**Considering the Source (Code): Healthy Skepticism Regarding Uses of Blockchain in Public Libraries**

**Toby Greenwalt**

**Director of Digital Strategy and Technology Integration  
Carnegie Library of Pittsburgh**

The mechanics of blockchain technology holds a lot of promise for reshaping library services. Distributed database operations create opportunities for many foundational operations of library technology. Records management for both patron and bibliographic information could be addressed in this way, and blockchain mechanics demonstrate even more potential for digitization, archives, and applied digital humanities. In many ways, blockchain as a conceptual framework represents the next evolutionary step of data-centric institutions moving their operations to the cloud.

That said, the mechanics of blockchain are just close enough to many existing library practices that one has to ask if the gains are big enough to warrant the investment in time, training, and infrastructure. There’s an “uncanny valley” element to some of the stated elements of blockchain technology in libraries - particularly public libraries. Its potential looks very close to what libraries are seeking to offer, but the subtle differences act to highlight just how much ground remains to be covered.

Bearing that in mind, it is important to maintain a healthy level of skepticsm around blockchain’s merits. What will it take to turn blockchain-based library technology into something scalable, sustainable, and accessible to most? Here are a few of the areas requiring greater exploration:

**Trust:** A distributed database requires a common data framework to be effective across institutions. In many libraries, it is difficult to create common data standards across departments. How can the framework be flexible to allow for institutional variation, while still maintaining the level of consistency necessary for blockchain to be effective?

**Storage:** The constant updates to a blockchain-based database will require data storage tools that can grow exponentially over time - generally at a much faster rate from the present. How does one plan for smart growth, even with an entirely cloud-based infrastructure?

**Bandwidth:** These same constant updates will require an increase in available bandwidth. How will this fit in with existing demands for robust, steady high-speed Internet access in public library spaces - especially as the rate of consumption continues to grow?

**Environmental Impact:** The expansion of data storage and bandwidth necessitated by blockchain will require increased power consumption across the board. While this is never not an issue with networked technology growth, other uses of blockchain technology have caused dramatic spikes in electricity usage. Even if these costs are “unseen” due to the increased use of cloud servers, the environmental costs of widespread mass data consumption warrant close attention.

**Cost:** Each of these factors will come at a financial cost. Whether developed in-house or provided through a vendor, blockchain-based library services will impact the library budget structure in ways we haven’t yet articulated. Will these be reasonable? Will the gains provided by applied uses of blockchain provide an effective return on investment? Without a stronger set of use cases (and their accompanying business models), this question is yet to be resolved.

More generally, there’s the matter of how to implement a blockchain-based model for library services that appropriately suits the needs and abilities for public libraries of all types. Given that public libraries exist at such a wide spectrum of funding, infrastructure, and technical ability, it is entirely possible that blockchain can function as an equalizer. But making this work will require a great deal of effort. The first step in this direction is creating the value-add for blockchain-based services, and ensuring that the bar to entry is low enough to develop a critical mass. There are many reasons to be optimistic about blockchain making a positive impact on public library services, but as with all presumptively disruptive technologies, there is a good reason to maintain a critical eye while moving forward.