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Archiving Digital Information

by

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Abstract

The Commission on Preservation and Access and the Research Libraries Group (RLG) created the Task Force on Archiving of Digital Information at the end of 1994 and asked the group to issue a draft report and invite comment before composing a final report. The current draft paper reports on comments received and new information obtained since the draft was issued in August 1995. To advance the work of the task force, the paper also discusses three propositions: (1) archiving is central to a knowledge-based economy; (2) developing economies in the production and distribution of knowledge depends on developing real economies in the archiving of digital information; and (3) achieving a knowledge-based economy requires setting in motion the mechanics of digital archiving.

Many Moons

One of the more famous natives of the area in which we are gathered was James Grover Thurber. Born in 1894 in Columbus, Ohio, Thurber was named for James Grover, the town's first librarian, a Methodist minister, and a close friend of Thurber's maternal grandfather Fisher. Thurber recognized the whims and vagaries that influence parental naming practices and later wrote that "I often thank our Heavenly Father that it was the Reverend James Grover, and not another friend of the family, the Reverend Noah Good, to whom the Fishers were so deeply devoted." (Grauer 1995, 5)

During World War II, Thurber's eyesight deteriorated badly, eventually ending his career as a cartoonist for the *New Yorker*. He focused on his writing, however, learning to "write by ear." He produced an impressive range of materials, including a series of children's books. The first of these tales Thurber drafted in 1941. He misplaced it on Martha's Vineyard and then, after recovering it in 1943, finished and published the story to wide critical acclaim. The American Library Association named the book as the best picture book of the year. It is called *Many Moons* and is one of my personal favorites among Thurber's writings.

In the story of *Many Moons*, the Princess Lenore falls ill "of a surfeit of raspberry tarts." (Thurber 1943) She says that she cannot get well until she gets the moon. The King, being a service-oriented administrator, calls on his aides—the Lord High Chamberlain, the Wizard, and the Royal Mathematician—and asks the moon of each of them. They each give the task some thought, and like all bureaucrats worthy of the name, assure their boss that what he wants simply cannot be achieved. Angry, frustrated, and alone, the King complains in a voice that you all will recognize: "Nobody can do anything for me....Every time I ask anybody for the moon, it gets

larger and farther away." To his confidant, the Court Jester, the King says, "There is nothing you can do for me except play on your lute. Something sad." (*ibid.*)

The Court Jester believes that he can offer his boss more than just another sad tune. Invoking some "out-of-the-box" thinking, he observes of the King's aides that "they are all wise men and so they must all be right." Building on this unusual syllogism, he continues: "If they are all right, then the moon must be just as large and as far away as each person thinks it is. The thing to do is find out how big the Princess Lenore thinks it is and how far away." Stunned at the directness and simplicity of the logic, the King says, "I never thought of that" and the Court Jester goes off to consult the Princess. (*ibid.*)

The Princess tells the Court Jester that the moon is, of course, no bigger than her thumbnail.

"When I hold my thumbnail up at the moon, it just covers it," she says. (*ibid.*) Moreover, she insists that the moon is no farther away than the tree outside her window, because it sometimes gets caught in the top branches. Finally, she says confidently, it is made of gold. The Jester has the Royal Goldsmith make a small moon for the Princess and she immediately gets well.

There is then much consternation within the King's court that the Princess will realize the error of her thinking when the moon rises again the next night. Again, like good bureaucrats, the King's assistants contrive varied and expensive projects to conceal the truth from their client, the Princess, but the Court Jester prevails again. He asks the Princess directly about the seeming contradiction of holding the moon on a chain around her neck and seeing it rise in the sky. She is unconcerned, likening the appearance of the moon in the sky to a new tooth replacing one that is lost.

We are gathered here today to consider a task in the general public interest and specifically on behalf of our clients in the scholarly community. The task—preserving digital information—many have likened to asking for the moon. Our challenge this morning, and that of the task force on whose work I am here in part to report, is not to say to each other how difficult and far away that moon is but, in the spirit of Thurber's Court Jester, to frame the questions in ways that enable us to grasp it.

The Task Force on Digital Archiving

At the end of 1994, the Commission on Preservation and Access and the Research Libraries Group (RLG) created the Task Force on Archiving of Digital Information to help relieve building anxiety about digital archiving. The Commission asked the task force to frame digital archiving as a set of problems and tasks and to suggest an orderly, perhaps even manageable, approach to their resolution. The task force sponsors selected members with a breadth of experience from a broad range of disciplines and backgrounds, including many from the research library community. The sponsors then asked that the group seek input from a still wider array of specialists and interested parties by issuing a draft report, distributing it widely, and inviting comment before composing a final report.

The task force submitted the draft in August 1995. The comment period formally ended on October 31, but in fact continued through the first part of 1996. We received numerous thoughtful and helpful comments, suggestions, and criticisms from many individuals, some of whom are sitting among you today.

The international interest in the report has been especially gratifying for those of us on the task force. We received extensive comments from a federation of libraries and archival agencies in Australia, from the Library Networks and Services Directorate of the Commission of the European Union, and in January 1996 from the Consortium of University Research Libraries in Great Britain.

Then, of course, there are the parallel efforts that always surprise and amaze participants, because the task force, given its representation, should have known about key related work but did not. In October 1995, we learned through the publication of its report that, way back in 1992 at the behest of the National Archives, the National Research Council had launched a detailed study on preserving scientific data. The report is entitled *Preserving Scientific Data on Our Physical Universe: A New Strategy for Archiving the Nation's Scientific Information Resources* (National Research Council 1995a,b). It is an excellent and detailed piece of work that focuses particularly on the problems and prospects of archiving information that digital instruments generate as part of scientific experiments and systematic observations of natural phenomena. The response from our international colleagues did point to one significant omission in our list of recommendations. Given the level of effort abroad, there needs to be at least one reliable point of contact and coordination in this country so that our work goes forward in the context of related work around the world. From the various comments addressed to the task force, we also learned that we should have said more about the criteria for selecting digital materials for retention. At a minimum, we should have said clearly that we expect many of the criteria used to evaluate materials in paper and other forms also to apply to digital information objects. In addition, both the work of the European Union and the National Research Council suggest how the task force could have dealt more effectively with the concept of metadata, or information about digital objects.

The comments we received also raised useful questions about a number of key arguments in the report. For example, the European Union and the Consortium in Great Britain challenge our premise that preservation occurs in a system of distributed responsibilities for assessment, retention, and rescue. They argue that the goal of preservation is better served if it is a legal mandate linked to the required deposit of materials in national libraries. A related, but weaker, version of this argument against a distributed framework for digital preservation holds that it is unrealistic to expect, as a basic principle, that the originator of digital information will accept responsibility for long-term retention. Other arguments have challenged our insistence on the need for certification and our emphasis on what we call "document-like" objects.

In addition to omissions and questionable arguments, the responses to the task force report have also usefully called our attention to outright errors. For example, our account of the 1960 census is overstated. Our argument about the application of the first-sale doctrine is flawed. Also, the economic model that we advanced needs to be updated and corrected in its analysis of some key cost factors.

The task force is now focused on incorporating what we have learned into a final report. We are correcting the flagrant errors and infelicities contained in the draft and, in a relatively brief supplement, we are addressing the questions and additional issues that have arisen during the comment period. We are aiming to have this final product—the corrected text and the supplement—ready by May 1, thereby enabling our sponsors to move quickly to the next steps. To stimulate your attention further to the means and prospects of digital archiving, and to begin to advance the task before us, I ask you now to join me in thinking through the following chain of reasoning. The first argument that I want to develop with you is that archiving is central to the emerging knowledge-based economy. Second, I want to suggest that the development of economies in the production and distribution of knowledge depends on the development of real economies in the archiving of digital information. Finally, I want to persuade you that the path to achieving a knowledge-based economy is actually to set the mechanics of digital archiving in motion as a pervasive and trusted foundation for cultural discourse.

Archiving Digital Information in a Knowledge-based Economy

Any discourse about economy, about the efficient management of scarce resources toward valued ends, is ultimately a discourse about values. Of what value or good, we must ask, is archiving and why should we push any scarce resources its way? This is a difficult question about purpose that may immediately open questions about and prompt defenses of particular forms of organization for archiving. In considering the answer, however, we must separate issues of purpose and function from those of organization.

I note in passing here that the task force report consistently equates long-term preservation with archiving and identifies digital archives, rather than digital libraries, as the unit of activity for the long-term preservation of digital materials. I maintain this usage here and it is a functional, not an organizational distinction. We all know that many libraries do frequently assume responsibility for the long-term preservation of the record of knowledge, but we have come to designate those that exercise such responsibility as a matter of course with special semantic markers as in the phrase "*research library*." Moreover, although we now refer to "digital libraries," discussion of such entities to date has made almost no reference to the long-term value of the content nor to the mechanisms that might be employed to preserve such value over time. Rather than use the semantically marked phrase that Peter Graham (1995) has suggested, namely the "digital research library," we have adopted the simpler designation of "digital archive."

In answer to the question about the value of archiving, the task force report opens by invoking the principle that culture—any culture—depends on the quality of its record of knowledge. If that record is defective, as it will be if urgent attention is not given widely to the preservation of information in digital form, then the quality of the culture is also at risk (Task Force 1995, 1-2). The task force intended this "culture at risk" argument to establish a case for the preservation of digital information as a matter of public interest and policy. However, there is a stronger and more compelling case to be made about the economic value of preserving digital information. The stronger case of economic value requires us to identify the principles underlying a knowledge economy as distinct from other kinds of economy and to demonstrate the place of archiving among them. The basic principle that enables us to regard the knowledge economy as a distinct construct is the notion that the pursuit of knowledge is its own end. As I craft for your review the stronger case based on this fundamental principle, I turn for help to the works of

Richard Lanham, a distinguished professor of English at UCLA, and Jaroslav Pelikan, the great religious historian at Yale.

In *The Electronic Word*, among other recent publications, Richard Lanham (1993) has argued that the scarce commodity in a knowledge-based economy is not information. We are glutted with information. Rather, the scarce commodity is the human attention that gives information its structure, its usefulness, and its value as knowledge. In Lanham's scheme, human attention is labor, information technology is the means by which the labor is applied, and attention-structures designed to capture the interest of consumers, including students and other scholars, are the products of the labor and the technology. He argues further that the discipline of rhetoric provides the theoretical framework for systematically describing and evaluating the end products of this knowledge work, the attention-structures.

Lanham goes on to argue from these premises that the rapid expansion of the division of labor around the technologies of sand, glass, and air—the pace, direction and substance of which George Gilder (1995; see also Bronson [1996]) has so forcefully described has democratized the cultures it touches. The products of the knowledge economy—the attention-structures—re easier to generate and to use, and the markets for them continue to expand. As the knowledge economy has grown, so too has the demand within it for knowledge workers and knowledge consumers who are broadly educated in the arts and sciences.

The pressure of these developments on the nation's educational system, particularly the system of higher education, has been extraordinary and, at least, fourfold. First, the system must serve a growing number of students who by conventional standards need remedial training to advance through the curriculum. This pressure is, in part, an expression of the distinction between the *haves* and the *have-nots*. Second, the broader range of constituents in higher education, whether they need remedial training or not, presses for different approaches to the curriculum. The expression of this pressure appears, in part, in the form of debates over the place of multiculturalism on our campuses and in our curricula. Third, the division of labor in the knowledge economy has resulted in both increasing specialization within disciplines and the rapid growth of interdisciplinary study. Fourth, the system can serve the broader range of constituents and interests only by dramatically lowering the costs of education to affordable levels.

The cumulative result of these pressures feels to many of us in the business as if we are under siege and being asked to lower the quality of our products and services. However, note, as Lanham does, that the dynamic described here also represents a profound impulse to achieve the preeminent goal of education in a democracy. (*ibid.*, 23) That is, insofar as knowledge is both the source and outcome of human labor in this rapidly growing segment of the economy, literate citizens, who value the pursuit of knowledge as its own end, as both the source and outcome of their labor, will prevail.

Although George Gilder is highly optimistic about the democratic outcomes, Lanham is more skeptical and cautious. He has good reasons for caution, even if he is not always clear about them. Jaroslav Pelikan, who comes at these issues from quite a different angle, helps us appreciate why a focus on the technical underpinnings of the pursuit of knowledge is not a sufficient predictor of the social outcomes of that pursuit.

In *The Idea of the University: A Reexamination*, Pelikan (1992) has produced one of the most eloquent and detailed critiques of the principle of knowledge as its own end and of the university, in which this principle has long provided the central operating concept. According to Pelikan, the principle of knowledge as its own end is merely one of a more comprehensive set of first principles that he calls the "intellectual virtues." These virtues are essential for the pursuit of knowledge as its own end, and include principles of free inquiry and intellectual honesty, an obligation to convey the results of research, and an affirmation of the continuity of the

intellectual life, upon which each generation builds and to which it contributes in turn. (*ibid.*, 32-56) Building on this set of first principles, Pelikan argues that the advancement of knowledge through research, the transmission of knowledge through teaching, the diffusion of knowledge through publishing, and the preservation of knowledge in scholarly collections are the four legs supporting any table made for the pursuit of knowledge; they particularly support the table that has come to be known as the research university. (*ibid.*, 16-17, 78-133)

Invoking the 19th-century phrasing of John Henry Newman, Pelikan goes on to suggest that support for teaching, research, and publication constitutes the "endowment of living [genius]," whereas efforts to preserve, or archive, knowledge by organizations like libraries, museums, and archives represent "the embalming of dead genius." (*ibid.*, 110) Lest the connotations of these phrases give you pause, note that Pelikan is careful to distinguish embalming from entombing. His use of "embalming" is a colorful synonym for preservation and archiving that he takes to include all of the means necessary to make knowledge accessible to present and future generations. Moreover, he vigorously argues that "new knowledge has repeatedly come through confronting the old, in the process of which both old and new have been transformed." (*ibid.*, 120) Memory is not a warehouse, but an active process of recategorizing based on previous categorizations. In the province of the knowledge economy that we know as the research university, the two motives at work—embalming and endowment of genius, the looking backward in preservation and the looking forward in research, teaching and publication—thus are inextricably linked and flow from the principle that the pursuit of knowledge is its own end: preserved work from past generations is a necessary foundation for present and future work, which in turn defines the accessibility of the preserved work.

If we accept the argument that the emerging knowledge economy is founded on the principle of knowledge as its own end and that the broadly defined function of preserving, or archiving, the record of knowledge is essential to the pursuit of knowledge, then it follows that the emerging knowledge economy cannot survive and will not lead to democratic outcomes without a provision for the archiving function. It is this logic that led the task force to assert as a fundamental principle that "information creators/providers/owners have initial responsibility for archiving their information objects." (Task Force 1995, 15) In a knowledge economy, where knowledge is both the source and outcome of labor, we presume archiving to be in the producers' own self-interest. Do we believe that such self-interest is sufficient in all domains to meet the requirements of a larger knowledge-based culture? Not at all. In fact, we expect and provide for the play of a much wider set of interests, including those of organizations such as research libraries, museums, and archives that have a stake specifically in long-term preservation, to balance and support the self-interest of producers. We also envision the interests of these various stakeholders as being held together through the operation in the public interest of a program of certification and a fail-safe mechanism. Let's explore further the means we have available to stimulate the development of these dynamics toward digital archiving and to compensate for the risks attending this process.

Part Two

Developing an Economy for Digital Archiving

If preservation is an essential feature of the knowledge economy, then real economies are necessary and must emerge in digital archiving for the knowledge economy truly to flourish. When the necessity for digital archiving is posed in this way, as a problem of economic development, those of us in the business of managing the record of knowledge for posterity can easily succumb to terror in the face of the explosion of digital information. I identify my own feelings with those of the woman so clearly captured in one of Thurber's wonderful cartoons. She sits before a bow-tied, pince-nezed, and long-eared doctor to whom she has come for help and he says to her: "You said a moment ago that everyone you look at seems to be a rabbit. Now just what do you mean by that, Mrs. Sprague?" (Grauer 1995, 148) Everywhere we look, there is digital information. How do we put ourselves as a culture in the position of identifying and giving sufficient attention to the digital material that is worth saving?

As we contemplate the archiving of digital information, we must recognize that we are not seeking to finetune some technical variables of a system that is already long in place. Although the goals are ultimately the same, we are not placing brittle books under a microfilm camera in a well-defined process. Instead, we are faced with what the task force report calls "a grander problem of organizing ourselves over time and as a society to maneuver effectively in a digital landscape." (Task Force 1995, 4) The effort to meet the cultural and economic imperatives of digital preservation requires us to build, almost from scratch, a system of infrastructure for moving the record of knowledge naturally and confidently into the future.

Although the task overall may be daunting, we are not helpless and without places to start. At the meeting of the Association of Research Libraries in October, I observed that the real intellectual action for at least a subset of scholarly disciplines no longer occurs in the conventional publication stream but elsewhere: in online databases, online exchanges of preprints, listservs, and so on. Conventional publication in these disciplines adds little value to the work that has already been disseminated in these other channels; rather it is a redundant process, undertaken to generate, in effect, a certified archival record of the work. Because the audience paying attention to the field has already seen and absorbed the work in online versions, the printed publication channel grows increasingly narrow, consisting primarily of libraries that serve as the archival institutions. Given a narrow market, costs and prices consequently rise on the supply side. On the demand side, libraries respond by cutting titles from their collections. (Waters 1996)

There is clearly little logic or economy in a process whereby scholars use printed publications to establish an archival record only to find that the institutions responsible for ensuring that the archive endures for future generations cannot afford to purchase the publications. Framed in this way, the problems in the scholarly communication process that appear to us as a spiral of escalating prices and journal cancellations are *archival* problems. As such, they give research libraries, publishers, scholars, and universities substantial economic motive to save money and streamline the process. Where there is redundancy between print and electronic form, as there increasingly is in disciplines such as mathematics and physics where preprint markets flourish, we need to identify and capture the real intellectual activity from the online places wherever it is now naturally occurring and ensure that such activity is housed in certified, durable, and readily accessible archives. In so doing, we can eliminate a substantial set of redundant costs. Perhaps we can even enable our colleagues in the academy to change further the ways in which they conduct scholarship and, perhaps, the mechanisms, such as tenure review, by which they measure the quality of that work.

We will do ourselves and our colleagues no favors, however, if we replace a costly, redundant archival process with one for digital materials that is even more costly. The task force identified a wide range of factors, the interaction of which could certainly make the costs of digital archiving prohibitive. The factors include:

- The various kinds of digital information objects, including text, images, numeric data, sound, video, simulations, geographic information systems, and hypermedia
- The variety of attributes that bear on the ability to preserve these kinds of objects, such as encoding, source, mode of distribution, and referential and dynamic qualities
- The mix of stakeholders with interests in the information
- A set of organizational issues, such as selection, accession, storage, access, and systems engineering
- A variety of migration paths
- Intellectual property rights

In this complex mix of factors, there is equally fertile ground for the play of specialization, division of labor, and competition that will not raise costs, but drive the economy of archiving vigorously to lower them. Division of labor and specialization are already evident. For example, some key services, such as rights management and network charging facilities, are emerging generally in the commercial marketplace and will undoubtedly serve the interests of archiving as well as other segments of the knowledge economy. The development of other services, such as durable naming conventions and expanded meta data facilities, are well under way.

Responsibility for these two particular services, in fact, is largely in the capable hands of OCLC's Stuart Weibel, who is also a member of the task force. Still other kinds of specialized archival services—those, for example, that require the complex weaving of information holdings in particular disciplines from among a variety of providers and custodians—will require time and a commitment to a complex iteration and reiteration of exploration, development, and solution as the relevant issues emerge and become clearer and more tractable.

Fortunately, as we design these explorations, we have a rich experience from which it behooves us to draw. In the creation of information utilities like OCLC and RLG, we came together to craft an economy out of an information management process in which we operated handicraft-style, in isolation and without the discipline of competition and the benefits of economies of scale. Just as we did two decades ago for bibliographic control, we have to find ways to invest our interactions over digital archiving with a marketplace dynamic that drives us to organize and routinize the activity and thereby continually to improve quality and lower cost.

The process of coming to terms with each other and with our partners in academia, in publishing, and in the larger knowledge economy about the investments we must make in digital archiving is essentially a coming to terms about the centrality of archiving—the embalming of dead genius—in the pursuit of knowledge. However, these understandings and agreements can be achieved only in actual practice, which brings me to my third and final point. Our agreements to divide the labor as formal partners, as informal allies, even as competitors must set in motion—soon and substantially—the mechanics of digital archives as a pervasive and trusted foundation for cultural discourse.

The Mechanics of Digital Archives

There is an apocryphal story about the government service agency that formulated its record retention rules as follows: (1) discard all records when they become 30 years old; (2) retain all records over 50 years old for their historical value. (National Research Council, 1995b: ix) Most of the task force recommendations are designed explicitly to avoid the paralysis of this kind of thinking about the knowledge economy that is emerging before our eyes. The recommendations for setting in motion the mechanics of digital archiving invite substantial cooperative action. I draw your attention to three of the recommendations. Each illustrates a different form of interaction and each yields a different kind of benefit.

First, the task force calls for certified digital archives. The process of certification is meant to create an overall climate of value and of trust about the prospects of preserving digital information. Repositories claiming to be digital archives in a changing and uncertain environment must be able to prove that they are who they say they are, and that they can deliver on the preservation promise.

There are at least two models of certification. On the one hand, there is the audit model used, for example, to certify official depositories of government documents. The depositories are subject to periodic and rigorous inspection to ensure that they are fulfilling their mission. On the other hand, there is the standards model that operates, for example, in the preservation community. Participants claim to adhere to a given set of standards; consumers certify by their use whether the products actually adhere to the standards. The task force has not judged the merits of these alternatives. Instead, its call for individuals and organizations to agree to collaborate in the design and implementation of standards, criteria, and mechanisms for certification, and for prospective digital archives to submit to the certification process, is a summons for the wider community to affirm the values—at least in the abstract—of digital preservation and ultimately of the pursuit of knowledge as its own end.

The task force also emphasizes the need for a fail-safe mechanism in digital archives. Such a mechanism will enable a certified archival repository to exercise an aggressive rescue function to save digital information that it judges to be culturally significant but endangered in its current repository. We may not know enough about the use of digital information to reach consensus yet about what fair use of it is, but we do know that one of the greatest dangers to its long life is the ease with which it can be abandoned or destroyed. If concerted action is needed in the intellectual property arena to protect the rights necessary to support teaching and research, then let us focus at least some of that action on the development of the legal framework needed to support a fail-safe mechanism for digital archives. The benefit of such action is, of course, not in the dollars it directly generates or saves, but in the environment it creates for archival institutions to do their jobs and to realize the value of preserved work for future generations.

Finally, I call attention to the task force recommendation for a cooperative venture to preserve the documents, discourse, software products, and other digital information objects that serve to record the early digital age. Because the objects in this focal area are at such risk of loss, the project could provide a useful means of exploring the actual operation of archival fail-safe mechanisms.

Moreover, conceived as a cooperative venture among multiple participating archives, the project would provide a necessary testbed for developing an online system of linked but distributed archives. One of the biggest unknowns in the digital environment is the full impact of distributed computing over electronic networks. However, as the task force report suggests in the section on costs and finances, one of the greatest hopes for reducing costs in the scholarly communication process is the prospect of achieving economies of scale in the storage and distribution of

electronic information over electronic networks. We need to verify these expectations of economic benefit in actual experience with a range of materials in archival settings.

Conclusion

I conclude by acknowledging the daunting yet compelling and urgent nature of the archiving tasks before us. In such situations, procrastination is always a temptation. For those of you so tempted, I commend to you the practice of structured procrastination, which John Perry, a professor of philosophy at Stanford University, described in detail several weeks ago in the *Chronicle of Higher Education*.

Structured procrastination, he argues, is “an amazing strategy” that “converts procrastinators into effective human beings.” The central idea behind the strategy is that “procrastinating does not mean *doing absolutely nothing*. Procrastinators seldom do absolutely nothing: they do marginally useful things, such as gardening or sharpening pencils or making a diagram of how they would reorganize their files when they find the time. Why does the procrastinator do these things? Because accomplishing these tasks is a way of not doing something more important.” (Perry 1996)

The trick in structured procrastination, according to Perry, is to establish a hierarchy of tasks “in order of importance from the most urgent to the least important. Even though the most-important tasks are on top, you have worthwhile tasks to perform lower on the list. Doing those tasks becomes a way of not doing the things higher on the list. With this sort of appropriate task structure, you can become a useful citizen. Indeed, the procrastinator can even acquire...a reputation for getting a lot done.”

I had not realized until I read Perry's piece how thoroughly the task force had grasped the idea of structured procrastination and had, in its report, invited its sponsors and readers into complicity. We accept that archiving digital information is absolutely the highest and most urgent priority. It is rather like getting the moon for Princess Lenore. But our recommendations actually urge a series of lesser tasks. Some of our critics have said that the task force report needs to be much more forceful in its recommendations, to bring them in line with the overall magnitude and urgency of the task at hand. I respectfully disagree and turn again for support to John Perry: *"At this point, the observant reader may feel that structured procrastination requires a certain amount of self- deception, since one is, in effect, constantly perpetrating a pyramid scheme on oneself. Exactly. One needs to be able to recognize and commit oneself to tasks with inflated importance and unreal deadlines, while making oneself feel that they are important and urgent. This clears the way to accomplish several apparently less urgent, but eminently achievable, tasks. And virtually all procrastinators also have excellent skills at self- deception—so what could be more noble than using one character flaw to offset the effects of another?"*

I rest my case.

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