas, Director, Cleveland Public Library

Being part of the Aspen Institute Task Force on Learning and the Internet, we started moving that way to put the Library at the center. We are the People's University. We give people the opportunity to create a portfolio to take classes and create their own degree or certificate.

Siobhan Reardon, President and Director, Free Library of Philadelphia

The need for change and innovation came from the Free Library because we were so constricted with our budget. Our work of moving the library system is from the inside out. We had to change the internal structure so that staff knew we were

serious about the need to meet community needs. We had to look at the staff and create the possibilities for the staff to get out from behind their desks and get into the communities. We created training labs in communities and hired anybody but librarians to run these learning labs. It is amazing who came to these spaces. All of this occurred because we went beyond the walls of the libraries.

There is so much internal restructuring that has to go on to get to innovation. We have been breaking the system down into six clusters so that the cluster leaders become mini directors for those six library systems. One of the jobs of the cluster leader is to establish community counsel and examine community health. Our cluster leaders have never learned how to organize communities so we are now hiring community organizers. With our Words at Play initiative, community organizers work in communities based on five museums/school districts to work to build vocabulary. They go to nail salons, barber shops and recruit families into the space. We consistently have 40 families every Saturday. The reality is that I have to hire a different cadre of people to support the community needs.

John Szabo, City Librarian, Los Angeles Public Library

It's absolutely critical that public libraries embrace their powerful role with immigrant integration and citizenship. We've stepped forward into this space in a big, bold way at the Los Angeles Public Library and the results have been outstanding. We have sought to establish our libraries as the first step on the path to citizenship. This feeds our other services as well, e.g., ESL, health programming, financial literacy, etc. Not only is this role appropriate for libraries and impactful, being a trusted, valued place for New Americans is in our strategic interests.

It's so important that public library leaders speak about their institutions in terms of how they impact the biggest issues our communities face. We are focused on workforce development, public health, financial literacy, sustainability, and active, even formal learning.

TECHNOLOGY

If human capital is one main factor in the library innovation equation, technology is the other. Libraries are critical anchor institutions that provide a major point of free Internet access for many Americans. Libraries support technology use by patrons in a variety of ways, including by offering classes, programs and spaces to develop hands-on skills, digital literacy, maker spaces, media labs and the like. Increasingly, libraries are loaning technologies for patrons to use at home. This includes laptops, e-readers and Wi-Fi hotspots.

As celebrated as some of the library experiments with technology are (Wi-Fi hotspot lending, the all-digital Bibliotech library in San Antonio), there is reason for concern that libraries individually and collectively are not positioning themselves well for the digital future. This concern has as much to do with the ways in which libraries themselves are using and planning for technology as it does with the current state of broadband capacity at public libraries.

Participants identified technology as one of the holes in letting the edge and core interact in library institutions. “Libraries are fairly good at seeing opportunities for patrons,” said Jason Griffey, Founder and Principal of the technology consultancy Evenly Distributed LLC and Fellow at Harvard University’s Berkman Center for Internet & Society, who cited library support for the maker space movement as an example. “Libraries are very big on providing these tools to their communities, but they are terrible at using them for themselves (i.e., building things for themselves).”

Missing the Internet. Jonathan Chambers, Chief of the Office of Strategic Planning & Policy Analysis at the Federal Communications Commission, reflected on the change in the conversation about public libraries and their infrastructure since he first came to an Aspen Institute Dialogue on Public Libraries event in August of 2013. “Two years ago, there was a lot of discussion of physical space or virtual space, and even when we broke into the three groups (people, place, platform), place was thought of as place *and* platform. A lot of the discussion today seems to be about the physical space at the library. I think where the libraries have missed, and it’s hard to believe, but libraries have largely missed the Internet.”

Chambers described the results of an Alexa search he conducted of the most visited sites on the web. Goodreads, the Amazon-owned book recommendation engine and online social space, was ranked #130. “Goodreads should be the library,” said Chambers. “They [libraries] should own it. The library brand is books. If nothing else, libraries should be about book discovery. So not to have a web site that libraries participate in, that is all about discovery, is all about missing the Internet.”

Chambers went on to reveal that, before you hit any library site, Overdrive appears at the #500 ranking. “Libraries need to form their own e-book application. People are visiting Overdrive, through the Overdrive app or the Overdrive site. Libraries are not even communicating with their own patrons.” The New York Public Library is ranked around #3,250, as is the Los Angeles Public Library. Chambers’ challenge to the library community was this: “What is the role of libraries on the Internet? Not Internet access, but *on* the Internet as the place where people go for information, for access.”

Jake Barton agreed with Chambers. “I think that’s exactly right. Libraries have missed the Internet. I want to underscore the physicalness of libraries. The thing that distinguishes libraries is the physicalness of it. Books are a part of that. Libraries need to figure out how libraries are on the Internet.”

While it may be too late for libraries to own their role on the Internet, Philipp Schmidt, Co-Founder of Peer 2 Peer University (P2PU) and Director of Learning Innovation at the MIT Media Lab, suggested that libraries ought to be looking ahead to the next wave of technologies that will affect libraries and their communities. “Libraries are really good at looking at equity. You may be talking about virtual spaces now, but for an organization with a core of information and knowledge there is artificial intelligence that is right around the corner. Artificial intelligence is better at making a diagnosis than the doctor itself. Libraries need to pay attention to the *next* technology,” said Schmidt. [Click to view video clips of [Philipp Schmidt](#) and [Jason Griffey](#) on libraries and technology.]

Charlie Firestone, Executive Director of the Aspen Institute Communications and Society Program, asked how libraries can integrate technology into the institutions. “Is it pulling at the edges from the core? Or from the edges, pulling core people to the edges?” asked Firestone.

Short-term Experiments: Lessons from Wi-Fi Hotspot Lending. New York Public Library and Chicago Public Library each have pilot programs underway for lending Wi-Fi hotspot technology that could help to answer Firestone’s questions. During the roundtable, Mary Lee Kennedy and Brian Bannon gave brief presentations on the status of these pilot programs, what they are learning and what may come next. [Click to view the [Mary Lee Kennedy/NYPL](#) and [Brian Bannon/CPL](#) presentations on Wi-Fi hotspot lending.]

New York Public Library. NYPL is conducting its Library Hotspot lending pilot with Brooklyn Public Library and Queens Public Library, as well as libraries in Maine and Kansas. “The opportunity is to look at how internet access can benefit large urban areas and smaller population bases. We are testing different lending patterns, as we try to understand whether that makes a difference,” said Kennedy.

The New York pilot is critical given that 27% of New Yorkers don’t have home broadband access. Almost 2/3 of those New Yorkers earn less than \$20,000 a year. Libraries play an important role in broadband access, but library personnel noticed that library hours don’t always match up with the times when people need access. “We would walk by the library and people would be sitting on the doorsteps,” using library Wi-Fi to access the Internet, said Kennedy.

For the pilot in the spring of 2014, the New York Public Library lent out 100 hotspots to students participating in educational programs at four branches across three boroughs. Most were students in high need neighborhoods, 37% speak Spanish at home. The loan period lasted for 2 months, renewable once. The devices pulled a cellular phone signal from Sprint’s network and distributed a local Wi-Fi broadcast that allowed internet-enabled devices like computers and smartphones to connect to the Internet. Among other findings, through surveys after the program, they learned:

- Users spent an average of 3.19 hours online per day, and most often at times when the library is closed (6PM – 12AM local).
- File sharing, YouTube, and Google properties were the bulk of the activity.
- In twenty-three responses to the assessment survey, parents stated they helped their kids do homework, as well as for job-related purposes.
- If offered Internet service for \$10/month, the majority of respondents would be somewhat or very likely to purchase it.

Kennedy reported that a side benefit for the students and the parents was confidence. “The more you are successful at something, the more confident you become, the more you’re able to contribute in other ways,” she said.

Based on the initial pilot, NYPL and its partners launched a new pilot with 10,000 mobile hotspot units in December 2014. (Kennedy reported that the rural pilots are smaller in size, with Maine lending 80 units at six libraries and Kansas lending 90 units in eight libraries/communities.) “We don’t have results yet, but we will be doing an assessment. We’ve talked a lot about what this means in terms of the role of libraries? As well as whether device lending is a scalable solution.” Kennedy said. “This is a pilot, an experiment, and not the end result of what we will do. It shines a light on the need for broadband access. It is another example of the importance of iteration. Knowing the goal guides in trying things out,” said Kennedy.

Chicago Public Library. CPL started its Internet to Go pilot with a similar set of goals and a recognition that one in three Chicagoans don’t have a computer at home and home broadband penetration in some of Chicago’s neediest communities is as low as 20-30%. The goals included a combination of improving Internet access at home after hours so that people can practice skills, and extending the library’s role in Internet access beyond the 2-hour window available at the library. CPL’s program provides the hotspots plus laptops and additional wrap-around services for skills and coaching.

“What specifically we’re looking for is a combination of changed attitudes and behaviors around broadband at home,” said Brian Bannon. “We are interested in changing or impacting broadband adoption rates at home as a result of people taking the technology home and experimenting with it. And for those who find, after playing and experimenting with it, that there’s actually value, our hope is that we can help expose them to low-cost or free programs where they can more permanently become connected at home. Our goal is not to be the ongoing free provider at home. It’s more about providing a prolonged experience with the goal of future adoption.”

CPL’s pilot allows people at specific locations in the communities with low broadband adoption rates to check out the hotspot unit and laptop for three weeks with an option to renew, similar to other library materials. Because CPL restricted the checkouts to these locations, Bannon said he was hoping the units would stay in these neighborhoods. “We mapped the checking out of these

items, and they're hyper-localized. So the hotspots are actually staying within the communities that are checking them out, which we think is a good thing.”

Among the interesting data that the pilot has yielded thus far, Bannon reported:

- 11% of those checking out didn't currently have library cards.
- 63% have kids in the home.
- A little more than half are one adult in household.
- 70% of folks using program living in multiplex units—apartments, etc.
- 30% are under US poverty rate and 60% are below \$49k/year
- About half are employed.
- 55% of those who participated report that they would be likely or very likely to pay \$20 or less for broadband at home.

Like NYPL, CPL doesn't see Wi-Fi hotspot lending at libraries as the solution to broadband inequality. It is partially the literacy element that interests the library. “What we found during the revitalization of healthcare, many libraries, and we were one of them, doubled down on essentially becoming the mentors to help people apply for healthcare. And so now we are wondering, is that the next evolution? For those who are interested in having permanent connectivity at home and are willing to pay \$20 or less (and there are programs that are more like \$10 per month), it seems that there could be an interesting opportunity to help make some of those conversions right at the home branch.”

When questioned as to whether this program could be a feeder ramp to something else, Brian Bannon replied that he was not certain how deeply CPL would invest in this particular model, but that he does see the project as an on-ramp to a potentially bigger investment. “We started to look at other technologies such as white space, which we are watching closely. This experiment was important in terms of looking at broadband adoption. It forced an internal conversation to look at other approaches that may be as good or better.”

Mary Lee Kennedy shared this view, saying, “We don't see this as the long-term solution. It opened the door to the conversation to address the long term and definitely impacts what our investment should be next time. ...The dialogue was critical, both internally and with our stakeholders. And so I think it's an incredibly important investment that you [Knight Foundation] made.”

Building Technology Infrastructure for the Future

In an April 2015 report on library speed test results, Larra Clark of the American Library Association and John Bertot and colleagues at the University of Maryland reported the following:

Overall, libraries...report some progress in their public internet speeds (e.g., about 10% of libraries reported speeds of 1.5 Megabits per second or less, compared with 23% two years earlier), but still falling far short of goals established in the recent E-rate Modernization proceeding and in the National Broadband Plan (with about 2% of libraries with 1 Gigabit per second speeds). Only about half of all libraries reported subscribed internet download speeds greater than 10 Mbps, with city libraries generally skewing on the higher end (about 27% with subscribed speeds of 100 Mbps or higher) and rural libraries generally skewing on the lower end (about 3% with speeds of 100 Mbps or higher). Two-thirds of all libraries indicated they would like to improve their broadband speeds. (Larra Clark, John Bertot, et al., Broadband Quality in Public Libraries: Speed Test Highlights, April 2015, http://www.ala.org/offices/sites/ala.org.offices/files/content/Speed_Test_FINAL_0.pdf)

In December 2014, the Federal Communication Commission adopted the second of two orders reforming the 18-year old E-rate program, a federal program that provides discounted telecommunications, Internet access and internal connections to eligible schools and libraries (the program is officially known as the Schools and Libraries Program of the Universal Service Fund). The Chief of the Office of Strategic Planning & Policy Analysis at the Federal Communications Commission (FCC), Jonathan Chambers, provided a summary of the changes that the FCC orders made to the E-rate program, the opportunities available to libraries as a result of these changes, and his concerns about the money that may be left on the table five years from now. Chambers also proposed solutions for dealing with some of the barriers that historically have affected library participation.

Chambers highlighted three salient changes to E-rate that affect libraries.

- The FCC increased the funding available for schools and libraries from then \$2.4 billion a year to now \$3.9 billion a year, indexed for inflation (so this amount will grow in future years).
- The FCC changed some budgeting mechanisms in the way in which internal connection, inside wiring and Wi-Fi hotspots are funded to ensure that there would be sufficient budget. For the two years prior to last year, there had been no money spent out of the program for internal connections, although money was made available. The funding mechanism is based on size, with the USAC paying \$5.00/sq. foot for urban libraries, \$2.30/sq. foot for non-urban libraries, and a guaranteed \$9,200 for libraries smaller than 4,000 sq. feet.
- The FCC changed the way schools and libraries can get funding and what they can use the funding for, eliminating funding for everything other than broadband.

On this last change, Chambers explained the significance for libraries: “We changed it from a spending program to an investment program, at least for a significant part of it. The FCC now permits schools or libraries to invest so that they can own their own infrastructure, they could

invest so that somebody else owns the infrastructure, but they have IRUs, which are infeasible rights of use, for long periods of time...and we agreed to pay explicitly for what's called special construction.”

The FCC would increase its share up to an additional 10 percent if there was a state program that would match the special construction charge. So, with schools and libraries paying a share based on poverty level, the E-rate program would pay anywhere from 20 percent (for wealthy school districts) to 90 percent (for poor school districts). The average is just over 70 percent. For an 80 percent school or library, if there's a state program that will pay a share of the construction, the library could get free fiber built to the library building. The library would incur the costs of dedicated service and maintenance of the fiber. Libraries could prepare for the future with a 100 Mbps, 1 gigabit or even 10 gigabit capacity at very little incremental cost to the library. “It is virtually unlimited capacity once you've laid the fiber. It's all about, then, changing the electronics,” Chambers said.

For the two-thirds of libraries that indicated in the speed testing survey that they would like to improve their broadband speeds, the E-rate program offers a major opportunity to do so. (It is puzzling that one third of all libraries expressed no interest in improving their broadband speeds.) The question is, will libraries take advantage of this once in a generation opportunity? And what can the government do to help establish a system that allows libraries to enjoy this opportunity?

Indications from the data available about library applications for E-rate funds in the current year are not encouraging. Here is Chambers' assessment of the numbers:

We're going to spend \$1.6 billion just on the internal connection, Wi-Fi hotspots, in schools this year. We're going to spend about \$25 [million] to \$30 million on libraries. That has nothing to do with the way we run our program. It has everything to do with libraries not participating.

My figures are not going to be precise, because I can see library applications when it's a library-only application, I can see libraries when they apply with a consortia, but I can't see in the data what the library numbers are within a consortia, so I'll give ranges. For the rest of—that is for Internet access and voice and everything else, even though we're phasing out voice, this year schools will receive about \$2.3 billion. That's on top of the \$1.6 billion. And libraries will get about \$150 million, give or take a buck...and most of that money is voice. It's not even broadband.

So the problem has been and the problem continues to be that libraries don't take advantage of the program. ...everybody can just go out and buy their own Internet access and pay what commercial rates are, but if you're going to pass up—you know, somebody that's going to pay 90 cents on the dollar for your service, and you're going to pass up that

opportunity to own something, if you're able to own the facility—this is really a once in a generation type opportunity.

The application period for the second year of E-rate discounts runs from January through March 2016. The window for schools and libraries to take advantage of these exceptionally generous discounts will close in three to five years because the FCC made some rules temporary and waived others for four years as a way to drive construction over the next three to five years.

For those who are familiar with it, the federal E-rate program is like a problem embedded in an opportunity because of the barriers that make applying for E-rate funds very challenging for some libraries. Roundtable participants discussed these issues, which include the following:

- Local government bureaucracies
- Lack of resources, expertise or other capacity to complete the application
- Complexity of the application itself
- Internet filtering requirements under the Children's Internet Protection Act (CIPA)
- Lack of knowledge about the process or the benefits

Participants recognized the burden that the E-rate process places on library directors and staff and said that it does not make sense for libraries to shoulder the full burden of figuring out the right answers to all the questions that come up in preparing for and making an application for the federal discounts.

With these barriers in mind, Chambers proposed the creation of a Turbo Tax-like tool to help libraries prepare their RFPs and applications. Modeled on a similar tool developed for small businesses in the state of Wisconsin, the Library E-rate Tool would streamline the bidding and application processes that are repeated many times over by individual applicants. It would make pricing and other information more transparent. Libraries could enter data about who they are, number of patrons, square footage, number of rooms, etc. and the tool would calculate how much bandwidth you need. The tool could show where the bandwidth could be purchased in the surrounding area, and could even print an RFP (part of the E-rate requirements) and then produce the necessary forms to apply for E-rate.

Producing such a tool within the FCC would take several years. If the library field were to pick up the idea and run with it, a prototype could be produced in a matter of months, Chambers thought. Roundtable participants were impressed by the E-rate opportunity and highly supportive of the idea for a Library E-rate Tool, but expressed concerns that no entity or organization within the library field would pick it up and make it happen, even as they suggested organizations for whom it would seem a natural fit: the American Library Association or its subsidiary, the Public Library Association; Urban Libraries Council; the association of state librarians; the Institute for Museum and Library Services; or foundations that support libraries. The discussion raised the

issue once again of the constraints of a field that is so highly localized in its structure, funding and governance and lacks a tradition of working together at national scale.

Participants did suggest that, in the absence of a tool, more information could be gathered about libraries that are being successful—doing it right—and these examples could be shared through webinars or other means of professional education and information sharing.

Participants also suggested that a campaign to educate other government stakeholders could raise the awareness and sense of urgency around the three-to-five year window of opportunity on E-rate. This could include outreach to local government associations like the National League of Cities or U.S. Conference of Mayors. Better awareness of the money that is at stake might help libraries to engage the support and assistance of potential partners in relevant government departments. As with the tool proposal, it was not readily apparent who would manage such an externally focused campaign.

Finally, the local communities and their leaders also can play an important role in being part of the overall broadband vision and build-out process. Library E-rate technology will be an excellent way to improve the overall digital literacy of a community and will be situated in the broader community technology context.

FUNDING RESOURCES

Several participants from philanthropy raised the connection between funding support for libraries that want to innovate and the ability of the libraries to report back to funders with hard data on the outcomes of the experiments. They recognized that this is messy work, but very necessary, and that sometimes there are no neat answers.

Gloria Jackson-Leathers, Director of Kansas City Civic Engagement for the Ewing Marion Kauffman Foundation, spoke to the role of philanthropy in this area. “What we do at the Kaufmann Foundation is provide support to libraries to help them be innovative. We provide funding around maker spaces, or maker faire. In foundations, people tend to have to measure everything, but you can’t always measure; sometimes you have to let it happen.” She continued by describing that her job is to “help move the needle towards innovation. ...I usually come down on the side of buying into the mission of an organization and supporting them from that perspective and giving them walking around money and then figuring it out.”

Charles H. Revson Foundation President Julie Sandorf agreed that providing walking around money is critical to library innovation. “In terms of staff and walking around money, it is absolutely essential. But many library systems are barely making a 5-day week. Most branches in New York City were barely making a 4-day week. So, to get from barely holding on to having the resources to motivate entrepreneurial staff you first have to cover the basics. Philanthropy

could make a significant contribution to providing risk capital to staff for experimentation, providing those entrepreneurial staff the opportunity to innovate both within the walls of the library and outside the walls in collaboration with other community partners.”

For libraries, experimenting with public funds can be risky unless library leadership has done a good job of communicating its vision for innovation with its government partners. Several participants noted that there are not a lot of risk takers entering government institutions. “Failure is a sharp point by which your adversaries stick you at every chance,” said Jonathan Chambers, who noted that people treat failure with public funds differently from failure with private funds.

Chambers, who has worked alongside entrepreneurs in both the public and private sectors, shared this advice: “I’ve run a bunch of trials and experiments at the FCC. I always tell people up front that I’m trying to learn something. I’ve seen a lot of poorly designed pilots. Don’t design a pilot to learn something and then, after a period of time, it’s gone. Design your experiment to learn something as quickly as you can and then move onto the next thing. Don’t think of it as failure. Think of it as tinkering—tinkering is a badge of honor; experimentation, rather than success or failure.”

PRACTICAL STRATEGIES FOR LIBRARY INNOVATION

X = Human Capital + Technology

The Roundtable included working group sessions that allowed smaller groups of participants to do a deeper dive to explore and develop practical strategies to accelerate the development of library-centered innovation. The groups were convened around three priorities. Each group identified an opportunity or problem as the inspiration for their collaboration and deliberations. On the last day of the roundtable, each group presented its big idea.

Superconnectivity

Project: Superconnectivity

Big Opportunity: Addressing the wealth gap

Priority: Access, Inclusion and Engagement

Communities are segregated by wealth, which leads to economic immobility. There are few, if any, spaces in communities that are compelling and accessible for people across the economic spectrum. Libraries are uniquely positioned to provide “superconnectivity” across the entire community, regardless of income, compelling community members to engage.

The main components of Superconnectivity are:

Technology: The superconnected library is the only place that provides free, reliable, “super” high-speed (10G) connectivity. Such amazing connectivity is a compelling reason for people of every wealth and social status to come to the library, to get what they cannot get anywhere else in the community.

People: In the superconnected library, staff are reimagined as community activators. The idea of superconnectivity applies to the capacity of the library to leverage its high-speed technological capacity and its well-designed and engaging physical spaces to facilitate the development of interpersonal relationships, collaborations, human capital.

Public Space: The superconnected library is a collaboration space enabled by technology and materials. Libraries are open longer, drawing from co-working space models to provide simple but critical services.

The superconnected library is not issue-driven; rather, it is agnostic in terms of the work that is done. The library provides the space and platform for people to do all sorts of things: immigration, immunization, business, community organization, learning, early childhood. It is a place that connects the private and public sectors, business and government, work and play.

The superconnected library incorporates key ideas raised during the roundtable. It adapts the Teach for America model and employs “Librarians for America” to infuse the library with young, mission-driven talent. E-rate technology funding, which is more widely distributed through the use of a Turbo Tax-like tool, is leveraged to build the 10G connectivity which lures private sector workers, entrepreneurs and university researchers to tinker and experiment at the library, and imagine new ways of doing things with the awesome technical capacity.

Progress toward creating the superconnected library can be accelerated by support in filing E-rate applications and an overall simplified application process (to overcome the barriers mentioned earlier in this report). The superconnected library does not exist without the technological capacity described, even if many patrons never take advantage of its presence.

More highly visible demonstrations of supercomputing power that help people to see the future would also help to speed progress. Librarians and others can create demonstration sites to fire the imagination. This will require librarians and the community to consider deeply what superconnectivity enables. Libraries should develop a compelling narrative and seek partners as additional action steps to create more value in the future.

Finally, changes in library science education that prepare librarians to be the leaders, mentors and curators of the superconnected library will play a role in how quickly Superconnectivity moves from the white board to reality.

Success for the superconnected library may be measured by the following criteria:

- Use across demographics increases
- Political and financial support increases
- Referrals to library services increase
- Collaboration at libraries increases
- Usage of space is tracked (who is using it, and what is their behavior over six months, a year, two years?)
- Increased income in surrounding geographies

In summary, the superconnected library enables collaboration and unparalleled access, leading to a reduction in America's massive inequality and an increase in economic prosperity.

America's Civic Square

Project: America's Civic Square

Big Opportunity: Fragmented media environment

Priority: Public Forum and Citizenship

There are many important national issues that affect individuals and communities at the local level for which there is no good forum for broad public discussion. A fragmented media environment means commercial brands are no longer doing an effective job at providing platforms for civil discourse and debate. Libraries have a civic responsibility to fill the vacuum.

America's Civic Square (ACS) creates a movement that brings together much of the work libraries are already doing, but aggregates these activities to create a moment and lead to action. ACS creates a network of libraries across America and builds a social and technological platform that can be leveraged at the national and local levels.

At its core, ACS has three main components:

- Brand – America's Civic Square is supported by PR and marketing functions around it
- Digital platform – internal and external
- Social connection between libraries

America's Civic Square borrows the idea of X-people and creates employees and staffers who have two things going on simultaneously. Rather than being issue-agnostic, ACS is issue-driven—but neutral—within the library's mission-driven culture. ACS has flexibility to address new issues and crises as they arise. Los Angeles City Librarian John Szabo cited the issue of immigration to emphasize that libraries can take on issues that are considered controversial while remaining neutral, saying: "I think it's understanding that this work is who we are as public

libraries and that this is appropriate work. We are not taking a particular position on immigration reform issues, but rather providing a service by making data available, providing information, partnering with non-profits and being ambassadors to individual neighborhoods.”

Network Effects. Working with sponsors (who would change from year to year), ACS sponsors a series of events happening simultaneously in libraries across America. One day a year all libraries have a community-wide conversation and debate on a shared topic, with an expectation of commitment from the audience. Convening a conversation nationally can produce a level of visibility for the topic, the public’s preferred solutions and the libraries themselves.

A suite of assets are developed to create the catalytic moment, the movement and the action.

These include:

- An ACS Media asset—provides b-roll content to libraries and visibility
- National media personality or other national luminary—draws attention and participation to ACS
- Storytelling from the audience—happens on the digital platform
- An API with local and national data on issue of interest to the community – informs and courts controversy
- Incubator for innovation—thinking about ways in which you can generate and help support projects that are innovating around issues

The “Doing” Part. Importantly, ACS touches on things that libraries are already doing (exhibitions, collections, programming, curriculum), but also incorporates dynamic new ideas that can spread across the national network (pop-ups, teenage cool hunters—engaging teenagers to go out and find people with diverse points of view on topics and interview them). ACS allows libraries to put a public relations frame around existing programs, activities and services and then build a larger conversation around them. It supports the conversation among all libraries by making it turnkey in terms of resources. Posters can be customized and printed for promotion, for example.

ACS is a pull platform; it needs people to want to participate. America’s Civic Square provides an opportunity for libraries to be that rare neutral platform that can create large conversations. Libraries are, arguably, the most trusted and diverse network out there.

ACS wants libraries to be involved and invested in change. The extent to which they are will be dependent on issues. A range of issues was discussed, including

- Health
- Financial literacy
- Immigration/integration
- Policing
- Educational inequality
- Mass incarceration

Taking health as an example, America's Civic Square can look at proactive communications campaigns to get out in front of health issues in communities, anything from immunizations to Planned Parenthood. In the borough of Queens, it is difficult to reach the Asian community that lives there. Libraries needed help to provide information to the Asian community, so the Queens Public Library partnered with Planned Parenthood. Planned Parenthood set up shop in a branch of the Queens library to help educate and train staff.

One could imagine other national discussion topics being connected to the work that libraries are already doing. For example, the Cleveland Public Library's passport processing service (for which the library collects a fee) could lead to community conversations on immigration, making data on immigration available, classes, partnering with nonprofits that work with immigrants, playing an ambassador role in individual neighborhoods, digital or translation services, a culinary ambassador program. The library is not taking a position on immigration reform issues, but providing services which is the work that libraries do.

ACS looks at range of ways that libraries can host a campaign but also do active work on individual issues. This proposal is mindful of the excellent work done in the past by America Speaks. The distinction of ACS is that it is building on an existing set of networks and the assets of the libraries (buildings, technology, people). ACS is building on top of the library platform. It's that layer of coordination on top that dynamically increases the impact.

Participants felt that libraries have a unique opportunity to aggregate and curate national conversations and are in a moment that they can do so. It will require a branding opportunity to coordinate on top of it, but this is not nearly as hard as the other assets (e.g., buildings) that are already there. This can be done by the largest urban library or by small libraries in tiny little towns.

Libraries as Heroes. Inspired by libraries being hubs, ACS sees that some libraries can be heroes. What can we learn from this moment of crisis or urgency? How can we leverage what libraries can do already as a hero rather than waiting for something to happen?

Building-in Innovation. ACS would promote the creation of innovation labs in the libraries that participate, inviting entrepreneurs to come in and have lab spaces. This could create a revenue stream. Start-ups can get assistance from libraries so that the library functions as an accelerator.

Libraries are aggregating the conversation through the use of social media and the libraries' other assets. It rests on the library's shoulders to make it successful for their individual community. The events themselves become part of a larger archive. The media and content that are created becomes an evergreen touchstone curated at and by the library.

App-Library

Project: App-Library

Big Opportunity: To work outside of formal education

Priority: Learning and Creativity

App-Library uses the metaphor of the app (think: App Store) to develop opportunities for learning and creativity in libraries. It seeks to define a way for other people to initiate and contribute in this platform. Instead of focusing on supercomputing, App-Library focuses on the people piece of the library and its services.

App-Library focuses on early childhood education and informal learning, two things that public libraries do well. App-Library asks, How do people fall out of the traditional educational system or re-training? How do they actually engage with the library to continue that trajectory?

In both cases, it is easy to identify opportunities and activities that could be created by overlapping the edges of the library platform and others in the community—partnerships, collaborations, ideas—but the fundamental challenge is that there is no underlying support structure to allow these ideas into the library.

App-Library is more than a library API for informal learning, more than a learning output. A library API can clearly describe what the opportunities are, but falls down because it is not describing an ecosystem. App-Library helps libraries to figure out how to curate these services—what can come into the library’s learning ecosystem and what can’t.

The Basic Idea. The library as a platform already provides all types of early childhood and informal learning services, from story time to checking out books. The part that does not exist is an easy way for people to come into the library and start a tutoring program, or a local healthcare organization to come in and start a health literacy program. If the library is increasingly about experiences, what if we describe the library as marketplace of experiences?

Permission Frameworks. Some libraries already have a framework for coming into the library as a partner. App-Library uses the need for permission to drive innovation by building frameworks where people can seek permission. App-Library looks at the rules and frameworks that people use to access space or other resources and builds around those. Comparing to the example of the App Store, there is a submission process to get into the App Store. In App-Library, there is a submission process to get into the library. Apple provides the developer with tools and kits for people to code things. App-Library, facilitated by technology, defines guidelines and provides partners with resources to get started.

App-Library employs library vetting to ensure that the proposed program aligns with the library’s strategic needs and the needs of the community, that the partner has the capacity to do

the work and deliver good outcomes and impact. App-Library would describe the specific framework that any participant needs to have. Librarians doing the vetting would work with the person or organization trying to set up a new experience.

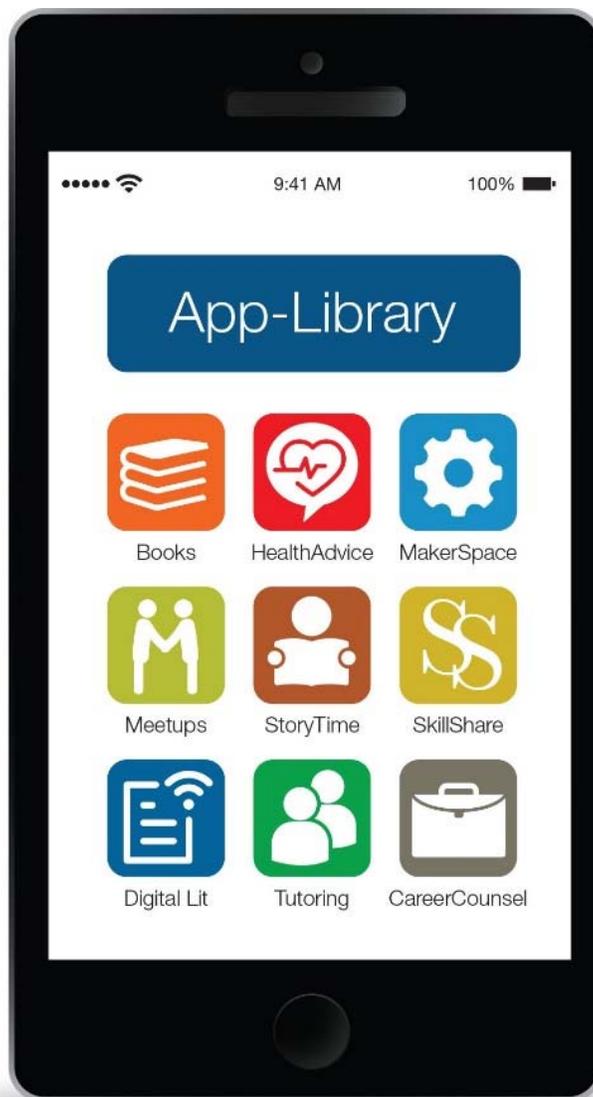
Borrowing from the app development world, a critical component of App-Library is a set of design guidelines (e.g., Apple and Google have HCI), but it is important to remember that App-Library is not about creating a virtual platform but a physical one for libraries. These design guidelines could be about privacy, standards for accessibility or localization. The important thing is that they set up very clearly standards for people who want to collaborate with the library.

Quick start kits might be a good place to help people get started. App-Library would create a resource so that people who want to start on a smaller program can have a kit (more than just the design guidelines), one that shows one or more examples of a successful program.

Improving the Marketplace of Experiences. Focusing on services the library already provides, App-Library would explore how the library can broaden the set of experiences available to the community. Take for example story time.

App-Library would look at what sort of attributes could be added to a service like story time. App-Library would get feedback about usage and participation and formalizing metrics so that across each service, the library knows what is performing well and what isn't. Eventually, App-Library creates a model where these service designs have the expectation of frequent updates, just as apps are updated frequently by developers in Apple's App Store. App-Library asks, What are some ways in which we could more rapidly iterate on these services in the library?

App-Library makes available the library's existing assets (books, media, online resources, curriculum) to be used for external collaboration. And it makes it easier for patrons to identify and find the learning and creative activities that interest them. The library card thus becomes a gateway to "apps" of all kinds.



App-Library provides a framework within which innovation can occur on top of the library's platform. App-Library makes it possible to leverage the library to do some really cool things. It pushes the library beyond just the logical partners, to the unlikely apps or collaborators and provides a means to get those out in a more deliberate way. The model could plug into hacker space, individuals in the community interested in skill sharing, or individuals interested in tutoring. App-Library helps libraries to consider how communities are enabled to write back to libraries. It is about check in, not check out.

CONCLUSION

The three practical strategies designed by participants in the roundtable present fresh, creative and, yes, innovative approaches to envisioning what the library's community platform can look like. Using the core concepts of design thinking, the strategies find inspiration in a variety of places. They look at different aspects of the library and build on the strengths and needs of libraries and their communities. Together, they create a holistic vision of library platforms for innovation.

Taking the concept of X-people introduced by Michelle Ha Tucker of IDEO, the right ecosystem for library innovation is situated at the center of the X that is formed by the interaction of human capital and technology. The three strategies are not built around technology, per se, but see technology as necessary and an enabler for the development of human capital.

X = Human Capital + Technology

These strategies also present concrete ways of addressing the local-national value proposition of libraries and the tension that exists between libraries at the local and national levels. As we move into a super-computing society, it is critical to develop ways to bring libraries together if they are to be at the center of the economic, social and educational work that needs to be done to create and sustain healthy and resilient communities. Maintaining tribal boundaries and institutional silos will do nothing to protect libraries and their patrons from the challenges on the “curve of continuous change” world outlined by John Seely Brown of the Deloitte Center for the Edge and University of Southern California, but will further distance libraries and their patrons from the opportunities of this world. Libraries need to engage in collaborations for collective impact—not just with external partners, but with one another.

These ability to connect people together in new ways and develop new relationships addresses another challenge facing libraries: the need to generate and strengthen political support for libraries by drawing in new champions. Each of these proposals is driven by a desire to bring new people into the library. The FCC's Jonathan Chambers reflected on this aspect of his working group's deliberations:

We did have a lot of discussions in the first group around what would make libraries compelling to potential patrons who no longer patronize libraries. If libraries become only the place of last refuge, they lose political support. People who can afford it go to Google or Amazon and they don't go to library. The idea of super-connectivity meant in part a place where nobody can go anywhere *except* the library. It becomes a place with better connectivity and gadgets, where there is nowhere else you can go to get a really cool experience.

It is worth noting that, while there was much discussion about what public libraries *should* be doing, *could* be doing or *are* doing, there was much less explicit discussion about things that

libraries should *stop* doing. It is unrealistic to expect that libraries can continue to be all things to all people. Identifying priorities for today and tomorrow, and letting outdated services from yesterday fade away, are important -- if difficult -- tasks facing libraries and their communities. Moreover, because the role of technology is so vital to the future of communities and so natural to rising generations of library users, public libraries and the field as a whole need to make fundamental changes in the ways that they think about, use, create, pursue funding for and deploy technology, starting with E-rate. Technology must become a core competency for libraries, not just a service offered to library users.

As libraries do engage with their communities to set these priorities, it is vital that these conversations not only include but are focused on the next generation. Felton Thomas of the Cleveland Public Library mentioned two focus groups with young people on learning and the Internet that he recently observed. “They were very critical and cynical,” said Thomas. “As we talk about the future of libraries, we need to bring young people into the conversation. We can’t design the future without bringing in the people who are living in the future.”

Advancing these and other ideas for transforming libraries and their cultures of innovation will depend on the development of good measurement tools that we currently do not have. Chris Coward, Principal Research Scientist and Director of the Technology & Social Change Group at the University of Washington Information School, said: “What we’ve been talking about is individual measures, but we don’t have good measures for the things the groups presented: community level, impact of the civic square. It is important to work on that for political support. Focusing on what the individual gets when going to the library is important, but not sufficient for the kinds of opportunities we’re talking about.”

Final Thoughts

The roundtable’s exploration of how to design community innovation platforms around public libraries found that innovation is hard work involving complex ecosystems of people, spaces and technologies. It will require the creation of architectures and tools that enable libraries to drive innovation at the edges of the institution and the field overall, creating pathways to move the innovations toward the center and, more importantly, pull the people at the core of the institution closer to the innovative cultures at the edge.

Library innovation is about realizing the agency of, and the development of the human capital in, the community. It asks that library and community leaders not only provide the tangible resources needed to conduct research and experiments, but just as importantly create the permission frameworks and supports to empower staff, patrons and community partners to become agents of change.

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