



A Learn-able Moment

Michael A Keller, Victoria Reich, Dr. David S. H. Rosenthal

A year or so ago the Icelandic economy was booming. Vicky Reich, Director of the LOCKSS Program, Stanford University Libraries' distributed digital preservation program, talked with Icelandic librarians who evinced a complete lack of interest in preserving digital content; they were interested only in access to it. Their assumption, one shared by too many librarians and readers, was that there would always be money for subscriptions. They are not alone; the Blue Ribbon Task Force on Sustainable Digital Preservation and Access, reporting on sustainable economic models to provide access to the ever-growing amount of digital information in the public interest, [1] has found that Preservation is a much harder sell to potential funders than Access. Funders and many librarians want the short-term reward of giving readers access in the present, not the long-term investment of building collections and preserving them for future readers.

In October the Icelandic banking system collapsed [2] and Icelanders started worrying about their access to food, much less digital content. Clearly the global economic meltdown has lessons for everyone. What are the lessons for libraries in the digital world?

One fundamental reason for the meltdown is that the market over the last few decades has been richly rewarding the elimination of redundancy and resilience from the economic system. The stock market has rewarded companies for returning cash to shareholders through dividends and stock buy-backs. It has rewarded banks for moving businesses "off balance sheet" so that they didn't count against their capital requirements. It has rewarded companies for "just in time" production systems that avoid tying up cash in inventories of parts and semi-

finished products. The short-term benefits of doing so were obvious and immediately rewarded; the increased vulnerabilities and risks of disruption in the longer term were ignored. What could possibly go wrong?

Now the answer is obvious. Jeffrey Sachs uses the analogy of a power blackout to describe the cascading failure that has overtaken the global financial system [3]. Networks such as the financial system can increase their efficiency by increasing the interdependence of their nodes; reducing the resources needed by each individual node by the amounts that, at need, it can draw on from others. By doing so, the network necessarily increases the risk of failure. As nodes fail, their resources become unavailable to their neighbors, reducing the neighbors' margin of safety and making them more likely to fail in turn. Waves of failure propagate along the links in the network, turning what were minor local failures into network-wide collapses. Equally, networks can often increase their efficiency by centralizing essential functions in nodes that are "too big to fail", except that when they do the entire system collapses.

"The Economist" belatedly editorializes [4]:

"In the short term some of the old ways to perk up your share price now seem suicidal. Huge dividends or share buybacks have to be regarded as reckless ... What was once seen as evidence of corporate fitness for the moment looks like anorexia. More padding in the form of cash in the bank will be necessary to secure a clean bill of health. Likewise, ultra-lean supply chains no longer look like such a brilliant idea when you have to find cash to keep afloat a supplier that cannot get even basic trade credit. 'Just in time' is giving way to 'just in case'."



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In the long run of time and especially in the last 60 years, networks of paper-based libraries avoided the failures at ancient Alexandria by building remarkably resilient systems, networks of libraries hedging with one another against single points of failure. Each independently held a local collection of content on durable, write-once media that overlapped to a greater or lesser extent with other libraries' collections. Each formed links with many other libraries through inter-library loan and copy arrangements. Their collections not merely reduced the latency local readers suffered when they required access, but also together formed a preservation network that was highly redundant and fault-tolerant. Hard times may have reduced the flow of new content, but the collections still provided readers with access to the fruits of better times.

Economic pressures and the advent of the Web drove libraries to abandon these centuries-old lessons in "just in case" system architecture and embrace the "just in time" approach. A common mantra was "access instead of ownership." Local collection building dropped off dramatically. Instead libraries became like "feeder funds", apparently independent and competing investment vehicles that all channeled investors' money into Bernard Madoff's Ponzi scheme [5].

The libraries channeled their reader's money into the same few large publishers, whose "big deals" provided access to vast, centralized databases of content of varying quality, so long as the subscription could be continued. The little that could be spared to guard against the fragility of this system was typically funneled into large,

centralized preservation systems. These in turn were in practice dependent to some extent on the same few large publishers. In the short term, reader's access to content became more efficient. But without the resilience and redundancy of local library collections, the cost was greatly increased long-term risk of system-wide collapse, especially during the inevitable times of economic stress.

The lesson libraries should learn is the fragility of hub-and-spoke networks in which libraries are clients of publishers (or third-party service providers to them) who retain custody of the content. Collections, and collaborative web-like networks of cooperating libraries based on them, retain their importance in the digital world precisely because they provide the redundancy and resilience needed to avoid rapid, systemic failures. The technology for collecting and preserving digital content is cheap and easy enough for even small libraries to use. All that is needed now is the transfer of learning from the current global economic crisis to libraries and publishers.

[1] http://brtf.sdsc.edu/biblio/BRTF_Interim_Report.pdf

[2] http://www.economist.com/world/europe/displaystory.cfm?story_id=12762027

[3] <http://www.sciam.com/article.cfm?id=blackouts-and-cascading-failures>

[4] http://www.economist.com/opinion/displaystory.cfm?story_id=12637043

[5] http://www.economist.com/finance/displaystory.cfm?story_id=12818310

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