P R O C E E D I N G S
PANEL 1: CONTINUITY AND CHANGE

IN UNIVERSITY SCHOLARSHIP

TOM STALEY: Thank you very much. Good morning. I'm pleased to welcome you to our panel discussion.

Before we begin, however, I would like to invite all of you to attend, those who aren't going on that bus, this evening for the opening of the Normal Mailer Exhibition called Normal Mailer Takes on America. Information about that exhibition is in your program.

And now to the matter at hand. Our distinguished panelists this morning will address issues related to research and scholarship in the academic disciplines.

Specifically, they will discuss not only how the academic disciplines are constantly reshaping themselves, but also how new dimensions of information delivery and digitization change our structure of knowledge, and how research libraries are responding, or should respond to this changing environment where the world's texts are being electronically copied, digitized and linked.

Thomas Carlyle spoke of a simpler time when he wrote in the 19th Century, “The true university of these days is a collection of books.” Jim Duderstadt spoke yesterday of the meta-university in a global universe.
doubt if Carlyle would be able to find it.

Our three panelists have each in their own way contributed to this dialogue already. To allow more time for discussion, I'll introduce all three of them very briefly, before they begin their opening presentations.

Bernard Frischer is the current director of the Institute for Advanced Technologies in the Humanities at the University of Virginia. He is on the forefront of scholarship in the application of digital technologies to humanities research and education.

He founded and directed the cultural virtual reality lab at UCLA where he oversaw such projects as the virtual recreations of the Roman Colosseum and the Roman Forum.

John Unsworth is Dean of the Graduate School of Library and Information Science at the University of Illinois at Urbana-Champaign. He was the first director of the Institute for Advanced Technologies in the Humanities of the University of Virginia.

More recently, he served as Chair of the American Council of Learned Societies Commission on Cyber Infrastructure for Humanities and Social Sciences which explored the high performance computing tools available to researchers in these fields.

Lorcan Dempsey is Vice President for Research and Chief Strategist at the Online Computer Library Center, better known to most as OCLC. He has written and
spoken widely on resource discovery services, metadata, distributing information and library systems, the changing position of libraries and the curatorial traditions of libraries, archives and museums.

We are pleased to have this distinguished group with us this morning. Our panelists will each speak briefly on the topic, and we will follow their presentation with a discussion, leaving time for questions.

First of all, we have our -- Mr. Frischer, you're on.

BERNARD FRISCHER: Thanks for that nice introduction. And thanks for the invitation to speak to you today about how the humanities have been affected by information technology in the last 20 or 30 years since anyway, since I was hired at UCLA as an assistant professor of classics.

Does it matter that scholars in the humanities have generally traded in their typewriters for a PC? I think we would all answer that question, that it obviously does matter. The medium may not be the message, but the medium certainly does change the ways in which an ever growing number of scholars create craft and communicate their messages.

And the farther back we go down the career path from full professors to assistant professors to K-12 students, the more we can see these changes at work.
Even though the famous physicist deals more, is usually correct in claiming that predictions are very hard to make, especially with regard to the future, in this case he isn't. We can see the future if we just look at the world of My Space and You Tube that our students and children take for granted today.

Looking at the end of the scholarly communications pipeline, first, one striking difference between many works of scholarship today and those of 30 years ago when I was starting out, is not only the vastly increased number of digital publications, but also the marked increase in the humanities, of scholarship that is co-authored.

Co-authored publications grow out of collaborative online communities, like My Space for kids, or the one created by Professor David Germano for the study of Tibetan culture.

His Tibetan and Himalayan Digital Library now integrates the efforts of nearly 1,000 scholars around the world, and it fills over 10 terabytes of storage on our library's server.

Another example is Raphael Finkel's Suda On Line Project founded in 1998. The Suda is a very important 10th Century Byzantine encyclopedia of classical culture.

It's 30,000 articles had never been translated before into English, despite giving us precious
biographical information about Greek writers, such as Hippocrates, Sophocles and Plato. Under Professor Finkel's leadership, almost 20,000 articles have now been translated and published on the internet, just since 1998.

If we compare the internet to the U.S. Post Office, which is what we would have to use 30 years ago for such a collaborative project, online collaborative research is obviously infinitely more feasible in terms of cost, speed, and the quantity, and especially quality of interaction it affords scholars.

Something like the Suda Project or the Tibetan and Himalayan Digital Library didn't exist 30 years ago because for all practical purposes, they would, it would have been impossible for them to exist.

Another thing that couldn't exist, mainly because it would have been prohibitively expensive, was large scale publication of materials typically housed in the special collections department of an American research library.

I'm thinking of maps, mediaeval manuscripts, ancient papyri and incunabula and so on. In recent years, collaborative projects of scholars and librarians have proliferated to provide comprehensive free access to such materials.

One of many I may cite is the incredibly useful online Perry Castañeda Library map collection at The University of Texas, a collection with over 5,000
digital maps online available to the public, and 250,000 available here at the University. An extremely useful collection.

Finally, let me also mention at least one example of something that could not have existed 30 years ago because it could not be supported by any technology available at the time, a fully interactive 3-D model of an important historical site that no longer exists, such as the Forum or Colosseum in Rome, the Acropolis in Athens, or the Temple Mount in Jerusalem.

In the last 10 years, a whole new field of digital archeology has sprung into existence to provide us with such recreations.

This panel concerns continuity as well as changes, so let me mention something that has remained pretty much the same, the need for peer review in all this.

Behind this need, there are some practical reasons, especially the issue of what counts for promotion and tenure, and there is also good normative motivation. Peer review work is almost always better than work that isn't.

Here though, we can see an important way in which the digital revolution has been getting ahead of itself. For some years, scholars -- and here I would count myself -- have, in effect, used the internet as one great big vanity press, releasing their work to all and
sundry without the benefit of peer review.

I think the reason for this is obvious, not that we didn't appreciate the virtues of peer review and want our work to be judged by our colleagues, but there was no mechanism whereby we could submit our digital creations to them for comment, acceptance or rejection.

This is gradually changing. The Suda Project is a case in point. Here the peer review process is built into the collaborative publication pipeline itself. But in this case, the similarity to what we were familiar with in the Gutenberg age also hides a difference.

In the archaic world of print publication, peer review had to occur prior to publication for obvious practical reasons. In today's digital age, a translation submitted to the Suda Project can be published before it is peer reviewed, and that's how they do it.

We clearly need many more peer reviewed online publications like the Suda Project. This need is starting to be felt across the humanities.

For example, a recent issue of the Chronicle of Higher Education announced that the Journal of the Society of Architectural Historians was going to start an online version, a version which editor Hilary Ballon assures us will adhere to the same high qualities as does the print Journal.

Let me conclude by giving a glimpse of the near future. The field of classics was an early adaptor
of information technology, and now faces the ironic
problem of managing success.

There's an embarrassment of online riches
available to classicists, but each web project has its own
peculiar features and way of doing things. The typical
resource, for example, a collection of Greek or Latin
texts does not communicate automatically with other online
resources, for example, a Greek or Latin dictionary, or an
online bibliography.

The answer to this problem inevitably lies in
standards and in the interoperability that standards make
possible. In achieving interoperability among our online
resources, librarians and information scientists can help,
and I'm happy to report are helping, by teaching us how to
exploit such things as the Fedora Project, the extensible,
the flexible and extensible digital object and repository
architecture.

The field of archeology lags behind classics,
but recent developments in professional organizations
suggest that this is about to change as archeologists
realize that information technology offers them better
ways to do their traditional tasks.

Given their role as our primary conservators
of the human record, it is ironic that the major challenge
facing archeologists today is how to preserve their own
digital data.

Here again, as the DSpace Federation shows,
the librarians are ahead of the scholars and are adapting
their tradition role of storing manuscripts and printed
works to the needs of the digital age.

This brings me to my conclusion and a final
point of comparison between the situation today and that
of 30 years ago. I refer to the relationship of
librarians and scholars more generally.

Three decades ago, I would say that the
relationship was rather standoffish. As a professor at
UCLA, it never occurred to me that I might want to use the
library as a place to write and actually produce my
scholarship. It was just a place that I made periodic
forays into to find, or not find, a journal or book I
needed.

I think my experience was typical of many
other humanists. There was no particular reason to
develop a close working relationship with our local
university library, and it never crossed our minds to ask
for space in the library, except occasionally for a humble
carrel.

Today the situation is quite different.
Because of the wealth of online materials, many scholars
can do their research and writing anywhere, yet ironically
we find ourselves going to the library no less frequently
than we did before.

We go for help with using online resources to
learn about software that supports our scholarship, and,
at least at my university, to work in a research unit called the Institute for Advanced Technology in Humanities.

At IF, scholars have permanently been allocated over 2,000 square feet of space in the main library to produce their digital work, to realize their digital dreams in collaboration with information scientists and technical staff who support them and their collaborative research projects.

So the research library is still just that, a place to promote and support the research of the faculty. But the way it is fulfilling its mission has begun to change in some important ways.

Projecting forward current trends, I would therefore end by predicting a rosy future for the university library which, with or without books within its bricks and mortar walls, will still be the place to go on campus to find the key resources we humanists need to do innovative scholarship.

Thank you.

TOM STALEY: Thank you, Mr. Frischer.

Mr. Unsworth?

JOHN UNSWORTH: I'm going to follow with a more pessimistic account. Appropriately, I guess, we'll go back and forth.

I think, at the moment, we know a lot more about our digital collections in the research library than
we know about what people do with those collections, or
wish to do with those collections.

And I'm going to use an example that's close
to hand in a project that I'm currently working on as a
way of explaining why I say this. And I'm going to get
into a modest level of technical detail because the devil
is in those details.

So I think that in this, well, I'll give you
the name of the project first. It's the nora project, and
nora is an acronym that stands for No One Remembers
Acronyms. And that's how you can remember it, see?

The nora project is a text mining project that
works on humanities content in digital libraries. So
we're looking at 18th and 19th Century novels in English,
and those novels have been contributed from library
collections and from scholarly projects.

So we're taking the texts already marked up by
the libraries and by these scholarly projects and trying
to bring them together and do text mining on them.

You need to gather material from across
collections in order to put together a coherent and large
enough set of material to be interesting. One collection
doesn't have everything in a certain area.

And you also, for practical reasons, you need
to bring these things together in order to pre-process
them together, and in order to index them together.
Because when you start to ask for statistical information
about these collections, that statistical information is
only meaningful if you're asking about it in the context
of everything else.

And you can't get inverse document frequency
counts of, you know, certain pieces of vocabulary in one
document, and then, you know, in one collection, and then
add them to the numbers for the same thing from some other
collection and get a meaningful answer. You actually need
all that stuff together.

But the resources you find, as soon as you
look at them, are clearly expected to be used in situ, in
their original context. They had no idea -- it's like
they woke up in a bad dream with no clothes on in a public
place -- they had no idea that they might be called on in
some context other than the context in which they were
originally prepared to be used, and where use meant to be
browsed or possibly searched.

So we need to pre-process those to get
collection level contextual information, but they don't
anticipate that kind of pre-processing.

In this nora project, we need to be able to
give someone at least a bit of context to read once they
get to a data point, they've drilled down to something and
they say, Wow, that's an interesting point, where does
that come from, and show me, you know, just a few words of
context, and I need to be able to show them that even if
they don't have rights for the whole documents.
I need to be able to return someone from that snippet to the original publicly disseminated address of the whole document, but, again, the whole document doesn't carry that with it. It doesn't have anywhere in it its public address, so there's no way to do that.

I need an environment that allows users of these collections to contribute their results and share them with one another.

I need an environment that allows users to share intermediate artifacts in the research process, that is, the pre-processed collections that they developed for their particular uses, because that pre-processing is what takes all the time, and the actual analysis takes relatively little time.

So if we suppose that two people might be interested in the same sub-set of content, there would be a value in keeping that sub-set around once it had been pre-processed.

I need for this project an environment that allows users to enrich and improve the data that they're working with, with user supplied metadata where metadata might be anything from normalized spelling to suggested corrections of underlying content, or just richer thematic information about the document, but they need to be able to do that without undermining the integrity of the original collection.

And I'm going to need all of that,
incidentally, from publishers if the libraries are not the owners and disseminators of the texts. If the library's just a gateway to the publisher, then I need this from the publisher, not just from the library.

So what's the problem? Well, texts that are prepared to represent an original, where that's the motivation for doing the digitization, often make it difficult to collate and compare and analyze.

And I'll give you a very simple example, which is line end hyphenation. Faithful encoders tend to encode line end hyphenation when they hit it when they're encoding a printed text. And textual editors will probably thank them for doing that because this is a potentially useful piece of information for textual editing.

But line end hyphenation makes it very difficult to know that this word that's hyphenated is the same as the unhyphenated form of the word. It's not impossible, but it's a little bump in the road.

Texts prepared under the assumption that they will always be used in the same way for browsing and searching in the same environment in which they were originally prepared to be published, have a tendency to leave certain kinds of information implicit.

It's implicit somewhere else in the system. It's not in the document itself. The sort of problem of being able to return to the publicly disseminated version
of the document is just one instance of this, but there
are lots of other ways in which this happens.

Texts that expect to have use restrictions
taken care of at a higher level before you get to the
texts don't often carry with them conditions of use, and
if they did, we wouldn't really have a frame work for
resolving the relationship between the context of use at
the moment, and the conditions of acceptable use for that
particular document.

And in most cases, even though the underlying
source of these documents is XML, there's no direct way to
get to that underlying source. I'm usually getting a
rendered HTML version of that, with rare exceptions.

Actually the way we got our documents for the
test bed for the nora project was I mailed thumb drives
around to some of my friends in the library and scholarly
community, and they loaded the source onto them and mailed
the thumb drive back. That worked pretty well, but it's a
little slow.

Where would the processing and indexing of
these scattered collections gather for a particular
research project get process? Would it be on the home
server of one of those collections? Would it be on the
end user's machine? If it were on the end user's machine,
how would those intermediate research artifacts get stored
and saved?

How would someone who wanted to verify a
colleague's results reassemble the original data and retrace the processing? It's like the citation problem, which we're all familiar with, but it's not only how do I cite my results, it's also like citation with provenance and an audit trail attached. It's a bigger problem.

So what's the solution to this kind of problem? Well, one solution would be to run screaming in the other direction when someone comes to you with a problem like this and say, you must be the only person who wants to do that, and it's not worth solving it for you.

And at the moment, you could probably get away with that. But I don't think you'll be able to get away with it for very much longer actually.

So a more constructive solution for starters would be to support the data standards communities, and I agree with Bernie that standards are part of the answer here, but they're only part of the answer.

I also think those communities need to include users, as well as the curators of the data, and technical experts in the development of the standard. You could expand on experiments like DLF Aquifer, and expand them from being about collections sharing to being about shared collection processing, not just federated searching, but how could you actually do other things with sub-collections drawn from participating libraries.

And you could support explorations like the Pathways Project and other efforts to build frameworks...
that envision the use of digital context in the context of scholarship where the data, or data streams, come from lots of different sources where people do arbitrary and somehow unpredictable things that still need to be recorded and need to be able to be traced back.

In general, I think more conversations, and projects, and committees, and communications that involve particular domain scholars, particular collection experts, relevant technical experts focused on some kind of processing of data beyond searching and browsing.

And I also think, last but not least, that we need more systematic studies of the uses to which scholars and scientists put information in digital form, studies of the tools that they use and how they use them, and of the tools they need and what they need them for.

And some of those studies have been done. You know, I certainly have people on the faculty at Graduate School of Library and Information Science, like Carole Palmer who work on this.

There are people at other schools, and here at Texas, and Michigan, and other places, who do those kinds of studies, and I think increased collaboration between the library community and people interested in those questions would be good, and a lot of that work also goes on at OCLC.

So, I'll pass it over to Lorcan on that.

TOM STALEY: Okay. Lorcan? You've been
LORCAN DEMPSEY: Thank you. I was interested in the mention of Thomas Carlyle earlier. Thomas Carlyle is the archetypal user who knows better.

When Panizzi, who managed the British Museum Library, the precursor of the British Library, was one of the founders of a cataloging series as well, he was developing his rules for a British Museum catalog.

And Thomas Carlyle, who was on the committee that Panizzi reported to, was scathing about the obfuscation and complication of these cataloging rules. It's quite simple you just do a list of the books, and then you can find them afterwards.

So Carlyle went on to be one of the founders of the London Library, a private circulating library which exists to this day, but was — I always think of him as the library user who knew better.

So after those two presentations, I feel a little bit like the melon at breakfast. At these breakfasts there's always a lot of melon which takes up space and adds color, but does nothing, and is relatively content free.

What I am going to do is say a little bit about libraries, and I want to say three things, and each of them is systemic in nature I think. One of the issues that we have at the moment is that we have a set of institutions which developed physically distributed around
physical collections and their organization is vertically integrated around those collections.

And many of the difficulties we face at the moment, or the challenges, or the opportunities relate to the fact that we now live in a world which is constructed and organized in a different way. It's -- the network is the center rather than any physical place.

So I want to say something about three things, one about work flows and network flows; one about the scholarly record, what is the scholarly record, how the scholarly ain't what it used to be; and one about access to scale which picks up some of the comments at the end of yesterday's session, and moving to the network level.

So works flows, it seems to me one of the interesting things to come from my colleagues' remarks is, if we think about the library, at one stage people had to build their work flow around the library. And that tended to happen in a physical world. People built their work flow around particular elements and that. So people built their work flow around the library, around what was available.

What's happening now is that people are building their work flow in network environments. You have prefabricated work flow, and the course management system is an example of that, the institutional repository, electronic lab books, you have a variety of work flows that are constructed, and a lot of discussion
about how helpful they are.

But then you also have practices developing on the network which are constructing, if you like, digital identities, life styles, ways of working around things as simple as RSS Aggregators, My Yahoo, and there's going to be a whole host over the next while of ways of helping you build work flow in a sort of self constructed way, because of the centrality of the network.

Some of the issue then for libraries is that we still operate assuming that people build their work flows around the library, rather than imagining how do you make materials and services available in work flows that have moved elsewhere.

So in terms of thinking about, in particular, about what John just said, we have focused historically on discovery. I think increasingly we're going to have to focus on disclosure and dispersal.

We focused on discovery saying, Come here and look for resources. What we're going to have to do is discover ways of disclosing resources to work flows.

That might mean exposing things to Google and the search engines, it might mean exposing things in ways that they could be consumed by RSS Aggregators, exposing them in ways that they can be easily plugged into course management systems, and a variety of other things beyond that.

But the onus will be on making resources
available in such a way that they can be disclosed or exposed into these other work flows, rather than expecting people to come and discover them.

Dispersal relates, quite strongly I think, to what John was just saying. There's a phrase by Raymond Yee of Berkeley, which several of you will know, which is quite nice, gather, create and share. That people want to gather stuff, create stuff, share stuff. At the moment, our resources don't play very well in that context, as John described.

What we're seeing then, in the context of people wanting to acquire materials, manipulate them, use them, and wanting to have them placed in ways that they can be encountered within work flows, is, I think, a general move away from the idea of managing content towards one of managing consumption.

That what becomes important is thinking about how people want to use resources, and then thinking about what ways are required to facilitate that use. And, again, that's something we're not used perhaps to thinking about in the physical world, because people take the materials away and use them in their own environments.

What's happened in the network world is that there's a collapse between those different environments so managing consumption becomes as important as managing content, and how do you hopefully do that. So that's some observations about work flow, and some things that flow
The second set of observations about the scholarly record are the evidential record. Now I think, historically, it might be fair to say, and I'm sure various people in the audience will resist this, publishers created the scholarly record through their selection activity, their editorial activity.

Libraries selected from a pre-established scholarly record. The role of libraries was to select materials which moved into libraries, and then were preserved, managed in that context. One could equate, approximately, the published record -- or published was understood, publishing was understood -- with the scholarly record.

What's happened now, of course, is that that is no longer the case, and Cliff described various reasons why this was so yesterday. If you think about the types of material that have been discussed already at this meeting, you have data from a variety of sources.

You have websites. There was some discussion yesterday about websites, you know, collecting websites in the context of particular scholarly endeavors, and the context of institutional records, in the context of area studies.

You have a whole range of materials that are not conventionally published. And I think what this means is that what becomes part of the scholarly record, what is
going to be managed, what is the scholarly record is no
longer straightforward.

And this creates collection development issues
for libraries, around which we don't yet have a consensus,
I think. And it creates issues in terms of where to
invest resources over time in terms of thinking what is
the scholarly record of the future.

And this, again, relates to uncertainty about
behaviors and requirements. What does the scholar -- what
will the scholar of 2050 have expected you to have
collected is an interesting question.

Related to that then is, again echoing what
John was saying, the -- I think in terms of research
libraries beginning to take a more active role in managing
parts of the scholarly record that are not conventionally
published, or that are conventionally published, and
acknowledging the blurring that happens there, there will
have to be a much stronger move towards a more archival
perspective.

So issues of provenance, authenticity, John
mentioned audit trails, the context from which particular
parts of the scholarly record emerge become important.
The uses to which it's been put become important. And a
really critical issue, which is one we don't have a good
handle on, is citability.

So citation is fundamental to scholarship, but
it's unclear how one cites some of these things in ways
one has confidence that one is citing the thing that was
actually the object of investigation, or analysis.

And we have that issue in a wholesale way with
websites at the moment where people are citing things that
are no longer there, or for which the context has changed.
And there's a whole set of issues emerging around
citation that become very interesting over time.

Related to citation is what I slightly glibly
like to call ex-citability, or ex-citation, where you want
to cite things that are executable. So you have a mixture
of executable and citable.

But, again, if you look at some of the work
that's being done in an eScience context, one of the big
issues there is how does one cite -- when you want to cite
a curated database, you want to cite the database, you
want somebody else to be able to recover it at the time
that it was cited.

So there's a whole set of issues about
citation and citation fundamental to scholarship. And
this isn't a question about persistent identification.
It's more than just persistent identification.

So that's -- there's a whole set of issues, I
think, about the scholarly record, both discretionary ones
about what one cites as part of that scholarly record, and
technical ones about how one -- technical and professional
ones about how one manages it.

The third thing I wanted to say was about
access to scale. And this touches on, as I say, some of
the concluding discussion yesterday.

The range of things that the library has to do
in the context of the environment that was discussed by my
colleagues yesterday grows and grows. And increasingly
it's inevitable, I think, that the library will want to
focus on where it creates a distinctive impact.

Those things that are routine, or done across
many libraries, should really be moved to the network
level, should be moved to a shared place, or sourced in
some other way, because of the opportunity cost of keeping
to do those things. That's one issue.

The other issue is, in many ways, so there are
system-wide efficiencies involved which -- there are many
system-wide efficiencies to be gained.

There's also an issue of impact. In many
cases one needs to think about, you know, the work flow
issue is one. One needs to think about how one creates
impact in a way that's difficult to do within an
individual institution.

So just thinking of some examples from a
discovery point of view, I mentioned earlier that one of
the issues is a move from discovery to disclosure.
Discovery though may happen at a higher level.

So one wants to be able to disclose to
discovery environments like Google Scholar. So you want
to make sure that your materials are available to people
through Google Scholar. That maybe becomes as important or more important than what you do locally.

   So there's a sort of access to scale issue there. What does it mean, engaging with discovery environments which are above the level of individual institutions, from an OCLC point of view, worldcount.org is an example there, and that then relates to disclosure in other environments.

   Longer term opportunity costs in managing print collections. There's a lot of discussion about the extent to which a library's distinctive impact is bound up with the richness and depth of its collections.

   And over time how much of that value remains in that particular configuration, and to what extent that will be moved to more shared contexts in the context of mass digitization, shared storage initiatives, and thinking about how one divides up particular subject areas.

   But over time I think our view of collections is going to change. Groups of libraries will develop a much more shared view, or collective view, of aspects of those collections, and think about how one avoids -- how one deals with the opportunity costs of managing large physical collections, given questions about where value resides and where it must be.

   Preservation's an obvious example, archiving the web, an obvious example. Again, these are issues
which one wonders whether their best tackled at the institutional level, or at another level. And things that, you know, might normally -- might not normally think about -- tagging, recommending, collecting reviews, various libraries are experimenting with, you know, social networking approaches.

These have to have a local presence, but, you know, does any one library have the critical mass to be able to do significant recommending based on tagging or reviews.

That really needs to happen at a higher level, and then scale needs to be made available to libraries. By a higher level I mean it needs to be aggregated, consolidated in some way that there's a level of participation in a scale activity.

Usage data is another one. You know, I mentioned earlier about moving from managing content to managing consumption, which is a phrase that I picked up, I think, from the search engine FAST, and some of their work. But as I said, it represents a general perspective.

One of the things we don't do at the moment very well is aggregate usage behavioral choice type data, which in turn can refine services. And this relates to, you know, understanding what people are doing.

But, again, if you want to have good management intelligence, if you want to have good recommender systems, you want to do other things, that
type of data becomes very important. What people are using, what choices they're making, what people are buying. And we don't have good ways of aggregating that and making it available back.

So there are a whole variety of areas where increasingly we want to do things in an aggregate way, in a shared way. We want to collaboratively source activities.

And I think over the next while, given the complexity of the environment and some of the challenges, we need to become much more purposeful about -- have a much more instrumental attitude towards various of the organizations, which are available to one, or creating new ones about the need to make sure that one does locally what's important, and one finds good way of doing in a shared way what's important.

So that's -- there are my remarks.

TOM STALEY: Thank you very much, Lorcan.

Well, the panel has raised a number of provocative issues, collectively and individually, and I think it's appropriate we have about 25 minutes to open it up to discussion.

Already there's a question. Yes?

KATHERINE ARENS: Coming at this from the point of view of a faculty member in the humanities program [indiscernible] it strikes me that what I’m hearing you say, a use of a lot of metaphors
curator/facilitator/manager, and I'm wondering if, on a
more active situation, not coming on [indiscernible]
humanities end -- yesterday we heard that the research
library may not be accommodating [indiscernible]
environment, the pure sciences, and where the data
collections are coming there.

But when you're thinking of the humanities, I
think actually there is a whole other layer of
accountability argument including modeling standards that
are going to have to be enforced by bodies like this on
traditional humanities scholars.

Because a lot of the -- if you know a corpus
is out there, you are supposed to use it to make an
accountable argument within a discipline. I can’t -- an
example, Mike Davis has a group about -- that argues that
the El Niño phenomenon created a famine in Africa which
helped facilitate the Colonial Project in the 1870s and
1880s.

And the demographic materials there, and the
epidemiological materials there go down that line. It
strikes me that anyone that's working on post-Colonial
studies in literature ought to account for that kind of
data. And we may not know it's there, we may not know how
to handle it. But it also strikes me that if you don't
use that, you're making unaccountable arguments, point
one.

And point two, is we need tools to model these
sort of things, as well as it strikes me that this kind of multi-varied analysis - epidemiology, population, topics of interest in publication would be very susceptible to the kind of modeling that's used for something like population ecology, or environmental biology.

And we're doing -- we don't have tools for any of that, one, and we don't know -- have any consciousness that that would be necessary. And, again, it strikes me that certain arguments either have to be made in light of the available corpus or the researcher has to, more specifically, exclude the corpus data.

In other words, you folks need to be, and the librarians who know where the collections are, need to have a heavier role in education and accountability than has ever been given. In other words, you might overtrump disciplinary in a very fundamental way, and I hear that's going to grow, and it's going to be not factored in and it ought to be.

TOM STALEY: Who would like to respond to that in a word or two?

JOHN UNSWORTH: I think that the possibility that something will happen, and even the desirability of it happening are not, by themselves enough to make things happen. And there's a fair amount of disciplinary inertia when it comes to things like, you know, what counts as an accountable argument, and who shall adjudicate that.

So even though, you know, there's some reason
in what you're saying, and, you know, it's certainly true
that people who make arguments in one domain should be
aware of evidence that's pertinent, even if it comes from
another domain, I don't think it will be the libraries
ultimately that enforce that.

And, in fact, I have yet to see anybody
enforce anything on faculty.

TOM STALEY: Good. Thanks, John.

Bernie has, wants to add something.

BERNARD FRISCHER: Yes, I agree with what John
just said, especially at the end. But I would, I also
agree with the thrust of the question.

I see that as an expression of this changing
relationship between scholars and librarians, and I also
see it as an expression of the importance, continuing
importance of peer review. And as the relationship of
scholar and librarian changes, then the definition of peer
can change.

And I also, more optimistically, see that
there is this idea in a retrospective peer review, which
we should not forget.

So that you can put something out there, and
it can be -- you know, because it's simply expressed
digitally and not ink on paper that's very hard to change,
you have to wait for a second edition many years, if you
ever are going to get it, the peer review can come later
on and the community can become, you know, bigger, and
inevitably will become bigger, and as our questions become
more interdisciplinary, as our teams of authors become
larger and larger through collaborative research.

TOM STALEY: Thank you. Good.

Any other comments on Kathy's question?

(No response.)

TOM STALEY: Any further questions directed to
the panel? Yes?

AUDIENCE: Comment and a question, I’m David
Seaman from the Digital Library Federation. The comment
seems to follow-up on several things that Kate here has
said. In various ways, organizations like the DLF are
beginning to invest in the mostly technical standards to
allow data and metadata to work outside this place of
creation.

We're increasingly alert to what the scholars
groups need, not just to the scholar, but to process, to
take that material and annotate it properly, to tools --
sometimes build the tools into - so, there is a growing
understanding in simply finding something and looking at
it, is the beginning of the process, not the end. That's
the comment. John mentioned DLF Aquifer which is a good
example, [indiscernible]the Open Archives Initiative
project is another good one.

The question though is the, maybe this is sort
of early morning grogginess, but I was thinking as Bernie
was talking, what we were -- potentially what I was
hearing was a series of references to landmark scholarly projects, which, in some ways could have been a discussion we could have had 10 years, some of us had that sort of discussion 10 years ago.

It is one example of the humanities scholar doing X with new technology. I'd be interested to hear from the panel whether they see any real sense that we've moved from limited landmark users to any sort of sense that the departments and [indiscernible] structures, the actual mechanics of the humanities itself changed.

Because on a gloomy day you could say we're not really very much further along in transforming disciplines. We had great luck transforming individual users in those departments.

TOM STALEY: Any response there?

BERNARD FRISCHER: Well, we have a dean here.

JOHN UNSWORTH: Yes, but he's not a dean of an English department. I do think it's changed, and I think, you know, it sort of struck on the ACLS Commission -- you know, where we discussed some of these issues about, you know, the reward structure within the disciplines -- that I was looking around at a room of people who had been fairly well treated by the institutions to which they belonged, and, in fact, you know, had been installed on this Commission by the American Council of Learned Societies which had itself decided to take up, you know, take up this issue.
I see some changes in the scholarly societies too, some standing committees on issues like the ones that you're describing. And I see more people being hired to do digital work and more people being tenured for doing it.

So it's slow and it's incremental. It's not the sort of sweeping overnight regime change that we've learned isn't actually sweeping and overnight anyway, is it. So it's maybe slower than you'd like on a grumpy day.

But I think it is happening, and I think it's fairly irreversible. And it's also trickled down to the daily work of people. I mean my standard example now for something you could to prove to everybody that they really have started to work in a different way is, you know, have a day without Google. Just make everybody swear off for 24 hours.

TOM STALEY: Yes.

BERNARD FRISCHER: And there's a lot that could be said, you know, on gloomy day which I don't think it is. I think it's a very bright day. Starting with, you know, miraculous conversations like the NEH's with its new digital humanities initiative.

I remember, not too many years ago, somebody at the NEH was quoted as saying, What I was doing in reconstructing ancient Rome was, you know, not scholarship. So there's obviously been a change there.

And I think that, in the professional
organizations and so on, that we see a move toward standing committees for digital publication and so on.

The important thing here though I think is peer review. I think we're pushing on a door that's opened. I don't -- I never see any resistance. Some of my colleagues who have been at University of Virginia involved in digital humanities for a long time are pessimistic.

But I never encountered this mythical, you know, 65 year old professor at Harvard who hates what we're doing and wants to stick with his typewriter, maybe even pen and paper. I've never met that person who's really actively hostilely opposing the digital turn.

I had -- I was talking to a colleague in classics the other day at University of Virginia who's not particularly digitally adept, but more than most, and he said, You know, the interesting thing is that the worst person in the department is where I was in, say, 1995 in using digital resources. Which is saying a lot, because that person was already doing quite a lot with digital resources in 1995.

So I think there has been a lot of progress. I think that more peer review will be a key to unlock -- getting true recognition, the kind of recognition we need.

And I think that peer review, digital peer review is so much more precise.

Take Suda, you can track every single
contribution everybody made, from being a corrector of a typo, or an error in the Greek on up to something more substantive.

And then when that person's up for promotion, or tenure review, you can ask the editor to print out a list of all these contributions. You can be really precise about a scholar's contributions to their disciplines.

LORCAN DEMPSEY: I just wondered if anybody at some point, someone has to read all of this material that's created. The thousand blogs on Shakespeare, for example, the idea of mastering that discipline in a body of knowledge that's there.

How do we deal with that?

BERNARD FRISCHER: Text mining.

TOM STALEY: Text mining.

LORCAN DEMPSEY: Text mining.

TOM STALEY: Fine. I'm glad we got a solution.

Yes?

DAN CONNOLLY: Machines can help a little bit. It's easier to search a billion documents today than it was 10 years ago, but it's not easier to maintain relationships with 50 people than it was 10 years ago, you know. I'm going to take recommendations from respected peers over recommendations from people I don't know. So there's a lot of things that don't change.
And I think that you can't read more than --
not read -- just can read a little bit more than you could 10 years ago maybe.

LORCAN DEMPSEY: Not much.

DAN CONNOLLY: Not a lot.

LORCAN DEMPSEY: Not a lot. That's right.

DAN CONNOLLY: And so as far as I -- I heard about -- sorry, I'm Dan Connolly, I'm kind of a web guy more than a library guy, and I heard about the rising cost of publication as if it were a given or whatever.

And I was wondering if that was one of these things where people keep changing the conversations, like the rising cost of publications, and now things are getting cheap.

What's really -- the real cost the I found is that actually getting the material available to lots of people is cheaper now anyway to publish something __

TOM STALEY: That's right.

DAN CONNOLLY: What's more expensive is figuring out what to read.

LORCAN DEMPSEY: Yes.

DAN CONNOLLY: And the publishers help you figure out what to read, and so they're passing that cost on.

LORCAN DEMPSEY: I think -- I'd be interested to know whether Aquifer holds water. But the -- going back to David's question, you do, I mean, much of this
discussion, it's the same with eScience.

You see these presentations and you see the same landmark -- it's like, you know, 10 or 15 years ago all these presentations with the CIA World Fact Book or something. They've now been replaced.

But it's clear that, you know, that things are changing, and behind a set of projects though, you do then have issues about which, you know, Cliff discussed yesterday in the context of the different policy and political and funding environments and different areas of the world.

How one connects certain things to operational capacity in the longer term, you know, what systemic arrangements need to be made for certain things, and the extent to which current structure supports some of those things, because they're organized in different ways.

This is a big issue for, I think, all of what's been discussed as well as for a lot of what's discussed in a library context, which relates to this, you know, how you connect it to operational capacity in the longer term.

I was asking John last night about the Blake and Rosetti in the University of Virginia, and how one sustains them into the future. And, you know, I think there are lots of issues about connecting those two -- operational capacity.

The -- what Dan says is quite interesting. I
mean, there's a big focus on attention at the moment, and
to some extent relating to what I was saying about work
flows, what's happened to us is that -- you know, in the
physical world, information resources were relatively
scarce, and attention was abundant. People could -- what
we have now is that information resources are abundant,
and attention is scarce. So this comes back to the issue
of managing consumption.

TOM STALEY: Thank you.

Bernard.

BERNARD FRISCHER: I thought that was an
interesting point about the difficulty now, and the
expensive part is the selection.

And at the University of Virginia there's a
project just beginning now on applying the notion of
collaborative filtering to scholarship, to online
scholarship, so that a certain number of scholars who are
recognized authorities in the field, can be tracked.

Their use of the internet can be tracked and
the digital resources that they are reading can be tracked
and reported back to a central data bank, and then that
can become a kind of an up-to-date special bibliography of
what leaders are reading that you might want to be reading
too on a certain subject.

So there may be in part a technological
solution even to this problem of selection.

TOM STALEY: Are we closer to that issue? Is
there anyone from the university press community here, publishers who would speak to this issue?

(No response.)

TOM STALEY: We used to feel that once the Press had published a book, at least there was some ratification of its __

JOANNA HITCHCOCK: Yes, but the emphasis on peer review is [indiscernible] of value, but it’s a huge question of [indiscernible].

TOM STALEY: Could you speak up just a little?

JOANNA HITCHCOCK: Well, the whole question of selectivity is what university presses used to be useful for. We would get manuscripts in and have them, we still do, have them peer reviewed. But now this question is a much larger one and I'm not sure how we can address it.

TOM STALEY: Yes, go ahead please. Thank you.

ANN WOLPERT: I'm the Director of Libraries at MIT, but the MIT Press reports through me to the institution. And I think that the university press at MIT still sees its role as identifying important new emerging disciplines, providing a mechanism for them to organize themselves around journals and scholarly monographs that define and articulate what the focus of the discipline and the sub-discipline.

But I also see that they play a role in persistence to [indiscernible]. Because there are a lot of web pages out there, and almost none of the web pages
that I'm aware of is making any long term plans for
assuring the persistence of the scholarly work that's
represented in the web page, whereas if you publish a
book, or a journal article, you can be assured that your
work will persist for hundreds of years.

And scholars write [indiscernible], they write
to build a record, they write to have an impact on their
colleagues and disciplines.

And I think the university presses still do
that, despite the fact that they are now experimenting
with how they might put these words up on the web in full
text so that they can be found and mined and work in the
environment that's being described.

But it seems to me that at the end of the day,
the piece that's missing in the web based environments is
how does a scholar's work persist over time in a way that
is a recorded contribution to the advancement of
knowledge.

TOM STALEY: Yes, then scholarship __ oh,
excuse me, I'm the moderator.

Yes, go ahead.

AUDIENCE: Two random points -- Jim Neal from
Columbia --

TOM STALEY: Yes, Jim.

JIM NEAL: Two random points of following up on
Dan's comment. First, we're finding, although our hope is
[indiscernible] this morning, we're finding more of our
[indiscernible] faculty faced with grant applications that require that they have a [indiscernible] well developed archiving strategy built into that grant proposal. And the actions of [indiscernible] they inevitably have encouraged us to help not only model, but help implement that.

The second point I'll make is that there is a group at work for over a two year period called the Section 108 study group. Several people in the room are working on it.

And one of the key themes that seems to be pulling out of our deliberations, is a recognition in public law that certain institutions should have the automatic right to have an exception or limitation to copyright, to collect and archive websites.

I believe that has not taken root heretofore, largely because of that absence of a public policy framework for doing -- the Library of Congress, even they, in the absence of electronic deposit performance do not have the ability to go out and automatically capture websites without permission. And that permission process is too rigorous and too expensive and not successful.

So I think if we get that public policy framework in place, the websites can take on those different roles in overall scholarly archives.

TOM STALEY: Thank you very much. One more - - yes.
GEORGIA HARPER: I just wanted to follow-up on most of the points, just making an observation that for the press in particular, [indiscernible] and how they play their part in the scholarly communication [indiscernible].

But from everything you folks said, it occurred to me that as we go forward, that these future changes would seem to suggest that copyright's actually a hindrance, and the press, of course, is caught in the cross fire. So I wonder if you have any thoughts about that.

TOM STALEY: Just in a word.

JOHN UNSWORTH: Well, it's certainly true that in, you know, in a project where you want to aggregate material across collections and some of that material is under copyright and licensed, that that introduces an element of complexity that wouldn't otherwise be there.

Is it something that can't be solved? I think in principle it's something that can be solved. It's not a technical problem first and foremost. I think it's mostly -- you know, it's any kind of contract, it's a social issue first and foremost.

Then I would like to see it solved in a way that makes it possible for people to do these things, and especially, you know, makes it -- sort of carries forward the notion of fair use and makes it possible for people to look at parts of stuff, even before we determine whether they have the right to look at the whole thing.
But I think any system that would allow you to manage that in anything like the current environment, would have to have a lot more information trailing those resources than what we currently have, and would have to have it in a somehow agreed upon format so that it could be made -- it could be formalized in a way that could be automatically processed. You can't have somebody looking at every piece.

TOM STALEY: Thank you very much, John.

I think our time is up. I want to thank our panel for so many interesting comments, and the audience as well. Thank you very much.

(Whereupon, the first panel discussion was concluded.)
PANEL 2: THE IMPLICATIONS OF DIGITAL SCHOLARSHIP FOR RESEARCH LIBRARIES, CHALLENGES OF ACCESS AND PRESERVATION

ANDREW DILLON: Well, good morning, everybody, and welcome to the second session.

My name is Andrew Dillon. I'm the Dean of the School of Information here at The University of Texas. And we're going to start on another panel discussion, the title The Implications of Digital Scholarship, Challenges of Access of Preservation.

Now we've heard a lot about the movement towards soft resources from hard resources, if you like, in terms of books towards a digital medium. What does it mean in terms of providing access?

I have asked the current panel to be as provocative as possible on this discussion, and I've also required the format to be slightly different in that I've asked them to talk for five to seven minutes initially each, and then to respond to each other's comments for about a minute or two before we open it up to the audience.

And I've promised to be ruthless in maintaining time. So I will cut them short with anything short of rudeness, I hope.

Let me introduce the panelists in the order in which they'll be initially presenting. Dan Connolly is a research scientist at MIT Computer Science and AI Lab –
CSAIL -- and a member of the technical staff of the
Worldwide Web Consortium, also known as W3C, which
develops interoperable technologies, specifications,
guidelines, software, et cetera, to lead the web, as it
says, to its full potential.

In particular, he's a member of the Semantic
Web Coordination Group established to serve a leadership
role in both the design of enabling specifications and
technologies that support the automation, integration and
reuse of data.

He is, I'm glad to say, a UT graduate from the
CS department. He's authored several important papers and
worked closely with Tim Berners-Lee on semantic web
technologies and policy issues.

From '95 to '97, and this is definitely worth
noting, during the struggle between Microsoft's Internet
Explorer and Netscape Navigator, Dan chaired the working
group which ensured that HTML remained an open standard,
and for that, he was named by Interactive Magazine in '97
as one of the 25 unsung heroes of the web. So we can all
sing later the heroism.

Kevin Guthrie is the president of Ithaka,
which is a not-for-profit organization committed, it says,
to helping accelerate the adoption of productive and
efficient uses of information technology for the benefit
of worldwide higher education. Good luck.

Ithaka focuses on three operational areas
providing strategic services to assist not-for-profit
organizations in developing sustainable economic models,
providing shared administrative services to a small family
of affiliated entities, and organizing and conducting
research on the impact of advance in technologies on
higher ed.

Kevin is, as many of you know, the former
president and current chairman of JSTOR, and he also
serves as a trustee for ARTstor, the image repository.

Previously he started his own software
development company and was a research associate of the
Mellon Foundation, where he authored the New York
Historical Society’s Lessons from One Non-Profit’s Long
Struggle for Survival.

He has a bachelors in civil engineering from
Princeton University, and an MBA from Columbia.

And finally, our last speaker is Alice
Prochaska who’s the university librarian at Yale. She
serves on the steering group of the Digital Library
Federation, and is vice chair of the board of the Center
for Research Libraries.

Her own research and publications focus on the
stewardship of international historic collections, the
power of digitization to restore important materials to
their communities of origin and the philosophy and ethics
surrounding the notion of cultural restitution.

She received both her bachelors and a PhD in
modern history from the University of Oxford, and in 1992
became Director of Special Collections of the British
Library where she supervised their program to digitize
collections.

While at the British Library, she served, at
various times, as chair of the National Council of
Archives, a commissioner of the Royal Commission on
Historical Manuscripts, a trustee of the Winston Churchill
Archives Trust, vice president of the Royal Historical
Society, and a Governor of London Guild Hall University.

How do you get all this done, Alice? She was
a member of the IFLA working group on Preserving Our
Documentary Heritage that reported in June 2005 to the
UNESCO project to create the memory of the world's
register.

I have promised to keep my mouth shut as much
as possible, which if you know me, can prove difficult in
these situations, but I'll attempt to be quite rigid and
follow the excellent model set by Tom this morning.

And with that, let me hand over to Dan.

DAN CONNOLLY: All right. Thanks.

So I'm here from W3C and MIT. W3C's mission
is to sort of keep the web from fragmenting, like VHS and
Beta Max. We try to keep that sort of thing from
happening. So we had Netscape and Microsoft back there.
You know, there was a risk of that.

So W3C is about a 400 member organization,
some of them are in this room, Google, Microsoft’s are
here, there's others that you might know of, Creative
Commons, companies like Boeing that are dealing with large
IT issues, the Mozilla Foundation, 400 members, I'm one of
about 70 staff at three Hosts.

So we've talked about these virtual
organizations or whatever, all that kind of stuff. I sort
of eat, sleep and breathe them. Just to tell you where
I'm from, it's, you know, going to be two paragraphs.

So there's three Host institutions, MIT in the
Americas, ERCIM in France, and Keio University in Japan,
and there are 70 hosts, each of which is either a
contractor or an employee of one of these host
institutions. And I work out of my home in Kansas City,
but I'm paid by MIT.

Okay. So it was founded in 1994. Tim
Berners-Lee is the director of the consortium, and he's
the only staff member who's been there longer than I have.
We have about 30 working groups, from HTML to XML to web
accessibility, to internationalization guidelines, to
semantic web and web architecture.

So most of my work is done over the network,
but a big part of my job is getting people together in the
same room to build trust and maintain relationships. So I
have a computer science background, and a lot of math
background, and all that kind of stuff, and I went to MIT
to take on this job.
And I thought I was going to spin my propeller really fast and take graduate classes or something. No. I learned how to talk to the press, manage people, and get groups going together.

So what my job has in common with yours -- I have -- I don't walk in library circles every day, but I'm trying to make W3C a place where interesting people want to come and contribute. We're all recruiting and competing for attention and loyalty.

And toward that, and what did Tim Berners-Lee do? Did he have an idea that was so rocket science it's out there, and it was really a technological innovation? Well, not really.

In fact, the paper that he submitted when he submitted the worldwide web technologies to the academic - - you know, the scholarly record or whatever, the paper was declined at Hypertext '91. He got a poster presentation, or whatever.

But what he did was -- and a lot of people had worked on similar ideas and they all started software companies and stuff like this -- what Tim Berners-Lee did was he said, well here it is, everybody can have it. Okay? He shared it. And for that we're all in his debt.

So what's novel? That's how he has built trust in a lot of ways. And he works everyday to keep it open.

Okay. So what web publishing shares with traditional publishing, yes, it's cheaper to distribute
the text. All right. Shipping pieces of paper, you know, around the world and putting them in bookstores and stuff like that costs more than setting up a web server.

But it's just as expensive to get attention, loyalty and endorsement, to build an audience and a reputable editorial board. So some things don't change.

All right. And with so many texts, it's more expensive to decide which texts to read. I think that's one of the things that really contributes to the rising costs. So that's sort of how our paths intersect in a lot of ways.

Back to web architecture. One of -- that's one of the groups I work in is the technical architecture group. Principal number one of web architecture is to use URIs, these URL things, HTTP, WWW, whatever. Okay. So library folks, what does that mean for you?

So while some links on the web do break, we've heard about, oh, the web is ephemeral. While some webs -- some links in the web do break, following links in the web is about 96 percent reliable. My statistics are a little bit, a few years out of date and stuff like that, but 96 percent of the time when you try to follow a link it works.

All right. This is like the credit card system. All right. There's a certain amount of fraud, but as long as that stays below 3 percent, we can all do business.
So library efforts should not run from the existing HTTP and DNS URLs because of the 4 percent. But apply your expertise in access and preservation to increase the reliability of following links in the scholarly communication, please. That, I guess, is one of my first recommendations there.

So Douglas Engelbart, I don't know how many people in this room know, he was a visionary in digital collaborative work. In 1990, his paper on requirements for computer supported collaborative work -- he was the guy that invented the mouse and shared windowing and a lot of the stuff at Xerox PARC and stuff.

And so he had these about 12 or 15 requirements for computer supported collaborative work, and one of them, I think number 11 or something, is the hyper-document library system where hyper-documents can be submitted to a library-like service that catalogs them and guarantees access when referenced by its catalog number, or jumped to with an appropriate link.

You know, these were novel ideas when they were published. He was -- he wrote the paper in 1990 and he was summarizing about 30 years of work.

Links within newly submitted hyper-documents can cite any passage within any of the prior documents, and back link services let the online reader of a document detect and go examine any passage of a subsequent document that has a link citing that passage.
So that's, you know, sort of a -- 1990 was 20 some odd years ago, that's a mission that I hope that you are engaged in.

His work recently got released, so it was on computers that don't go anymore. Right? Xerox PARC, things like that. And somebody recently implemented it in the modern HTML and JavaScript technologies and re-released it. So you can read the original documents that were some of the original hyper-tech stuff from 1960 some odd.

All right. So the library system. I think that's what I -- what we're sort of here to build, a part of the web that operates like a library and not like a, you know, popular culture that fades quickly.

So W3C in particular has a strong culture of, or tradition of persistence. Most of our 10 year old URIs still work. If you, you know, if you look at the meeting minutes from the first web -- you know, the first meeting of the members in 1994, the URL we used that day is still going. All right.

And we have a stated policy that begins, When information is made available on the web, it is important for the integrity of the web and the society based upon it, that URIs used to reference information be used well into the future, and that the information persists as identified.

Okay. So that's the beginning, and then we
have more stuff that sounds like legalese that's our policy and stuff. But it's really a lot of the work that I do every day.

When I organize a meeting, I see that the record is available to people with disabilities and it's in international context and all that kind of stuff. So it's really hitting the road every day.

All right. So we're working with MIT libraries and stuff to back this persistence policy with a long term institutional commitment. So that brings me to sort of a recommendation for, you know, UT libraries and stuff.

When anything starts, think about the domain name. Newproject.org versus newproject.utexas.edu. I don't really know exactly which answer is right for which project and stuff like that, but, you know, one invokes the brand name of the University of Texas, one doesn't.

So you can create virtual organizations in no time, but there's no short cut to getting its value understood and appreciated.

Friday night football games are a big part of building loyalty to an institution. How does the meta-university do that? So anyone can distribute a new technical specification on the web. What brings them to W3C is our reputation for our review process and our established culture and policies.

And think about scaling down as well as
scaling up. Movie recommendations from yahoo.com are augmenting, not replacing, recommendations from friends and family.

So I've heard in this room a lot of times, oh, this problem looks hard, let's attach it at the national, or international level, and all that kind of stuff. Don't forget to address the problem in the group of the seven of you sitting around the table or something.

Okay. So what I see is a shift from publishers recovering costs from consumers. That's sort of the current model. You print something and you get people to pay for it. Sometimes you use advertising or whatever, and that grates against me, but.

And then there's this -- along with that model is, the people who didn't pay for it you've got to somehow prevent them from getting access to this stuff. And this is just a pain. There's passwords and all this kind of stuff.

My sixth grade son -- I went to back-to-school night, and the teacher said, his textbook is online and it will be available next week after we get all the passwords distributed to the students, you know. How long before things like open course work just make those issues moot?

So the trend I see is from publishers recovering costs from consumers to this endowed publication idea. You know, it's in the grant, the grantee organization says, Look, you've got to figure out
how you're going to make your website last, and you put some sort of endowment, or whatever it is that puts -- you know, you guys are the library folks, you'll figure this out before I will, or whatever.

But I think that's the trend, my second recommendation.

All right. So there's more about semantic web, and maybe I'll work that into the conversation, but I'm going to cut if off there.

ANDREW DILLON: Okay. Thank you.

Kevin?

KEVIN GUTHRIE: Okay. Well, I've got to say that when I saw who was going to be presenting with us, Dan, I didn't think you'd be talking about relationships, which is really surprising that W3C would be focused on that, and I think it says something about where we're all going.

Thanks for the introduction. I will just say a couple of quick things about JSTOR. Some of what we are -- some of the perspective that I bring to these questions are going to sound a lot like Lorcan's, and I think that's because perspective matters and where you sit affects how you see things.

And so I think OCLC and JSTOR occupy a space that's across the organizations, and I just want to put that out there as a kind of a caveat, or an introduction.

But I think that the things that I've been
involved in for 12 years, have all been around creating new things. And I think it's so much easier to create something new than to change something that exists. And so I have enormous respect for what you all have to do. Because, you know, quite honestly, when I started the JSTOR in 1994, you know, I was just ignorant of the community. And actually, that was a big advantage. And we had no legacy.

So I would say that, you know, Alice, you pointed yesterday to the issue of outsourcing, or collaborations. I mean, JSTOR is a collaborative and enabling organization. And as Lorcan pointed out, a kind of outsourcing of a particular set of tasks that cross institutional boundaries.

Its mission is the two themes of this particular panel, preservation and access. And actually its preservation aspect of its mission is quite stable in that we developed a sustaining economic model, and we have a reserve to handle archiving migrations going forward, a kind of an endowment.

But the access side of the mission is not stable. It cannot be stable in this environment. The degree at which people regard JSTOR as a very valuable resource at the faculty level, at the user level. That is a moving target and a moving proposition.

So the world is changing and JSTOR is going to have to change, in fact, over some period of time. Take
your guess, three years, five years, ten years it'll have
to remake itself, on the access side of its mission. Its
preservation side of its mission is stable. So I think it
is always harder to change things that exist.

So I'm going to just talk very briefly on a
few of these topics. On preservation, I think the biggest
challenge -- the challenges are not really technical, we
hear about Moore's law; we hear about all these things.
The challenges are organizational and financial on
preservation.

The huge issue that I see, and have seen for a
decade, is that we have established structures, budgets,
approaches to how we handle things that are built on the,
you know, the pre-existing world.

And as you move into this environment that
Cliff talked about yesterday, a leased environment as
opposed to an owned environment, an environment where
instead of, you know, where preservation is unbundled from
access. It's not automatic that you hold the materials
that you provide access to.

In that environment, we have to change the
structures, the accounting. What is capital, what is
operating, how are things paid for? If something is in
the acquisitions budget, how do we deal with the fact that
something is really a capital expense.

So in JSTOR's case, if there are economic
savings to be had from moving materials off shelf, or even
discarding, you know, spotty runs and getting rid of them, and that creates space, space has economic value, how is that realized, how do you make that fungible?

If the University of Texas System has done a study -- I'm not aware if it actually probably has -- of, you know, the duplication of content in its libraries, how does it realize the value of the de-dupping, and how does it go about that process? That's a challenging process.

And I think when you bring that to the issue of mass digitization on the scale of Google, and you look at that across the system, I think I'm echoing a point that Lorcan made.

The potential savings in the system are staggering, absolutely enormous. But we don't really have a mechanism, either locally or on a system-wide basis for attacking that problem strategically, and understanding how to make that transition.

And I think if you take that one little step further to the access side, about eJournals, just as an example, but it's a little ahead of everything else, you know, can we set a date, you know, can we say by 2010, journals in this discipline we're not going to have them in print anymore, and then say, what would we have to do to make that possible?

We don't do that. We sort of -- my understanding out there is everything is kind of ad hoc and reactive and there's a process in acquisitions that
ends up canceling certain things for certain kinds of reasons. But actually going after that target in a strategic way is not the way we typically look at things.

On access, I think that, you know, for a long time, search was a kind of slow moving, you know, mediated process. And I think that we are all products of the world we're in, or if, you know, if we're pilot fish, we swim with the shark we swim with.

And the academic community has a certain set of enduring values and processes. And the introduction of Google, and the information economy more generally, is just a completely different pace than what we're accustomed to.

And so at some level, I think the world changed for us when sometime between, you know, when I started JSTORE and now, when a scholar uses the same tool to search on a very important topic in their discipline, as they used to get directions to the closest restaurant of a particular type, the world changed.

The tools of commerce came into the library, came into the academy. And that is upsetting everything, all of our expectations. Clifford said the gap between social -- scholarly communication and scholarly publishing is widening and journals are late. In other words, you know, journals are late to publish that which is important.

Increasingly, the leading scholars, what
you'll hear them say is, I don't really use the journal anymore for discovery at all. I mean, I already know what is before the journal is out. And I know because I know all the people who matter in my discipline.

I mean, one way we look at it is fragmentation, the other way is specialization. But scholars increasingly say, I know all the people who matter. Now, you know, they're arrogant and they may not know all of them, but they know most of them.

So their mechanism increasingly for finding the literature is to do a search on the author name and find these things. Now one argument for that is that institutional repositories and open access are really important. I think that's actually somewhat tangential to the issue.

But I think that the point is that, you know, there are these communities that are developing and that is not -- I think some people will say that that's a disciplinary phenomenon. Earlier, I think yesterday, we heard about how our children and the way our children are using -- or the young people are using these new communities, My Space, et cetera, will impact where we are, so we can look there to see our future.

I think those of us in humanities can look to the sciences for our future, to a degree. I think a lot of the time we think that the issues are special, but I think that, you know, fundamentally we all want to save
We all have a tendency to know the people who are important, and so the processes that we see happening in one discipline, I think we ought to be asking ourselves if they're coming to our discipline.

We see in some of the survey work we do, and also in the JSTOR usage data, that the use of the digital scholarship, the use of JSTOR, in the beginning historians were, how should I say, hostile to JSTOR really, a lot of historian scholars.

Now they're the top using discipline in the field. So I think people, when they get access to this stuff, will absolutely use it.

One last comment on innovation and disruption. You know, in part, is it a mind set? At some level, I regard the institutional repository as very much like the library that we've always had. People are creating the institutional repository and waiting for people to put things in it, and waiting for it to be useful, and frustrated that there are only a few items in it.

You know, that's just a very passive warehousing kind of way of looking at it. And I think this gets to the issue of managing consumption. There's part managing collections, as Lorcan referred to, in sort of getting the collections out there and seen, and there's the part that's about services.

And one thing I would like to say, you know,
I'm not a librarian, I come at this from a very different perspective, but if could just throw out there, what I would probably do, given my experience with new things and not knowing that much about what it takes really to run a library, if I were really trying to change how we operated, I think I would take a group of the best people I had, separate them from the library, and send them out to the faculty on my campus.

Because at the end of the day, these institutions are geographical institutions right now. And I think trying to play a game that's about scale across the whole sector is not a game that an individual institution can win.

But if Dan believes that relationships are really the most important thing, that which you can do locally on your campus is the thing that you cannot be competed with. And those services that you can provide that, you know, really depend on close hand-to-hand combat, those are the things that the library can make a difference on.

So I would be inclined to separate a group of great people and set them out on that sort of geographic -- with a geographic set of objectives, as opposed to a worldwide global set.

ANDREW DILLON: Thank you, Kevin.

Alice.

ALICE PROCHASKA: Well, it gets more and more
difficult to say anything different from what everybody
has already said. And I am interested in the
commonalities between the other team members of the panel,
and what I wanted to say.

And I hope that what I say will have value, if
it does have value, at least as the approach from the
perspective of a university librarian.

I thought I'd kick off my remarks by talking
about human interactions, and I'm very interested to find
that Dan and Kevin have said that same thing, and so have
previous speakers in this panel.

I think one of the themes that I'm finding
comes out of our discussions yesterday, and today as well,
is one of the transmission of values. And if I have time
at the end of my remarks, I may return to that with a
personal anecdote.

Because I think we are talking about
generations and we are talking about different experiences
and perspectives which sometimes get in the way of our all
working towards the common end that we've so cogently
identified between us.

From my perspective, the scholar and teacher,
the librarian and a student are all, of course, adopting
new and continually changing, fast changing behaviors.

For the librarian, opportunities for
digitization introduce new opportunities also for outreach
to public audiences, both scholarly and general, who did
not previously influence core library policy to the same extent.

And I very much take on board Cliff's point that he made yesterday about the importance of multiple constituencies.

The scholar, as a researcher, especially in the social sciences and the hard sciences, works increasingly at the computer on his or her own when not interacting in a research team or laboratory.

Certainly scholars in the social sciences and hard sciences very often perceive themselves as not using the library. There is a widely experienced tendency to assume that they're not using the library, and the understanding of the role that libraries play in enabling digital access is patchy at best.

Often, faculty members may only realize that they've been using the library all along when they move to a new campus where there is less access than they were used to.

And I have lost track of the number of desperate e-mails I've received from former Yale graduate students and faculty members who have moved to places like Chile, and suddenly realize that actually, the work they promised to do, they cannot do without the facilities that we were providing for them.

So what are the challenges in this respect? Branding and the creation of loyalty, as Dan expressed it.
How to connect to scholars, how to discover their needs?
At Yale we are trying to do a series of usability studies which are helping us materially. And I'm quite sure that's a common pattern.

I think the importance, certainly at this stage of development, the importance of knowing our users and conducting systematic usability studies cannot be exaggerated.

And, of course, in the process of surveying our faculty and other users, we can also convey news of what it is that the library provides, news about links, databases, new software, ways of working differently.

And in doing all of this, we need to maintain the position of the library in the budgeting and policy making of the University.

And it's been a common theme -- of course, we're not only talking about universities, we're talking about the parent bodies of non-university research libraries too -- and it is a common theme that very little of the old work that we have traditionally done is going away.

Publishing, output and print, I believe, is still increasing and we certainly, at Yale, have not diminished the amount of print that we buy, or try to buy, at the same time increasing what we spend on electronic collections by at least one third every year. We're now probably this year hitting the $6 million mark. That's on
electronic publications alone.

The scholar as faculty member, as opposed to researcher, is one of a community and teacher of students, and experiences different needs. Surveys show faculty members putting high priority on access to electronic information for their own research, but also on access for teaching.

And here the library has many opportunities. Teaching with collections involves one-to-one connections with individual faculty members, supplying digitization on demand, being ready to spend considerable amounts of time working with them individually in course design, the selection of reserves, and so forth.

And I very much liked what Jim Duderstadt said yesterday about the library as observation posts, and how important it is to us and to our faculty colleagues to use the library spaces as a way of learning about how people learn, as well as contributing to new ways for people to learn.

Student behavior demonstrates more use of library spaces, more call on electronic reference services, and a different quality of information seeking. And at the same time, the Google phenomenon is something, while it causes concern to faculty members and librarians alike, it also presents us with some very interesting challenges.

We need to train students in a sophisticated
understanding of the nature of evidence. We need to help
them see the value of advanced research, going beyond the
random provision of Google, and Yahoo, and all the others.
And we need also to help faculty members stay up-to-date
with advanced searching techniques, and discuss with them
policies for training students.

And we need to gain access to both groups and
overcome their embarrassment about being out of date, not
knowing what they imagined they ought to know. We need to
liberate them to make the fullest possible use of all of
these opportunities.

In addition to these constituencies, the
worldwide public is now playing a part in library policy
making. Digitization programs take account of our ability
and therefore our obligation to make digital versions of
our unique and rare holdings available.

We have an obligation to collect more and
differently. Cliff's point, again, about popular culture
is well taken. Think what we now do and can do with
ephemera, the disregarded nothings that people threw in
the trash can, and only a few obsessive nut cases
collected and passed on to their libraries.

Think about life long learning, and the sort
of demands that that places on collections.

So here are just a few thoughts on the ways in
which these changes these have already affected
librarians' priorities.
I believe, maybe I’m biased in this, that special collections do move into the front and center. They do tend, at least broadly defined -- I don't define special collections as simply rare books, maps, manuscripts, music, but a great many other things as well -- they do define the distinctiveness of their libraries.

We recently at Yale hired a cataloger to catalog some rather long neglected collections in Hungarian and Ugric and other south Slavic languages, and we have discovered, as she does her work, that almost all of them are uniquely held at Yale.

We simply didn’t know that before. So there's a special collection that we might not previously have defined as such.

I also see an irony in that because we are now able to digitize evidence, and because of the importance of scholarly authenticity and scholarly accountability, we actually value the original more. The digital version must be based on an original, certainly when you're talking about evidence based scholarship.

You have to be able to replicate the scientist’s work, you have to be able to ensure persistence of the experiment as conducted. And that is a huge challenge. In the world of the humanities and the social sciences, you have to preserve the original.

So there's a slow but perceptible impact on collaborative collecting policies, and I agree with
everything that's been said earlier about how we should focus on that which is distinctive locally.

And I also would just like to lob in, as I run over my time, that I think the discussions that are ongoing in ARL and other forums about the core competencies for librarianship are enormously important to us at this juncture.

ANDREW DILLON: Thank you, Alice.

As agreed, I said I'd give each panelist one minute to react to what they've heard. And despite the agreement, react.

Dan.

DAN CONNOLLY: Yes, services and teaching the next generation the value of evidence and things like this, as I do my work, one of the things I'm sort of inspired to do -- I'm thinking about teaching at a local junior college or something, because I don't really know much about the subject or whatever -- a course on media literacy.

You know, how do our students learn to decide whether to trust some web page they find with Google and stuff like that. How much can the libraries help with that? It used to be, how do you learn to use the library system? Well, here's the Dewey decimal system and all that. Okay.

Well, to figure out whether you should believe a page today, you got -- you should know who published it,
and basically be able to follow the money behind the web page. Right? Can the libraries help students do that? I wonder about that.

KEVIN GUTHRIE: I think, you know, relationships are important, and I think we all talked about that. But I think we also have to recognize that many things are happening without relationships, and with great speed.

I had the -- I was involved, prior to the Google launch of the library books projects, in meeting with a lot of the senior people at Google. And the thing I came away from those meetings with -- and I don't know if it's still the same way, Jody -- is that everything was about speed. I mean, move, move, move. Everything is about speed.

And, in fact, these were just the technology guys at that point who said this, but basically they said anything with a relationship, we don't -- we're not interested. That slows us down, it's too hard. You know, we want to do the things that don't have relationships, that don't involve negotiation, that don't get the lawyers involved.

Now obviously the world has changed for Google in certain ways, but -- and, you know, I'm not making this up -- but I think the point of it that's important is that many things are happening in this environment because of speed, and I think we have to recognize that that's
important, the pace is important.

I think the other point that -- well, I'll just leave it at that and move on to Alice.

(Pause.)

ANDREW DILLON: Your time will time. Your time will come.

Alice.

ALICE PROCHASKA: Lawyers usually get involved in most things sooner or later.

On Dan's question about how to teach students how to evaluate evidence, I think this goes to the heart of the matter, and this is one of the values that I hope endures through generations.

And whatever the place we're at in terms of technological competence, where we all are, surely, is to insist on the importance of supporting and authenticating our work, whether it's research or teaching.

And even if our students aren't going to go on to be researchers themselves, they are the consumers of our research, or our faculty's research, and they need to be able to evaluate it.

And I will not go on at length, but there are various strategies for teaching with collections, including original collections, which they may then see more extensively in digital form. But I think there is simply no substitute for looking at original books, manuscripts, videos, the material as originally authored,
at least to know what an original is.

ANDREW DILLON: Okay.

KEVIN GUTHRIE: Can I have one more comment?

ANDREW DILLON: Yes.

KEVIN GUTHRIE: I mean, I think the other thing is that as we make this transition, Alice, you talked about the things that still need doing. But I think we're going to have to stop doing some things.

I mean, somehow we have to make the trade off so -- Lorcan talked about opportunity costs -- but you're going to have to -- we're going to have to stop doing some things to enable the doing of these new things.

And these choices are made all the time. I think one of the things that's difficult in our sector is that because our host institutions are so long lived, and they're never going away, that the motivation to change dramatically isn't there.

I'll give one example. You know, my family, we've been AOL subscribers for a long time. I obviously get e-mail from work, but my wife and my kids have AOL accounts, and we, you know, we have cable modems, so, you know, about three weeks ago we had gotten an e-mail from the CEO of AOL that says, you don't have to pay anymore.

You know, I mean, we're paying $20 a month, and I just sort of thought it was the cost of being there, and got an e-mail that said, you don't have to pay anymore. AOL decided to move to a free model for
broadband customers.

Now, why did they do that? They sacrificed __

the estimates are $2 billion in annual revenue. Just

basically said, we'll give it away. Well, why? I mean,

obviously they didn't do that for fun.

They had to at some level because the market

was -- as the market watched it bleeding subscribers at a

very high rate on a monthly basis, you know, the stock

price was suffering and so they had to make choices.

The point is that, you know, in our

environment, nobody would do that. Nobody would take that

step. And what is that step about? That step is about

pointing the organization in a completely different

direction from the one that has supported the organization

for a long time.

Now it may not work, but it's a way that

change and innovation happened in a different sector. And

it's one of the challenges in our sector in terms of how

to motivate those kinds of significant changes.

ANDREW DILLON: Good. Thank you.

We have 30 minutes for questions. Let's see

some hands.

Fred.

FRED HEATH: I'd like to fumble my way to a

question here. It has something to do with what I thought

Cliff said yesterday, and what I think Alice said now.

And in this world of speed, in this world of explosion of
the digital universe, I think Cliff said that one of the
things that Tom Staley and Alice in her work, have to
contemplate is the erosion of the preeminence of those
collections that attract preeminent scholars to their
universities, because everyone will have access to that.

And what I think I heard Alice say was not to
worry, we can freely engage this fast changing digital
world, share our resources, and trust the added value that
our universities add to that resource to make that our
role in the future.

Am I hearing the two of you -- is there a
point of disagreement here, or distance between the two of
you?

ANDREW DILLON: Care to comment, Cliff?

CLIFFORD LYNCH: I think we're more or less on
the same bench here. It seems to me that it's going to be
less the collections than the organization you can bring
to it, the knowledge you can bring of the collections.

And I think we will actually see a few really
anomalous situations where somebody's got a collection,
for some historic reason they're hosting it. All the
expertise is actually someplace else. That will probably
be the exception rather than the rule.

But we may actually someday be thinking about
whether collections should start to follow expertise, or
at least replicate where the expertise is.

DAN CONNOLLY: Two things. So, one, there's
nothing like being there. On the one hand, so that the freely available digital thing sort of acts like a commercial, you know, it's an advertisement for what's going on.

So more people are likely to find out that you have this nifty collection. And the people that really want -- that are really interested in it are going to go there, because, you know, people are social animals and being in the room is different from being across the planet.

Sometimes it's too expensive to go there and they'll just observe remotely. But there's nothing like being there, and sometimes just, you know, the world readable version does attract people.

And -- the other leaked out. So anyway, that happens with books sometimes too. You put the full text online and more people buy the hard copy. But it's how it happens.

ANDREW DILLON: Alice.

ALICE PROCHASKA: And you put the -- you put an image of a rare manuscript online and more people come to see it. We've all experienced that.

But I think probably what I'm saying is the same as what Cliff is saying, that the sheer depth of our published collections becomes, in a sense, a less distinguishing feature, and Lorcan was making this point as well, and I thought very eloquently, talking about
focusing on consumption rather than content.

But meanwhile, we, all of us, in our big research libraries, and, in fact, many in small libraries and local history collections of public libraries, state historical societies, you name it, we hold unique materials.

And they have historically, until relatively recently, been somewhat underprivileged in our budgeting models and the way the library has devoted its resources. And this is where we are making changes and need to make more changes, I think, and try to reallocate these all too scarce resources.

Because this is the material that we're now even more accountable for, precisely because we can make it available. And we can make it available to these important constituencies so that in very interesting ways we share constituencies with the public libraries, we share constituencies with the world. Google makes us aware of this in certain ways.

And because we are able to build on our unique materials, that's where, I think, the research library of the future needs to focus a lot of attention.

Now, once we've made them available, and one previous speaker has made this point, they're out there, and people don't have to come to us. But I think they're going to want to. And it doesn't bother me at all. I think that's how we fulfill accountability.
KEVIN GUTHRIE: I think there's a big challenge here in the expansion of the mission of a lot of these institutions to a global mission against a charter that is a local one. And I think that we need to understand what the implications of these things are. Clifford mentioned yesterday the sort of upside down nature of some of the cost structures, and that the commitment to creating these digitized resources results in long term care.

And, yes, on the margin it's inexpensive and it's a bit of a paradox to deliver to the nth user, but maintaining these through the migrations is expensive. And, you know, we had a natural regulator on being a global organization before, and it was the hours of the library, when the doors were open, when the lights were on, and people having to come.

The cost was borne by the user in getting their body to the place to use it. And now the cost is small, it's tiny, but it's borne by the provider.

And in bearing that cost in 24/7, 365 days a year, to the globe, lots of tininess adds up to a lot of money. Now on the margin it's small, but it's real, and I think that understanding that expansion and mission, and particularly for state-run institutions, it seems to me a challenge when you're paid for by the taxpayers of the state of Texas.

Are you, in fact, responsible for delivering
services and content to the world? You know, if it's cheap enough, I think it's great. But when it starts to buck into some problems of cost, I think it's going to be a different question.

And so I think increasingly we're going to see that the charters of institutions serving the world are going to have to reflect that. And institutions, maybe they have to change their charter, or something has to be done in that mismatch between the governance of the institutions and who they claim to be serving.

ANDREW DILLON: The emergence of the true world university.

KEVIN GUTHRIE: Yes, maybe. I don't know. Federated universities or something.

ANDREW DILLON: Jim, you had a hand up.

JIM NEAL: I wanted to follow up on Dan's observation about the 96 percent persistent rate in links to websites. My experience is very different. I'm beginning to try to migrate the research methods of employee turnover into looking at the website survival rates, turnover rates.

And I'm experiencing a much, much higher level of loss.

DAN CONNOLLY: Hold on. I didn't say 96 percent of websites are persistent. I said 90 percent of the time, when somebody follows a link, they win.

JIM NEAL: Okay. Well --
DAN CONNOLLY: Some --- okay. Lots of people follow -- don't follow --

JIM NEAL: Let me cite three other things and then we can talk about where the two ideas mesh.

DAN CONNOLLY: Okay.

JIM NEAL: One, the loss rates are higher, two, our own website archiving work at Columbia albeit very preliminary and experimental, over time is showing links are broken, aggressively broken. And third, I'm beginning to see manuscripts or journals, papers that are being submitted to journals that are beginning to document, grossly higher, in some cases over 50 percent, breaks in links to the references in research papers.

DAN CONNOLLY: I also --

JIM NEAL: I don’t know how that aligns with what you said.

DAN CONNOLLY: I didn't say that 96 percent of links persist. I said 90 percent of attempts to follow a link win. All right. A lot of these broken links nobody ever tries to follow them. All right. So that's what -- and --

ANDREW DILLON: Hang on a second. That's going to raise some ire here, Dan. Is it just that people are self selecting, saying, well, I know that's dead, I don't go there, and how do we factor that --

DAN CONNOLLY: No, I mean, it's the normal distribution. Right? The top 10 websites constitute 90
percent of the traffic in the world. I mean, popular stuff is popular. Right?

And so most of the links go to popular stuff, and the popular stuff is maintained and the stuff on the edges, you know, there's lots of it, there's a long tail and all this kind of stuff, but --

JIM NEAL: Well, I guess I would argue that that doesn't necessarily -- does not -- that result does not necessarily migrate well over into the scholarly and learning environments that we're responsible for.

DAN CONNOLLY: Exactly. So for the part of the web that is the scholarly record, you know, it's not easy to keep these links working for a long time, and you guys know how to do it better than the technical geeks like myself. So please get on board and, you know, invest.

And the pattern that I want to work against is, you guys stop and wait for me to come up with a technical answer. No. Okay. The technologies are almost as good as they're going to get. It's these financial, organizational things like that, and you guys know better than I do how to address these things.

KEVIN GUTHRIE: But the data is -- I mean, the data's a bit misleading in that sense. I think we all sort of reacted like, no way, you know, in a sense that the average, across the spectrum, because there's so much usage out that dwarfs the amount of usage in the scholarly
community means that the scholarly community's average could be 20 percent.

DAN CONNOLLY: Right.

KEVIN GUTHRIE: It could be 5 percent for all we know. I mean, I think that's one of the questions that we'd have to attack in this community uniquely.

DAN CONNOLLY: Right. So the main -- do you teach your scholars about the value of keeping the links alive, or do you just assume the links die and you don't even worry about it? Please teach them the value of keeping them alive.

I was very happy to hear that there was a funding organization that, you know, writes into the granting stuff, you've got to tell us how you're going to keep your stuff available for a long time.

ALICE PROCHASKA: And there is another issue here as well. The Center for Research Libraries recently conducted a small piece of research, which I think was funded by Mellon, into political protest websites.

And several different scholars from several different types of organizations wrote up their findings. Something like 60 percent of the websites that they had been using as source material for their study of political protest movements across the globe had vanished within two years, was it?

And that's a very serious problem. It's not going to be addressed easily by -- I think we do need to
educate our scholars, our faculty members, our scientists
in preserving the data and making it available.

And an enormous amount's been said about that,
but what do we do about this goal of research that's
vanishing every day, vanishing as we speak? Web
harvesting does become an obligation that we have to
share. It's tough, it's very difficult to do.

Largely, I think, you're right, for
administrative and organizational reasons, not for
technical reasons. And we need to spread the knowledge
about the urgency of this work, I think.

And this is an area where digital special
collections, if you like, can -- and I don't really like
the term special collections very much -- but we do need
to, in a sense, transfer those values and habits of
valuing the data about human experience as we see it in
analog form.

We need to carry forward those values and
habits into the digital world, and I think Jim has put his
finger on a seriously important issue that is one that we
really, really haven't cracked.

AUDIENCE: I think it's important to
distinguish between websites and web objects. Don just
reminded me of a study that demonstrated that the average
life expectancy of a web object is now about 100 days.
And that's a real problem.

The website might be accessible, but the
content within that website, if you will, is no longer accessible and usable, and then I think we have a real problem.

DAN CONNOLLY: Well, okay, maybe. I mean, you just can't hold the whole world to scholarly expectations. All right. People are going to make ephemeral websites and stuff like that. And they're going to make games that don't work six months from now, and that's life. Okay. Live with it.

But for the part of the world that, you know, that is the scholarly record, you can fix this. And you can work hard on the problems of how are we going to archive this thing that started as a game website and became so popular that we really need to archive it and stuff like that.

It was such -- it was an event in history that people are writing scholarly papers about, so we need to archive that. That's a problem that you need to work on, but --

AUDIENCE: I don't -- I'm sorry, I have to disagree with you again in that I think the work of scholarship clearly depends on the work of scholars, but the original research depends on the capture of that full record in some way.

And the popular culture is as relevant to future research as the research that is published by colleagues.
DAN CONNOLLY: Right. But --

AUDIENCE: So we have to take responsibility, I believe, in our community to have a policy framework, and a technical framework, and service framework that enables us to get that stuff as part of our collection development responsibilities, and make it available long term.

DAN CONNOLLY: I suppose. But the spoken word we don't have, you know, long term archives of that. Right? It just comes and goes, and the scholars study it in any case. Right?

ANDREW DILLON: Good point.

KEVIN GUTHRIE: So I think __

AUDIENCE: There are records, there are archives of the spoken word.

DAN CONNOLLY: Some of it.

AUDIENCE: Yes.

DAN CONNOLLY: Some of it. That's my point. Just don't hold the whole web to these, you know -- but just because there are websites that go away, don't throw up your hands about the whole web.

ANDREW DILLON: Good point.

KEVIN GUTHRIE: I think one of the -- I mean, I think that was one of the points that Ann made earlier about presses, you know, that there's sort of some enterprises taking responsibility for, not necessarily protecting their commercial territory that Cliff talked to
as part two yesterday, but, you know, I think with the scholarly information, we have to develop the mechanisms, the real practical mechanisms, I mean. And that's part of what, you know, Ithaka is trying to do with Portico and LOCKSS is trying to do, is trying to do is to create a specific way of going after a specific set of content and ensuring that it's persistent. And I think that we're going to have to keep doing that over and over in a lot of different cases where we have practical solutions to problems. Hopefully some of them are, you know, massively scalable solutions that involve more technology than relationships.

ANDREW DILLON: Thanks, Kevin. I saw three hands go up, I now see a fourth. I'm going to try and take them in the order I remember them. Lorcan, you were first.

LORCAN DEMPSEY: Dan, I mentioned citability and it's important to [indiscernible] persistence and citability are related, but different. Ross Atkinson in one of his papers made an interesting suggestion in relation to institutional repositories. And I thought it was interesting this is only a small point [indiscernible] making, that the library or the institution should take responsibility for ensuring persistence of things cited by its own scholars within its repository.
So that if somebody at Cornell cites a web page or something else, a paper [indiscernible].

DAN CONNOLLY: Good idea.

LORCAN DEMPSEY: -- the web page [indiscernible]. And clearly you lose a lot of context and various other things, but I thought it was an interesting suggestion and just an aside.

ANDREW DILLON: Thank you. There was a hand, a question at the back.

GARY STRONG: Yes, I would just like to add a little bit to the popular culture disagreements that seem to be going on, and that is that we depended -- we look at it as not scholarly material too often, and yet a large number of our faculty work in these areas, and frankly I think has as much of a scholarly record that we have to collect as the print and the traditional kinds of things.

And just because it's -- and the format's a new mechanism doesn't mean it's any less valuable. It makes it even more complicated than trying to sort out what we ought to be doing [indiscernible].

I think this case in point, in terms of our harvesting, crawling the web for political websites prior to primary and general elections in the state of California. And the recall election was the most interesting. It was the first time we had tools to really go out and do that. Ninety-nine percent of the websites disappeared the day after the recall election.
And yet in any number of cases, we had folks come back, particularly our current governor, and ask for the blogs that were on those websites, that they actually took down themselves, and they needed them in the transitional period to get identification of community input and all kinds of other things.

Those are being studied by political science — certain of our political science faculty, looking at trends within California politics.

So, you know, it becomes very interesting to look at popular culture and popular kinds of things on the web, that we might not have traditionally collected in other ways, or collected them as ephemeral because we have a long trend collection of print political materials.

ALICE PROCHASKA: I'd just like to comment on that. Gary, I completely agree with everything you just said. I do think that the -- we need to be very aware of the way that the role of the librarian shapes scholarship. What we collect has massive impact on what people see as scholarly resources in the future, whether it is existing scholarly output into scholarly record, or the evidence that has not yet been used by scholars, and may not be used for maybe generations.

And I think, just as one example of the international Don Juan Project, a large part of it, again, sponsored by Mellon, and collecting material that was shut up in a cave on the Silk Road for a whole millennium.
And when it -- that cave was opened up and its contents were disposed by scholarly trophy hunters from all over the world, material was revealed for the first time of a very ordinary nature, which actually described life in classical China for the very first time, and scholars were able to build whole fields of understanding comprehension.

And now, of course, in the digital environment, we're able to bring it together, stuff from Peking, Beijing, Berlin, St. Petersburg, London, Tokyo, et cetera.

And if librarians and art historians together hadn't set about doing that work, the scholarly record would be immeasurably poorer in a field that's becoming more important as a result of their work. We have a very important symbiotic relationship with the scholarly endeavor there.

ANDREW DILLON: Thank you. Yes.

AUDIENCE: I just wanted to add the very point that if the library set as it's top priority collecting all the scholarships, in this case, on the California primary, that'd be a certain recipe for having an inferior library, because, as Kevin pointed out, academics work with a certain amount of arrogance, or maybe you could say shorthand methods.

They're going to ignore a lot of stuff that's turned out on the primary. They're going to love to have
the primary material itself, the websites. So that's why we shouldn't be obsessed, if you like, with scholarship. We should more be obsessed with the primary material, in this case, the web pages.

DAN CONNOLLY: All right. There's just two different games to play. There's one of trying to see that, you know, works as published persist, and then there's another one to, you know, try to make it so that the works as published, you can sort of get at them somehow, not by following the original link or whatever.

And the second game is sort of totally different game from, you know -- so there's archive.org and there's, you know, your library probably has a copy of some important web page, or something like that.

But that doesn't mean that following the original link is going to work again. And what I'm encouraging you guys to do is make sure that when you're following links to the originally published, you know, article on a new gene or something like that, let's try to make that reliable.

ANDREW DILLON: Where's Brewster Kahle when we need him?

And you had a question?

ANN WOLPERT: Actually, I think I have a question, although a lot of the issues I was going to make have already been raised.

Once upon a time, there was a correlation
between productivity on our campuses and on the quality of our collections. So the economics of having a large collection of material in close proximity to the scholars so they could use it, was obvious and institutions were willing to invest in it.

One of the things we're trying to do in the MIT Libraries with the web consortium is make it easier to find materials that are out on the web and move them among and between unlike technical environments, that's a complicated problem. But then you have to redefine the paradigm of what it means to be productive.

You either do it for your own campus because you think those materials are primary materials that you're going to collect over time, or you have to have some kind of a shared technical environment into which you put those things, with some set of understandings about who's going to pay for it and how you're going to get it back out again, which, in a way, is a new form of captured publishing.

And we don't have that mechanism in place. We have institutional repositories at original institutions, but we don't have something that replicates the robust model of scholarly publishing as it was historically defined for us.

It's the same set of work processes where you find the good stuff that's out there and you capture it and you maintain it in an environment under a set of
standards. But it almost seems like we have to start building a separate silo for that because the traditional publishing environment isn't supporting scholarship in the way we would like to see scholarship going forward.

So I don't know whether that's a question or a comment.

ANDREW DILLON: Neither do I. But maybe some of the panel would like to react.

DAN CONNOLLY: Could I react with possibly a non sequitur, which is the role of institutions, you know, University of Texas Libraries, in these changing times, some things really only change with generations. Right? A person learns something and they're just going to keep their habits until they die and you've got to make another person before things really change.

And so universities -- sort of how that sort of -- we don't change very quickly. On the other hand, you get new students every year or every four years, and you sort of have a four year generation cycle that's just shorter than the 20 year cycle.

And one of the things that I find really interesting to look at is sort of how Hollywood movies are made, because on the one hand every movie is a completely new organization and, you know, creative talents and all this kind of stuff.

And on the other hand, there are these studios that sort of aggregate risk across projects. Right? They
get this creative guy and he's -- you know, mostly the big budgets go to named directors or whatever, but maybe he's a new guy and he's just got this idea that's so compelling, and they get a bunch of -- sort of -- I don't think they're really investors, except in the sense that the studio is an investor.

Anyway, somebody's idea gets funded and somebody else's doesn't, or whatever, and so the studio is sort of this engine of risk aggregation that makes these large scale projects possible. But each movie is a little project that just sort is new out of whole cloth.

And I don't know where the universities are there, because each, you know, research project is a little thing, and then there's long term relationships with the universities. But I find that kind of interesting to study.

FRED HEATH: No risk aggregators then, we just do Elsevier movies.

DAN CONNOLLY: Right. He said we're --

FRED HEATH: We're kind of like those movie studios, but we just produce Elsevier movies with our funds.

DAN CONNOLLY: Yes, we laugh, but, you know, that's not funny, is it?

CAROLYN PALAIMA: I’m Carolyn Palaima in Latin American studies here and we’re working with the General Libraries to do web capture of Latin American documents
and web sites. And what we looked at as not as websites that need to be [indiscernible] digital collection by the Benson. But then we thought that for now digital-born and if you’re going to continue your serials, then we're really going to have to start capturing these sites.

[indiscernible] at various studies, you could get [indiscernible] or presidential documents in the context of what was happening historically. And so we found it to be very exciting the way of, one, meeting traditional collection needs and also expanding the realm of what you could put around the digital collection.

We’ve had fun working with the Libraries.

ANDREW DILLON: And, of course, all done at no extra cost.

AUDIENCE: [indiscernible].

ANDREW DILLON: We have time for one last question maybe. Any quick one, or comment?

(No response.)

ANDREW DILLON: Or failing that, let me announce that we're taking a short break before lunch. Lunch will be next door and we do have a speaker for lunch, and it's Jim Neal who will be giving us an address. So we'll see you for lunch at 11:30 next door.

And how about a big thank you to all the panelists?

(Whereupon, the second panel discussion was concluded.)
PANEL 3: INTO THE GLASS DARKLY:

FUTURE DIRECTIONS IN THE 21ST CENTURY

FRED HEATH: It's my pleasure with this panel to continue this colloquy and to introduce my three colleagues here this afternoon, where we ask them to peer into the future and to give us their perspectives on the directions of scholarly communication, as they may take shape in the remainder of this century, and the roles that libraries may play in shaping those vectors, or trajectories.

And certainly it's not chance that brings these three panelists together to consider directions in scholarship. Each is well known to you, to this research community, and all are in high demand for the acuity of their vision and the credence of their observations as pertains to libraries, to research, and to scholarly communications.

But what we're going to ask them to do is to take a look beyond the renewal of next year's journal subscriptions, or the implementation of the next piece of software, or the construction of the next library or storage center.

We'll ask them to think about how scholarly communications is unfolding in the technology enabled digital age, to suggest what fundamental transformations our renowned libraries represented in this meeting might undergo, and what we may each do to enable teaching,
learning, and research over the ensuing decades.

Their perspectives will be useful to all of us in this room. And I would like to introduce them together in the order of their presentation.

And first Karen Hunter, senior vice president of the publisher Elsevier will be the first to make her remarks. It's appropriate that she do so.

Along with the important roles played by the scholarly societies, it was the rise of commercial scholarly publication in the years following World War II and continuing to the present that enabled our research programs to accelerate and enabled the scholarly colloquy to unfold in all of its richness.

For several years, Karen has concentrated on the strategic issues that confront Elsevier in the evolving scholarly landscape. She has been a pivotal player in her company's effort to position itself for the electronic delivery of journal information.

Those of you who are librarians or scientists will remember the early effort in network journal delivery, TULIP, and Elsevier’s effort in the early part of the past decade for which she was responsible.

Karen led the design and start up of Science Direct, Elsevier's web journal service. She is a member of the copyright committee of the Association of American Publishers and the board of Crossref, and has served on the Board of the International DOI Federation, Digital
Objects Identifier.

She serves us well in the National Research Council's study committee on intellectual property and emerging information infrastructure. And as well, she serves on the National Commission on Library and Information Services Working Group on the issue of journals pricing, publishing and copyright.

Following Karen will be Don Waters, Program Officer for Scholarly Communications at the Andrew W. Mellon Foundation.

All of you in this room are appreciative of the important role the Mellon Foundation has in enabling bold initiatives in higher education. Its role in the field of research librarianship is certainly pivotal.

In the six years since Don Waters joined the Foundation, the scholarly communications program has awarded more than $200 million in grants, including support for products known to scholars here such as ARTStor, and initiatives embracing the future of digital preservation, such as LOCKSS, Ithaka, and Portico.

Before joining the Foundation, he engaged in new directions in scholarly communications as the Assistant University Librarian at Yale, and as the first Director of DLF, the Digital Library Forum.

He is a Fellow of the American Association for the Advancement of Science, serves on the Steering Committee of CNI, the Coalition for Network Information.
He is on the National Digital Advisory Board of the Library of Congress, as well as serving on the Section 108 Study Group.

He's a recognized expert on digital preservation, digital libraries, and scholarly communications.

Cleaning up will be Elizabeth Betsy Wilson, my colleague, as Director of University Libraries at University of Washington. Betsy has a long record of distinguished service to research librarianship, serving in important leadership positions at both UW and the University of Illinois at Urbana-Champaign.

As visionary and leader, she has served the Association of Research Libraries, the American Library Association, and OCLC with true distinction. She has served as president of the Association of College and Research Libraries, and is currently chair of the OCLC Board of Trustees.

She is a member as well of the Association of Research Libraries Board, and serves on the Digital Library Federation Executive Council.

Her contributions and her vision are recognized in many personal awards and in the recognition of the libraries she directs. In 2004 her library system was selected as recipient of the 2004 ACRL Excellence in Academic Libraries.

We look forward to hearing her remarks before
opening the floor to you for the panel. And we have until
about 2:15 and we're going to go roughly 15, 15 and 15 and
finish up our time with questions from you.

So, Karen, we'll start when you're ready.

KAREN HUNTER: Thank you. I appreciate the
opportunity to be part of this conference, though not
necessarily the opportunity to follow Jim Neal.

As Paul Saffo of the Institute of the Future
has said, We are in a period of unprecedented uncertainty.

It would be presumptuous for me to say what research
libraries should do, and you already have a long list from
Jim.

But following the briefing that Fred gave us
as panelists, what I'm going to try to do is talk more
about what I see as some of the publishing challenges,
what we are doing to try and deal with those, and how that
may change or affect our relationship with libraries, or
what we -- how we work with the research libraries going
forward.

First of all, for the benefit of the many
people from the humanities who are at this conference,
permit me to spend one minute just giving a very rapid
introduction to Elsevier.

We're about 700 staff and more than 70 offices
in 24 countries, about 45 percent of our business is in
health sciences, 55 percent in physical life and social
sciences. We are not humanities publishers.
We do about 2200 new books a year, 1800 journals. The 1800 journals publish about a quarter of a million articles a year, which is around 1,000 per business day. It's about a quarter of the scholarly literature that is regularly referenced.

Our online platform, Science Direct, has about 7 point -- well, more than 7.8 million articles that, in most cases, is back to Volume 1 Number 1 of those 1800 journals. We average, on a 24 hours a day seven day a week average basis, 500 article downloads every minute.

And we've invested over the last decade about $400 million in Science Direct and Scopus, our bibliographic database, alone.

So in the publishing community, we're sort of the 800 pound gorilla. We are the largest of the academic publishers. As the same time, when you compare us with The University of Texas here, we're about the same budget size, and so when you look at the whole academic community, we suddenly become very small.

And if you look at all the scholarly publishing community, we're -- the revenues of the scholarly publishing community in any one year are smaller than the profits of Exxon Mobil. So it's a kind of strange world in many respects.

One reason for giving you this quick overview is to say that, as a community, we've come a long way in this electronic era in the last decade. Enormous amounts
of scholarly information are available immediately at the
desktops of researchers and students. In our case, over
16 million desktops worldwide.

I think we should not leave this conference on
the future of the libraries without feeling good about
what's already been accomplished. I think the
infrastructure and the ability that the libraries have put
in place to get this information to researchers and
students has been extraordinary.

And the changes and the pressures that has
meant for everyone have been very difficult, but we've
accomplished a lot over the last decade, and I think we
should feel good about it.

But as we know, past success does not assure
future success. So what -- I want to look now at some of
the challenges quickly that I see that we at least, as
publishers, are facing, and I'm sure many of these will
resonate to the libraries as well.

The first is, indeed, a change in roles. The
traditional research publication cycle moves through about
10 stages. The research itself; the writing of the
results of the research; editorial review and acceptance;
production, which many people equate with publication;
distribution, including marketing; purchase process;
storage for day to day use; archival, permanent storage;
the access and location tools; and then finally the use
and incorporation into research and teaching, completing
that circle.

In the print environment, the stakeholders were pretty linear. Scholars and researchers -- scholars did the research and wrote, scholars performed editorial review, enabled by a publishing infrastructure, then publishers took over to produce and distribute, and not incidentally finance.

Libraries purchased, stored, archived and provided finding tools and scholars picked up again to use the information and incorporate them into new research and new teaching.

Over the last decade there's been a significant shifting of roles downstream, or the potential for a shift which is, in itself, creating uncertainty.

Researchers on the internet obviously can take care of production and distribution themselves if they choose to. Libraries also have become distributors as they establish institutional repositories.

Purchasing models have broadened by the call for some type of open access and other open activities. Publishers have taken over much of the storage responsibility, and we share archival responsibility with libraries.

And at least some publishers, certainly in our case, have become information managers with a staff of highly skilled experts in search, in text mining, and in the many related areas needed for today's access and use
of products.

And we've become preoccupied with having our publications used for uses now much more measurable and monitored, and that which is not used will not be bought.

So there's overlap and potential confusion in roles and I think that we're all far from -- I'm not sure there will ever be a sorting out, but there is -- what was linear is no longer linear.

The second challenge is the limitation and growth afforded by our traditional market, the research library. It's not news to anyone in this room that library budgets have largely not kept pace with the growth and research. Research has been growing at a steady 3 percent per year for most of the last century.

For libraries, that has meant years, no, actually decades, of very hard choices. For publishers, that has meant equal frustration and the need to adapt to flat market conditions.

A third challenge is the changing nature of the scholarly community, and its interactions. We've been hearing obviously a lot about that over the last day, 24 hours. As we've heard, and we know from our own experience, researchers today are essentially an instant and constant communication.

What is not clear is how those changing communication patterns among researchers will change the formal publishing process, the formal part of scholarly
communications. As we see new collaborative tools, how are those going to change what's expected in formal publication?

We hear predictions of the decrease in importance of the journal, per se, perhaps even its ultimate death, although that's rarely really predicted.

I would say, in that regard, I was at a conference at Berkeley in June and when asked whether -- that included a number of faculty members -- and when asked whether if there was no “publish or perish” would you care about the journal?

At least one prominent faculty member said, no, get rid of it. You know, it's purely a publish or perish kind of activity. I won't say that everyone else signed on to that, but it was an interesting response.

A fourth challenge is understanding the idiosyncrasies of different disciplines. We as publishers have spent the last 15 years creating, I think, superior but homogenous online solutions.

We've worked very hard to try to get our costs down and to get a robust infrastructure in place. But in doing that, we've erased the distinctions on the research behavior between different communities.

At this point, I personally believe strongly we need to go back and understand much better what is needed to support specific disciplines. At the same time, we also need to facilitate the growth of interdisciplinary
research.

Everywhere I go, that word is what I'm hearing over and over and over, interdisciplinary, and to make the literature, the resources and the authorities of one discipline more transparent to those outside that discipline.

We're being told, you know, that it is -- when you get research information on the web outside your immediate discipline, it's very hard to know whether that person that you're getting that information is a real authority in that field, or is it, as they say, a dog. You never know on the internet.

A fifth challenge is the increasing importance of non-textual material. Cliff talked about that yesterday, about data, and it's important for retention and storage. There's also been mention of images, and I think images are seriously underused and not as accessible as they could be.

And there I'm thinking very much of the things that are within our books and within our journals. We have an enormous repertory of images that we should be making much more accessible to people.

We're also now seeing some increase in other non-text items, although it's still much slower than any of us expected, much slower than we anticipated, and I think it's simply because it's still hard for scholars to get information in a non -- that is non-text into a usable
way. And sometimes it's just more work than it seems to be worth.

    Nevertheless, as we know in the eScience area and other things, this becomes a core of the research in many ways, and we have to find better ways of dealing with that.

    Finally, as a challenge, I'll mention probably the largest problem for a scholarly publisher, at least a commercial publisher, but it affects the not-for-profits as well, and that's how to get a return on investment in products and services.

    I said we're challenged by flat library budgets, but the problem is far more systemic. As a culture, we've become used to what I call the PC mentality, and I don't mean politically correct, I mean the sort of example of a personal computer.

    We expect that every year we're going to get a better service with more functions and more features and more functionality and it's going to be certainly no more expensive than the previous year, and probably cheaper.

    And that expectation of not -- that you're going to get something better all the time for less money is a good one, and it's a challenge, and it's an important thing to look at. At the same time, it makes it difficult to know where to invest, where you're going to get things.

    In the academic environment, there's a mentality of not -- among the researchers, I'm not saying
the libraries -- among the researchers of not being used
to paying for things. And the internet reinforces that.
So it's difficult to know where you can add value, where
you can create new services in a way that will -- you can
actually monetize and get any return on it.

I was asked yesterday by Duane to talk for one
moment, and I will, on the reaction to the call for open-
- and then fill in the blank -- but let's say open access.
And I will say just quite bluntly, how could I be opposed
to it.

I mean, if there's a sustainable way to offer
information for free to the user, that would be wonderful.
I mean, it would be absolutely wonderful. But none of us
denies that there are costs involved, and for a commercial
company, we also have an obligation to provide a return to
our shareholders.

The answer is, as soon as -- as someone
proposed, is to get the return -- if the answer is to get
the return from the, as I said, value added services.
Again, I have to know, what is somebody willing to pay
for?

We have an enormous number of ideas, but
trying to translate those into something that someone's
really willing to pay for, instead of saying, yes, that's
great, just add it on, is not so simple.

My boss, our new vice chairman, Y.S. Chi, who
many of you have met, frequently has said, If the current
business model is really unacceptable to the academic
community, if it really doesn't work, if it's broken, buy
us out.

Make us an offer we can't refuse, and then
take them over. Take over the journals, you can have our
1800 journals, you can run them, you know, within the
university, we'll sell them. In the absence of that,
however, we all continue to try to find ways to support
the current needs and -- for services.

If these are some of the challenges --
changing roles, flat library budgets, the changing nature
of communication within the scholarly community,
understanding discipline idiosyncrasies, and
interdisciplinary needs, the increasing importance of data
and other non-textual material, and the absence of a
market willing perhaps to pay for innovation -- what has
been our response?

Well, number one, we've placed an even higher
priority on making sure we have high quality content.
We're still content providers, and if we don't have
quality content, it's not going to be used and it's not
going to be purchased. So the think quality first is sort
of engraved on everyone's mind.

We know that we need to get and stay closer to
our customers. We really are very focused now on product
development in a collaborative mode, talking and testing
in a rapid fashion, and trying to make changes and trying
to deal with people.

When we developed Scopus we had about 20 development partners around the world that we work with to really try and go back and forth. And it makes an enormous difference.

We're realistic about the budget situation of the research library, and we actually are looking to other markets where there is more growth opportunity, and in our case, that means the health sciences. And we put a lot of emphasis on the health sciences because it's a different kind of market, and it does still have higher growth opportunities.

At the core though, I think we were defining, or perhaps it's redefining -- I'd like to think we've always thought this, but it may be redefining our business. And we're redefining it as providing tools and services to make the learning, including research and teaching processes, more efficient.

So it's not -- we're not defining our business as content delivery, per se, to the extent that content delivery is a part of the efficiency and productivity, that's a part of it, but that's not the underlying definition.

That leaves us with a new set of challenges, including the need to really understand what our -- what will make the research and educational process more efficient.
And to do that, we've decided we needed to map the entire workflow process to identify needs that can be filled, and as we are a commercial company, opportunities that will result in revenues and profit. We recently launched an extensive project to look at the roles of researchers and the tasks that you researchers perform.

We've classified the role's tasks broadly into five groups: core research, which includes grants, research, writing, working with the team members, and staying up-to-date; contributive research, which is editorial work; review and conference organization and attendance; education, which is teaching and supervision; administration, which is evaluation and research assessment; and then personal career development.

We've seen common elements among these, such as searching for information, organizing information, analysis, collaboration, and so forth. And we're looking to identify needs. We've already generated many substantial ideas.

I was part of a two day work shop that was bringing together some of these and testing them out, and we certainly walked out with more than 15 that we thought were really viable.

We now will start that process of going out into the market with development partners to say, you know, is this nonsense or is this real, is this something we can do or are we just thinking crazy, and if we did do
it, would you buy it?

What kinds of needs? Some examples, better filtering of the results of the search process; better management of grants and grant applications; management of international multi-site collaborative research and its data sets; improvement of time management generally within the research process; the need to understand who's who in the internet; which I mentioned before, you know, is this a real person.

There are certainly other things we need to do internally. Clifford has mentioned these in the past, and I -- yesterday, but also other times.

We need to seriously rethink the organization of information and make it more suitable for data mining and text mining. We need to deal more with data sets, we need to think about how we license on a more granular level to have material available for use in a different way.

As we look more deeply at the workflow process and the scholars' needs, we find new opportunities for publishing, so we're optimistic they're there. Maybe publisher is not the word anymore. In some ways we kiddingly say we need to be an über-publisher.

But we think there are new tools and new opportunities that we can develop that will keep us in this business.

Very quickly, if I now turn to how does this
affect libraries, it might be -- I'm going to list a few things I think where libraries and publishers may differ, although listening to Jim, I may be wrong.

We probably have different planning horizons. Publishers' planning horizons, for better or worse, have narrowed. Typically now we talk about two years and trying to project further out than that. Other than when we know we need to make a longer term investment, we're usually on a two year planning horizon.

We probably take a different view on costs, although we're very cost conscious, and one of our strategic goals is always to keep costs down. If there are revenue opportunities that exceed the cost, we'll go for high cost.

I mean, it's not that everything has to be cheap. If we can build a product based on how -- and have the high cost to do it, but we'll make money on it, we'll do it.

We probably have more flexibility than you have. We can move our offices, we can outsource fairly readily, we can redefine our business as we need to.

And perhaps the critical difference, although maybe not, but that we are risk takers by definition. It's one of our core competencies. We have access to serious resources, and we're making huge investments, and we're willing to take those risks most of the time.

Having said that, we also have many things in
common. On the challenges side, what we have in common is that we're both losing our captive audiences. And we both face the potential, perhaps already actual, disintegration of the structure of what we do.

We both need very different expertise from the past on our staffs, and I would argue we both need business redefinition, but that, I've already said we're doing that, and I think the -- what we've heard here over the last two days suggests that the libraries certainly are doing that as well.

On the positive or strength side, we both have a passion for quality of information and services, we're both adaptive and open to innovation, we're collaborative and used to working together, and we each have a network of established relations and contacts within the research community that we can use to test ideas and refine needed content and services.

I would also say that we have a mission, and to use the word, to delight our customers. We want to do things that will make scholars happy, pleased.

So in conclusion, in his briefing to the panel, Fred said that the challenge to put to the UT Library was to rank with those of the best universities in the world. As they move through the process of defining what that means, who are those libraries, what makes them highly ranked, and what gaps are there to fill?

I would suggest that the question should also
be, Is this the best comparison? I think if you can do a
tenth of what Jim has said over lunch, and as you redefine
your business, I would put high on the list, higher than
you had it on the list, really integrating with the work
flow of the university, researchers, and the services to
make scholars and students more productive and more
efficient.

I think if you focus heavily on the users and
the consumer, that that's going to be a big key. And if
you do that, then I'm not sure with whom you should
evaluate and compare yourself. It may be corporate
libraries, it may be corporations generally, it may be
somebody else completely different. It may not be just
other libraries.

I optimistically believe publishers, über-
publishers, will continue to be an important part of the
research and educational community. Our roles will
broaden or change. I don't think you can easily get rid
of us, unless you want to buy us out.

Absent that, what I would invite is all types
of collaboration we possibly can. We will come to you
asking to collaborate, but please don't hesitate to come
to us. I think together we can delight the scholarly
community.

Thank you.

FRED HEATH: Thank you, Karen.
DONALD WATERS: Good afternoon. The possibility of saying anything new, I think, is rapidly diminishing. I'm especially reluctant to pronounce on the future, and I don't really pretend to offer answers here. Instead I take this opportunity to share some of what we're learning at the Mellon Foundation about the principal themes that are shaping the interaction of libraries, publishers and scholars in the field of scholarly communications, and to ask some questions that might guide strategic thinking into the future.

First as many of you know, one of the key principles of the Mellon Foundation grant-making is that it's evidence based. In so far as it's possible, our programs in scholarly communication proceed from systematic consultations with our library, publishing and scholarly constituents.

We're from systematic studies of parts of the scholarly communications field. By sponsoring these consultations and studies we seek to inform our own funding strategies. And our hope is that they also inform the policies and strategic choices of our constituents.

This year several important Mellon-funded studies have been or are about to be released. As has been mentioned in other presentations the report of the ACLS Commission on Cyberinfrastructure for the Humanities
and Social Sciences is in near-final form and makes
several key recommendations for leveraging digital
technologies across the humanities and social sciences.

We'll come back in a moment to the
infrastructure topic. In the area of intellectual
property an extensive study by the Berkman Center at
Harvard was released earlier this summer.

The report's on how copyright law affects the
ways in which media produced primarily for commercial
use -- such as movies, music and other related
materials -- can and cannot be used for educational and
scholarly purposes, to the detriment perhaps of the
educational mission.

Another study that's nearing completion at
Columbia's Kernochan Center for Law, Media and the Arts
focuses on the legal constructs needed to protect digital
archives from demands to change or withdraw material from
online view, in ways analogous to how the public is
protected from attempts to recall material distributed in
print.

I also come back to the topic of intellectual
property in a moment. First, however, I want to focus on
a series of four studies, all of which suggests that the
place for universities and libraries to look for guidance
and making choices about resources and services is not
surprisingly in the disciplines.

Although the needs are uneven, with some fields bursting with energy and creativity, while others operate within relatively static paradigms, it is within the disciplines where the pressures to innovate and advance knowledge are greatest.

At Berkeley Center for Studies in Higher Education, former University of California provosts Judd King and Diane Harley recently concluded a study of promotion and tenure decision making that shows that recognition of innovative forms of scholarly and publication occurs slowly in general, but that variation is greatest at the discipline level, and that emerging forms of digital scholarship and digital publications are recognized when they make genuine contributions to their fields of study.

Mellon is now considering a follow-on study that will explore the hypothesis that innovation tends to occur first in informal modes of communication and only gradually shifts to the more formal modes of publication.

A recently completed Mellon-funded study at the University of Minnesota libraries highlights broad demand among faculty for help in organizing personal information stores and a general interest in interdisciplinary activity, but notes that to make sense of these needs and
interests, one really has to understand the context at a
discipline level.

From within the discipline perspective two
leading art historians, Mariët Westermann of NYU and
Hilary Ballon of Columbia recently completed a thorough
and articulate study showing the increasing impact of
digital imaging and in the field of architectural history,
of digital modeling and reconstruction on scholarly
research, and the need to adjust the publication regime,
so that research can be more effectively reported and
disseminated.

And in the field of classics the final report
of Project Vivarium led by Georgetown provost Jim
O'Donnell is now being drafted and will make focused
recommendations on how existing bibliographic and textual
resources need to be upgraded.

And new resources, such as a more comprehensive
corpus of Latin texts, and interoperable databases in such
sub-fields as epigraphy are needed to fuel future advances
in this discipline. Of course each research library
cannot respond to the specific needs of all disciplines.

And future distinctions among research
libraries will almost certainly track as they have in the
past, the strategic choices each makes about how deeply to
support certain disciplines over others, how agile they
are in recognizing, shaping and responding to changing
needs in these disciplines and across fields, and how
effectively they cooperate with other libraries in a
broader division of labor.

In making these strategic choices research
libraries do also have an obligation to provide a more
general level of support. And this brings me back to the
issue of infrastructure or cyberinfrastructure.

In recent months I've been talking with some of
you about a particular funding request that highlights
some of the key infrastructure issues, in which we all
need to be more adept at handling. We've been approached
by an emeritus professor who's an expert in 18th century
British periodicals.

He inherited the beginnings of an analytical
index of these periodicals, done in a very, very
traditional way with hand entries on index cards. He has
gone slowly to add entries to the index. He now maintains
them in a computerized database.

And he's requested funds from Mellon to
continue the indexing process. However there is a
commercial interest in digitizing these periodicals. And
it's conceivable that the entire universe, which is
estimated to number about 1,000, could easily be
digitized.
Still less than a quarter of them are currently available online. And because of the irregular characters and typefaces the OCR is highly imperfect. Overall the best thinking about this case is obvious. Mellon money and institutional money would be better invested in digitizing and improving the OCR.

Why, the argument goes, should we help this one scholar generate an index that reflects his particular perspective, when digitizing would allow multiple scholars to create their own indices from multiple perspectives. The counterargument, however, is that we are in danger of losing the perspective of this one expert, who has devoted his life to the study of these materials.

And to give that up on the vague promise that sometime in the future we will be able to accommodate methods for a variety of scholars to index and annotate this material. There's no question that his index methods are antiquated and problematic.

But the let's-just-digitize answer simply isn't sufficient or satisfying. How do we make it possible for personal taxonomies and annotations to be aligned against text and other materials for scholarly purposes? This is a larger question about the infrastructure we need for the future.

Google, Yahoo, Microsoft and others provide
powerful mechanisms for scholars to deal with the online
materials.

As scholars become more sophisticated in their
use of these technologies their needs will be
correspondingly more specialized and discipline-specific
in ways that it would likely be unprofitable to address
for commercial companies -- or at least some of them --
aimed at the mass market.

The sheer volume of digitized material requires
implementation of much more sophisticated indexing,
searching and filtering techniques, including broad
application of computational linguistic and related
statistical techniques, as well as sophisticated
techniques for filtering based on mark-up and thesauri,
which would relate results to discipline-based concepts
and concerns.

Search and information retrieval is a growth
industry, not just in the general economy but also for
scholarly communications. Solutions that the large search
engines cannot supply will have to come from applications
developed within and for the academy. And finding those
solutions should be a high priority for the academy, its
libraries and publishers to address.

Related to the development of search engine
infrastructure is the infrastructure needed to support the
advance of new discipline-based research methods.

The development of search technologies will drive the scholarly use of large quantities of digitized resources. But scholarly use will also shape and guide the development of particular technologies and applications for specific disciplinary pursuits.

Disciplines will need to develop new and specialized methodologies and informatics of standards and practices to identify, mark up and explore the large volumes of digital information with which they each need to work: economists with tabular data and government publications; literature scholars with literary texts from various genres; social historians such as the 18th century British periodical expert, with contemporary accounts of various aspects of social life; ethicists with case studies of ethical dilemmas; art historians with evidence about the context of artists and their art, and so on.

As scholars in various fields of study develop experience with these materials, the disciplines and sub-disciplines will need to develop and codify practice. There is a huge opportunity for research libraries to assist in this process.

And a key piece of the infrastructure that they can provide is the human infrastructure of discipline-based specialists. And there are ample examples in the
studies at Berkeley and Minnesota in art history and
classics, that I mentioned earlier, that indicate how
these changes are taking shape.

And there are many other examples in
archeology, medieval studies, musicology, history and
literary studies, to focus just on the humanistic fields
of study.

My last point is to return to intellectual
property. The principle of openness is crucial in the
formation of public policy for scholarship. But advocacy
of openness for its own sake is not necessarily
sufficient. And I want to give you a few examples of how
our thinking about intellectual property policies need to
be deepened and sharpened.

First let me draw your attention to complex
intellectual property issues associated with the
arrangements between libraries and commercial entities,
such as Google, Microsoft, ProQuest and others.

Peter Kaufman in Ithaca made a useful attempt
last year to analyze the large variety of types of
relationships, some of which involve deals that do not
always articulate coherent and collective educational and
public interest objectives.

Additional work is especially needed on the IP
issues associated with emerging commercial services that
will likely make use of open-access materials.

Sophisticated publishers are increasingly seeing that the availability of material in open-access form gives them an important new business opportunity, that is they can begin to incorporate and recombine materials they and other publishers have produced with data and other related materials in sophisticated databases, subject them to a sophisticated search, data mining and semantic algorithms, and then present these as services to a variety of specialized audiences willing to pay for the added value over and above the original content.

These may be desirable outcomes in the end and certainly represent opportunities for useful partnerships among scholars, libraries and publishers.

However, what is worrisome about many arguments in favor of open access is the lack of strategic thinking about how open-access material will actually be used once it is made available, and the faith-based assumptions that only beneficial consequences will follow for providing open access.

One worry is that open access to traditionally published monographs and serials will cannibalize sales, push smaller publishers into further decline and make it difficult for them to invest in ways to help scholars
select, edit, market, evaluate and sustain the new products of scholarship represented in digital resources and databases.

The bigger worry, which is hardly recognized and much less discussed in open-access circles, is that the large, heavily capitalized publishing firms will exploit open-access repositories, cherry-picking the most valuable open-access products, combining them with the most valuable new databases and resources, selling services back to the academy, while chasing out sources of capital from within the academic community that are desperately needed to advance scientific, humanistic and social sciences study.

One concrete step that the organizations represented in this assembly can take is to begin to engage the open-access advocates in this critical, strategic and policy debate about the full life cycle of scholarly communications, not just the trendy, glitzy rhetoric about the initial step of making materials freely available.

The questions have to be asked -- and some of these were asked in earlier sessions -- open access for what and for whom? And how can we ensure that there is sufficient capital for investment in the dissemination of new and emerging forms of scholarly output.
In the software arena a variety of alternatives have been explored and articulated in the form of open-source licenses, some of which facilitate desirable downstream activities, and others do not. For content, options like the Creative Commons license are important to consider.

But there’s so little experience in this area of use it is doubtful that such a license represents a sufficient answer. I’m tempted to close by calling for us to lock arms in a spirit of cooperation and good feeling as we march forward into this uncertain future.

Instead I would suggest a more complex approach. There are certain areas, such as the development of key elements of the infrastructure, in which cooperation is absolutely necessary to achieve scale and other benefits.

And we need some careful discussions about what those elements might be. But some good old-fashioned, aggressive entrepreneurship and some healthy doses of risk-taking, and risk-taking competition among research libraries continue to be needed to help advance scholarship in various disciplines.

And this entrepreneurship and competition is necessary to ensure the diversity in our libraries and universities that President Duderstadt yesterday observed.
is one of the strengths of our system of higher education.

Thanks very much.

FRED HEATH: Now we'll turn to Betsy.

BETSY WILSON: I'm going to speak from the podium for two reasons. One, I can't see you all, and the second is I'm freezing. So I thought if I got up -- I thought it was supposed to be hot in Texas. We're going to move outside for this.

Good afternoon, everyone. Early in the last century -- that would be the 20th century, Henry Suzzallo was the president of the University of Washington, a fledgling institution way out in a rainy wilderness called Seattle.

President Suzzallo's vision was to build a "university of a thousand years." He knew that all great universities had great libraries. So his first action was to create a library to rival those in Europe. He called it a "cathedral of books."

Up from the empty land rose a grand Gothic structure with the Olympic Mountains and the Pacific Ocean off in the distance. Suzzallo's university of a thousand years had its cathedral. Since then the Suzzallo Library has become known as the soul of the University and as a beloved symbol for Huskies all around the world.

I should let you know that Suzzallo's cathedral
of books ultimately would get him fired for having aspirations that the governor of Washington viewed as foolish and extravagant. But President Suzzallo knew what the 20th century library should be -- a magnificent building of inspirational architecture, filled with the finest books from all around the world.

It was so simple then. Suzzallo had a clear vision. He did not have to look through a glass darkly.

Fast forward to today, and one thing remains the same. The future of the university is inseparable from the future of the library.

Or as James Duderstadt said yesterday, the library of the future may indeed predict the future of the university. The networked environment and the accelerated pace of change has transformed our libraries and higher education.

The rise of easy-to-use search engines providing access to a vast array of content has changed all of our daily lives. And now wonderful opportunities now exist to create digital content from the library's own stacks and make widely available those hidden treasures.

Libraries have reshaped their spaces into flexible learning spaces to meet a variety of user needs. Collaborative and individual study, high tech and high touch instruction and caffeine and chatter. If President
Duderstadt is right, Starbucks may well have had more
impact on reshaping libraries than the web. Howard
Schultz, our hometown boy in Seattle, will be glad to hear
that.

Throughout this period of transformation,
libraries and librarians have been agents of change.
They've been innovative, creative and have brought
technology -- or at least tried to bring technology into
the service of learning and research.

And in many ways we have put the 20th century
of Henry Suzzallo out of business. But at the same time
we can't fully articulate the shape of the 21st century
library. However, I think we all know it will not be a
cathedral of books.

Our future, I believe, will be determined in
large part by how we collectively respond to the networked
world and anytime, anyplace expectations and realities.
Our speakers yesterday reminded us that education and
research in this century will demand a complex, integrated
and increasingly global information infrastructure.

Universities will be measured on how well they
manage and disseminate knowledge. Universities will need
to find new ways to share intellectual effort in order to
advance discovery and educate students for a future we
cannot even begin to imagine.
Yet during this transformation the mission of the library has remained relatively constant: to meet the information needs of its community through the gathering, organization, preservation, creation and dissemination of knowledge.

But we all know the tactics and the strategies have changed. Like my fellow library directors here today, I grapple with the shape and the form of the emerging library every day. I ask, what will and what do our faculty and students value?

How can we support the expanding university vision that is increasingly focused on solving big, trans-disciplinary, global problems? What are the possibilities? What are the costs? What will we trade off?

And where should we invest, where we have limited resources, conflicting priorities and competing and often contentious clientele. When it comes to making predictions about the future, my mother always warned me, those who make crystal ball predictions often end up eating glass.

So at the risk of getting some shards in my teeth, I'm going to look through the glass darkly, or to paraphrase Karen Hunter, from an especially clairvoyant 1992 article on electronic publishing, through the
And I’m going to speculate a little bit about the research library of the 21st century and pose some questions that build on other that have been raised over the last two days. So what do I see through my glass or my kaleidoscope?

Well, I see a preferred future. I see in this century a future in which scholars, faculty, students and researchers will be able to access and use the information they require when and where they want it and in whatever form most appropriate to their need.

Better yet, make that a future where libraries anticipate those needs and are woven into the fabric of the search for knowledge. I hope, I anticipate, that information will remain available for generations to come, whether it’s a 19th century book, a 20th century Maria Callas recording or a 21st century political website.

I envision a future in which our physical and virtual libraries are trusted, robust, and facilitate collaboration. I envision a transformed scholarly communication system that is both accessible and affordable.

I envision digital libraries that have reached their potential to improve research and facilitate learning. And I envision a future in which our students
will be as information fluent as they are reading and
currently literate and technology competent.

We're trying to work on this future at the
University of Washington. In fact on Thursday the
University of Washington Library will launch its new
vision 2010, our new strategic plan based on a lot of
strategic thinking.

It's a plan steeped in the local with a reach
to the global. In it we commit to the vision of being an
international leader in imagining, creating and realizing
the promise of the 21st century library. Granted it is
easy to spew vision. But it's much harder to turn it into
reality. And as Kevin Guthrie said this morning, it's
always harder to change something that exists than to
create something new. So how do we get there? Where will
we at the University of Washington invest?

I can tell you we will continue to invest in
assessing the landscape, listening to our users, tracking
patterns and looking for places where we can make a
difference in connecting people with knowledge.

As an example, we recently focused efforts on
understanding the information needs of our burgeoning
numbers of bioscientists in figuring out how to better
serve them and better work with them. I thought I'd take
a few minutes and share with you what we learned about
this particular group.

Well, no surprise. We learned that everybody wants more electronic access. Cliff is right. For those folksthelibraryisseenprimarilyasan-e-journalproviderwithabigcheckbook. We learned that bioscience researchers who work at the molecular or smaller level don't use books. Bioscience researchers who work at the systems or ecology level use books. Most faculty researchers don't come to the physical library. In fact they equate the fewer the number of visits to the library, the higher their productivity.

We're glad about that. That was one of our strategic directions, the anytime, anyplace library. Most graduate students and undergraduates however come to the physical library. Article databases are greatly underused and declining.

Researchers are generating vast amounts of data and are having difficulty managing it, and are expecting the library to step in. There is great need for personal information management. In fact many of the bioscientists thought we were coming to talk to them and offering to scan their file cabinets.

Most with grant support buy what books they need from Amazon. The transaction cost from discovery to delivery is too high in time and attention. There is a
need to integrate fragmented systems and processes. Researchers are suffering, truly suffering from an overwhelming amount of information, demands of immediacy and management of expectations.

And bioscience researchers are multi-disciplinary and multi-institutional collaborators. They work with people at the university, across the nation and around the globe. One typical researcher named at least five different countries and over ten institutions with which he collaborates every day.

This is Cliff's virtual community. They are everywhere in scattered locations. The department is simply a placeholder where they pick up their check. Bioscience researchers are independent and self-sufficient who rely on external funding for their existence. They are free agents.

These findings have huge implications for our strategies at the University of Washington libraries. And this is just one segment of our diverse community. Know that we will also invest in people, new kinds of people with new kinds of diversified skills.

For instance we brought in a bioinformatic scientist, thanks to a Howard Hughes grant, to build a bio-commons. Ten years ago only librarians and library technicians worked in our library.
Now we have professionals in computing, fund-raising, grants administration, publications, communications, graphics design, human resources, organization development, assessment, diversity, financial investment and usability.

And most of all we will invest in collaboration and collective action. Our vision of the 21st century library is only possible through collaboration -- deep, true collaboration. Collaboration, I believe, will be the defining characteristics of the library of this century.

We can no longer feel complacent or comfortable about the artificial boundaries between libraries. Libraries have a long tradition of cooperation. We have operated for at least a century in a circle of gifts.

But libraries will be even more interdependent and intertwined than ever before, not just with each other, but with the stakeholders, information providers, information creators and users.

ARL’s strategic repositioning, the wise investments of the Mellon Foundation, IMLS and others, our partners in the publishing world, our commercial alliances, and the coming together of OCLC and RLG and organizations like DLF and others, and our colleagues in information schools, these things all hold great promise for building a robust, social and technical platform to
fuel this interdependence.

Somebody has suggested we might even be getting close to having some planetary alignment. As Lorcan suggests we must move what we can to the network level. We must do only at the local level what can't be done collectively or doesn't make sense to be done collectively.

Wring out the unnecessary redundancy, I say. I guess when it comes down to it, what we’re really talking about is an ecosystem. If I remember high school biology -- and I didn't play real close attention -- when there's a weakness in the ecosystem the entire system suffers, shifts and ultimately adapts.

My colleague from across Lake Washington -- and that would be Randy Hinrichs of Microsoft -- and I have been musing about the usefulness of thinking about all of this as an ecosystem. We both think it might help us ask questions we seem to routinely avoid.

Questions such as: what are the business models for re-intermediation, making the ecosystem whole or making a new ecosystem? Don has asked us to consider the full life cycle of open access. What about transactional systems? How about derivatives? How do we overcome the constraints of competition? We should also be asking, we think in this ecosystem, what role should and can
multinational corporations and foundations play? Alice, wherever you are, you read our minds.

We need to be asking questions about appropriate outsourcing, sharing, other services. And what about the various learning and research communities, accreditation interests, faculty reputations, student experience, life-long learning?

And finally -- close to my heart -- what are the new and critical roles for libraries? If we can bring all the pieces together, the stakeholders of the ecosystem, and ask the right questions and come to some meaningful consensus, we think -- Randy and I -- that we can begin to collectively drive forward tools, policies, standards, research on a global scale.

To echo Kevin Guthrie's admonition this morning to help us move from ad hoc decisions to purposeful decisions. And maybe we can better define a pathway for the 21st century library and university. If you're interested in joining us in this conversation, let us know. We'll buy the drinks.

Well, I have still lots of questions about the 21st century library. I am confident from what I heard the last couple days, that it will be virtual and real, flexible and networked, global and local, clear, dependable and comprehensible, multidimensional and
integrated and part of an ecosystem sustained through collective action and new modes of trustful operating.

So whether you are a domain expert -- I hate that phrase -- either an authored faculty member who's interested in sharing and promulgating your ideas, a publisher disseminating research, an educator concerned about your students' informational literacy, a technologist designing information systems or a funder choosing where to make investments, each of us, each of you has a very important role to play in realizing the library and thus the university of the 21st century.

For those of you who are interested I did bring along a copy of the University of Washington's new vision 2010, not because it really speaks to your institutions, but I brought it so you could see the framework of the Suzzallo Library from 1920.

We chose to use the photo of this framework, his cathedral of books, to symbolize the work that's ahead for us in reframing or rebuilding the 21st century library. I'll put copies out on the registration table during the break.

So I've done my crystal-ball gazing and no doubt have a few shards of glass in my teeth. The possibilities are enormous. The uncertainties are even more so. I'd like to thank The University of Texas for
providing this amazing service, great service, by bringing
us together to begin imagining the 21st century library.

And I hope in the concluding session, that
Duane will be facilitating, we will find ways to move this
correspondence started here in Austin to action. Thank you.

FRED HEATH: We have a few minutes for
questions of the panel, for those of you who have
questions, please raise your hand.

VOICE: [indiscernible] ecology is a good one,
and stuff like that. But then you said eliminate the
redundancy. What I find when I look [indiscernible]
there’s a lot of redundancy there. They do sort of weed
it out a little bit, but[indiscernible].

BETSY WILSON: I should have said unnecessary
redundancy.

VOICE: Yes. The amazing thing to me is that
Mother Nature -- I don't know what necessary or
unnecessary it is -- like five fingers, four. What's
magic about five? And there just seems to be lots of sort
of random amounts of redundancies today.

FRED HEATH: Are there other questions of the
panel?

Yes, Lorcan.

LORCAN DEMPSEY: Karen saying about
diversification of the revenue [indiscernible] I was just
curious what proportion of journal revenue comes from academic libraries?

KAREN HUNTER: In the physical, life, social sciences I would guess about 90 percent. It's very much academic, government research, private institutions, but library-based.

On the health sciences it's much smaller. I don't know the exact number. But it's probably less than 50 percent, because you've got individual subscribers. You have advertising revenue. You have corporate pharmaceutical company. You have a whole different set of revenue streams. That's one of the reasons the subscription prices for clinical, medical journals are significantly lower.

There's just so many other sources of revenue. Overall you may be happy to know journals actually are less than 50 percent of our revenue these days. We've finally gotten that number pushed down. We're trying. We're trying not to lean on you for growth.

FRED HEATH: Yes, Ann.

ANN WOLPERT: I have a question for the panel that has to do with, I guess, with size of markets, because it seems to me that in listening to this panel, I was struck by the fact that if there's a comparative market, and it's big enough, a commercial enterprise feels
comfortable coming into it to design and deliver a set of products and build services around it.

But in the humanities for instance, where the market is presumably smaller, more specialized, more focused, it seems harder to understand how to create the right kind of focus, how to define the markets -- how to define the target audience, if you don't like the word "market" -- for investments in resources and tools that support a different kind of environment, which is [indiscernible] Hughes, perhaps --

I wonder if you can speak a little bit about how libraries should think about the investments that they make in providing and developing services for different markets.

DONALD WATERS: I'll take a small stab at that.

Part of the focus I was raising on disciplines is that markets are -- I think markets might not be the right word. But I understand what you're saying. And the idea is that they're pretty diffuse.

The activity is all over the map. There are opportunities within the disciplines. I think the study in classics, this study in art history for example, have helped focus the energies within that discipline of what's needed next.

The more that we can do that kind of, not
exactly strategic thinking, but you see this all the time in the sciences, where there are workshops held to focus activity so that you get an umbrella theme, and everybody working in a field connects to that theme, even if they're doing very, very different and small activities.

But it helps focus the activity. The hypothesis I would have is that similar kinds of activities in the humanities would have similar effects.

ANN WOLPERT: The humanists are accustomed to working in isolation. And scientists tend more to work in groups, at least that's the conventional wisdom.

DONALD WATERS: Yes. I'm not suggesting that you take people out of the monastic life. I'm suggesting that you connect the work to a higher being.

BETSY WILSON: Your question made me think about strategies that we have been using and can use even more so now in a networked environment of where we have one scholar at our institution that's working on something.

And there's one over here, and there's one over there, and how we can build, if you will, environments or distributed collections or collections on the fly to support those three scholars that in the past we weren't able to do as easily.

And I think of the fine work that's been going
on with the global network out of ARL and CRL. Those are
really, I think, good examples of -- market might not be
the right word, but sharing that community or making the
community larger and then supporting it among these
different connections.

I think it was Cliff yesterday that talked
about that maybe the way of building alliances and
libraries that used to be geographic, we can now do by
disciplinary alliances that may come and go and change
according to what the community we serve is working non.

FRED HEATH: We'll have time for one more
question?

Jim.

JIM DUDERSTADT: It's actually a question that
Don might be able to respond to. It's actually
[indiscernible] thinking about the issues that we've been
raising during this conference, and how so many of them
have echoes to the last decade or more --

The question for Don was you referenced the
infrastructure and the potential that's emerging for parts
of that that require future infrastructures be delivered
[indiscernible]. You asserted it and then said, I'm not
sure what all those elements are, but we ought to get
together and talk some more about it.

I'm sure you do have some ideas about what
DONALD WATERS: Well, I'll refer back to John Unsworth's presentation as a pretty interesting and clear example of the kinds of infrastructure in a particular field that are needed. The ability to combine text for certain kinds of data-mining activity is extremely important.

That kind of activity has got to be undertaken in a collaborative way. It's highly inefficient for John to try to collect those texts. In order to demonstrate what's needed he's munged them together and done the reformatting and so on.

But we need to raise that to a level of standard activities, so that that kind of bringing together of text for various kinds of analysis is much more easy to do. We can go down field by field, I think, with those kinds of analysis.

That's really what I meant, is that the collaboration aren't necessarily going to be universal and common. But there needs to be partnerships and pretty strategic partnerships among those institutions that have interests to create that common infrastructure, so that they can then go on with their business.

And I think that's really what I was calling for, not that we don't know where those infrastructures
are needed. Some areas I think we still need to know more. But there's a lot that we do know and we need to act on.

KAREN HUNTER: If I can put one footnote on that, not exactly responding to the same question. But you reminded me now of something else John said. It's just an example of what I was trying to say.

One of the things that we've heard that would be helpful if all publishers did, and that's to attach metadata to downloaded PDFs, so that people could, when they download this, really have data with which to manage those downloads.

That's the kind of thing I think that we can try to push and push within the industry and get done. It's not the kind of thing we can charge anything for. It becomes another service, and that's fine, because it makes the information more useful and usable.

But it's the dilemma that I think that publishers are facing. There are lot of things we know we can and should do. We probably can't recoup anything on that as well.

FRED HEATH: Thank you. We will reconvene at 2:30 for the wrap-up with Duane.

(Whereupon, a short break was taken.)

DUANE WEBSTER: Okay. I'd like to get started
again with -- we have a very specific schedule target, 3:30. And I know we're going to accomplish that, because Betty Sue and I are in charge. Betty Sue and I have been tasked with tying up the loose ends and making sure that we've charted the next steps and have taken care of all the unanswered questions.

So we figure we can do that in five or ten minutes. This is really a community-based discussion. So it's really going to be you folks that are going to tie up the loose ends and talk about what you have been most impressed with in the course of these discussions over the last two days.

So I'm going to suggest a way of structuring this discussion to make sure that there is in fact a broad-based exchange and not just one or two people offering their viewpoints. I'm going to suggest that you reflect on the last two days in terms of two aspects.

What are some of the highlights for you coming out of these discussions, either comments, quotes, points of view, positions being taken or something that has provoked you, and make a list of those two or three items.

The other list I'd like you to think about is what issues have we missed.

Where are the gaps in the discussions? Where do we need to continue this sort of exchange? What does
need to be tied up and pursued at a greater length maybe
in a different setting.

I do think this sort of relatively small group
involvement in a discussion that is structured as this one
has been structured has been enormously valuable in
contributing to this process of exploring our future,
sharing our experiences, raising issues and debating
points of view.

I think the more our community can do that, I
think the richer we are. But this is not a single
exchange. I certainly have to salute The University of
Texas for putting this together, particularly putting this
together with the academic leadership in place, paying
attention and contributing to the design.

I think having President Powers here the first
day, noting his concern and interest in how we leverage
the investment in our research library as we look to the
future. I think that's a very critical point of view that
we're all thinking about.

And translating that into the collective,
massive, collaborative efforts -- if you will -- is really
a need that comes out of our worlds today. And it's not
going to be resolved with a single discussion at The
University of Texas.

We need to have additional discussions. We
need to find ways of doing it in this sort of small
session. I'm very much intrigued with the device Fred and
his colleagues used for putting this together. They knew
they wanted to limit this to 60 people -- 30 in, 30 out.

But the 30 outside people -- you know, I work
in an organization where if you start being selective on a
personal basis, you can get into a lot of trouble. But
their device is very nifty. They sent out 60 invitations.
And the first 30 people who were quick enough to see the
value of responding positively, those 30 people get to
come.

And I think that's a great way of illustrating
the need for paying attention to what's going on and being
able to respond. So make two lists: your lists of
highlights, your list of gaps. While you're making those
lists, I'm going to ask Ann Wolpert and Brian
Schottlaender to comment on some conversations that have
been taking place with the AAU provost on these same
issues.

As you know the provosts every year have a
retreat to San Diego. It was yesterday. Whatever topic,
whatever set of issues that are bothering them currently
they put on the agenda and have a discussion around. So
this year as has been the case over the last few years,
they're thinking about.

And I believe the MIT provost came to Ann and asked for her help. So Ann was the linchpin in putting this together. And I thought she ought to say a little bit about the planning on this event.

ANN WOLPERT: Well, whatever I'm going to say is under false pretenses, because I queued it up and then the weather gods intervened. So Brian Schottlaender did all the work. What I thought was interesting about this initiative was that the provost at MIT is relatively new.

And he's an electrical engineer. And his response to being asked to organize a program for AAU provosts on the topic of libraries was, We don't have a clue.

So instead of listening to ourselves talking to one another about something we don't know very much about, we ought to invite people that actually know what's going on, to comment and have a conversation with us. And that's how the format of the program got teed up.

There were a couple of comments at this session that struck me as being particularly relevant to the framework that Brian and I set up for this meeting. One of them was Betsy Wilson quoting Jim Duderstadt from yesterday, to the effect that the future of the library may very well predict the future of the university.
And secondly Karen Hunter's comments about the value chain of the creation of new knowledge and how that new knowledge is created out of a set of investments and a research infrastructure that then produce peer review literature that then loops back into that circle of virtue and feeds research and education again and again and again in a dynamic cycle.

I think many of us look at the current environment and what Karen described as the shifting landscape of responsibilities, and wonder what the future of universities will be if universities lose control over the cost, terms and conditions around what we use of the intellectual content -- intellectual capital, if you will -- that is created on these campuses.

So it was in that framework that Brian and I tried to queue up the conversations with the provosts, not around libraries as libraries, but rather as libraries as that part of educational and research institutions that manages this part of the environment for them.

And now I'll turn to it over to Brian.

DUANE WEBSTER: So Brian was there. How many provosts were there, Brian?

BRIAN SCHOTTLAENDER: Forty.

DUANE WEBSTER: Forty.

BRIAN SCHOTTLAENDER: Of the 60 that could have
been there. So it was good turnout. I'll start with an anecdote. Ann has warned me that Rafael was relatively new, so I show up for breakfast, and I make a small joke. So I understand you're relatively new. And he says, Been there for a year, feels like 20.

So basically I went with the eleventh hour assignment of channeling Ann, which is never a mean feat. But I ended up actually channeling most of you who are here today it turned out, because everything that we ended up talking about yesterday morning we just talked about in more depth today.

So basically I personally went with three messages I wanted them to carry away. And those were recognizing that the library is an interdependent agency. It doesn't exist in isolation. Those interdependencies exist with other libraries. They exist with the commercial sector.

The content whose care and feeding we're responsible for is increasingly interdependent itself. So digital content is in many ways the yin to the analog content's yang. We really can't talk about one without the other.

The second thing I wanted them to leave with was recognize that -- and we talked about libraries in general, but afterwards [indiscernible] what I had really
come prepared to talk about, which is sort of the collection management.

What we're really talking about is investment and all of the activities that stem from that. This is not language that we use. But in the economic environment one could very easily take the rhetoric related to the resource allocation, asset allocation, portfolio balancing and apply that to the current library environment, all in the context of return on investment.

And the return on investment aspect was very much on the provosts' minds. I'll say a little bit more about that. In California when the Google deal was presented to the University of California regents their only interest really and their only concern really was return on investment.

So the way they articulated that was, How are you sure that the deal you're making today will be a good deal 30 years from now? And clearly that concern ran through the provosts' minds. [indiscernible] to take a leaf from Jim's [indiscernible] I wanted them to leave with this notion of impact.

So Jim's articulation was not about survival. It's about impact. So the message in part was for me, We're doing just fine from a survival standpoint on the one hand, but on the other hand we're not only doing just
fine, what we're doing has everything to do with how fine you're doing.

So the impact that we have on the productivity of the institution on whether it manifests itself in the research cycle time, decreases in that, or whether it manifests itself in classroom productivity increases is all about what we're able to do and are going to do is all about what you’re able to do.

Basically in the Q&A that followed and Larry Dumas from [indiscernible] panel session and [indiscernible] Q&A. And there was good participation all around --

There were sort of three things that came out pretty clearly. And these would all resonate with you all from what you've heard today and what I gather you heard yesterday. First of all their view of the evolutionary event horizon is shorter. So there was discussion in the first instance about what will the library look like in 30 or 40 years. And within ten minutes it became abundantly clear that 30 or 40 years is not the event horizon they think is actually going to transpire. So I was thinking about -- remember the Pew roundtable report?

DUANE WEBSTER: Oh, yes.

BRIAN SCHOTTLAENDER: How long ago did that come out?
DUANE WEBSTER: Eight years.

BRIAN SCHOTTLAENDER: And that said, if I remember correctly, the shift was going to take 30 years.

So a third of that 30 years is already gone. In the provosts' mind the shift was transpiring much more quickly than they had expected it to. And they think ten to 15 years is much more realistic.

The second thing they talked about at some length is agreement with Alice's point that what will distinguish libraries in this new environment is not general collections, but in fact the special collections, along with services. Some having a rather darker articulation of that than others. There was reference to the M word -- museums -- of special materials. But most having a much more upbeat view about it.

Then finally -- and this was really interesting -- they did not use this language, but what Bernie and John and Lorcan were talking about this morning was coming from the provosts as well.

And that is a focus on the future frankly less on the library qua institution than on the people who work in the libraries qua expert colleagues with whom to work.

So really a focus in their minds was less on the library than on librarians, which I thought was not only interesting but heartening.
They gave voice to basically three concerns in their conference. The first was continuing unease related to digital archives. So this is something we've been hearing for a while. The University of California did a Mellon-funded study on e-journal uptake.

The basic results were love it, give us more of it. But we're kind of nervous. Will it still be here 50 years from now? They're still nervous. They're getting a little bit more comfortable. It was nice to have Michael McRobbie there. He's the provost from Indiana. He's a computer scientist. So he could actually be somewhat reassuring, and lend some credibility to my statement to the effect that one way to avoid the medium going bad on you is don't stay with the medium long. Keep moving it forward as quickly as you possibly can.

The second thing they gave voice to is a question as to what extent libraries -- and this relates to Lorcan's comments as to what constitutes the evidentiary record. To what extent should libraries be responsible for facilitating access to and preserving information resources that are outside our typical purview.

So they were interested to hear about journals. They kind of got that. They understand that. They were interested to hear about books. They get that. They're
even getting multimedia to a certain extent. And they
even get primary, like raw data sets to a certain extent.

They're beginning to worry about blogs and
wikis and things that are much more fleeting in existence.
And not only to what extent your fear has to do with
[indiscernible], but to what extent we should be
responsible, so that they can have access to that --

But to what extent we're prepared and able to
undertake that responsibility. Now, in discussion with
Ann before going to this I was prepared for some giving
voice to the unfunded mandate. This is one instance where
I actually began to see that.

Again nobody used that phrase, but I could see
it there. Then last -- and this is certainly constant
with what Kevin had to say and with what Jim had to say --
a real thinking about -- I don't think concern is the
right word -- but a real thinking about how to reallocate
capital.

So it's abundantly clear to the provosts
that -- in fact Peter Lange from Duke talked about stack-
like spaces -- not stacks, but stack-like spaces -- which
can be reallocated as the need for stacks disappears.

So I think this notion of the reallocation of
space no longer needed to handle collections has not
escaped them by a long shot.
So I spent a considerable amount of time, Jim, channeling you actually, talking about the need for productive physical space, productive electronic space, enhancing the faculty space, enhancing the student experience. And they were getting in a big way. But you could also see this little gleam in their eyes and little references to “we need classroom space” and things like that. It doesn't bother me personally. So all in all I thought they were a very engaged group. All in all I think they get it.

There was a little bit of fear about the 9,000-pound gorilla, the Google gorilla. But that fear really had more to do with, how's it all going to play itself out in the long term. The one provost -- I think he [indiscernible] -- actually did question whether Google's motives were altruistic.

DUANE WEBSTER: How much time did they spend with you on the library-oriented?

BRIAN SCHOTTLENDER: [inaudible]

DUANE WEBSTER: The whole -- wow.

BRIAN SCHOTTLENDER: The Q&A was [indiscernible].

DUANE WEBSTER: Well, certainly the community appreciates the fact that you're located there in San Diego and can represent the community as ARL president.
And of course Ann, as past president, just happened to be located at MIT and able to work with her provost. Terrific. Thank you for that update.

Okay. I'd like to go back to your lists. And I'm going to encourage you to be punchy and quick. Give one item from either of your lists, and give me a rationale for why it's on your list. And then let's move along, see how many of the community can contribute to this decision in the short time that we have available.

We're on target to close at -- I'm going to hand it off to Betty Sue at 3:15.

BETTY SUE FLOWERS: But we can keep going.

DUANE WEBSTER: Who would like to go first?

John?

JOHN UNSWORTH: I was struck by Dan Connolly's point about Tim Berners-Lee's 1991 submission to the hypertext conference being rejected. In fact if you go back and look at the records of those conferences I don't think there's a mention of the web in the conference proceedings until about 1994, by which time it was already all over the New York Times.

So I think it's interesting, because I wonder what we're overlooking right now. I think that was overlooked or that was rejected because we understood hypertext systems very well. And we could see that that
was a bad one. And the only thing it had going for it was it would allow a lot of people to communicate -- link point-to-point from within documents, do multimedia, put one interface on everything, run almost anywhere. But it was a bad system.

I think what was missed there basically was communication trumps everything else. We've been talking about a lot of things. Communication, scholarly communication, it's sort of buried in there, it's implicit. But I wonder what about the things that we're talking about should we disregard because communication's more important than X, whether X is gate-keeping or disciplinary boundaries or what it is.

We think these things are obviously important.

We understand them well. So we know that's what we're talking about.

DUANE WEBSTER: Good. Thank you, John.

Another highlight? Jim?

JIM DUDERSTADT: Something that didn't come out that I thought might was are there differences in libraries at public and private institutions, and whether a relationship with the state or some public-commissioned mandate colors our thinking about how we organize and deliver library collections and services. Maybe that's a moot issue, where we don't really have large public-
supported, state related institutions. So I'm surprised
that didn't come at some point.

DUANE WEBSTER: Geoff?

GEOFF LEAVENWORTH: I was struck by Betsy's
powerful image of Henry Suzzallo's cathedral of books.
And I was wondering, what is the latter day equivalent of
that? Then I saw this wonderful illustration on the front
of the brochure, which is the Suzzallo Library under
construction.

And if you look at what's in the building, it's
full of negative space and [indiscernible] stacks.
Perhaps that's what the next generation will look like. I
also observed this wonderful brochure I just picked up.
This could be an orphan work.

DUANE WEBSTER: Orphan work. There's a hot
issue for us. Okay. Another highlight or gap?

Don.

DONALD WATERS: I like that she said the
hallmark of the library in the 21st century is
collaboration. It wasn't exactly those words, but pretty
close to it. So what I'm realizing is that library
science is the interdisciplinary discipline.

And if you take that and you mix in the digital
technologies and the information technologies and a
certain amount of openness, that direction, you get people
that are qualified to help, people collaborating.

DUANE WEBSTER: The interdisciplinary discipline. That's good. There are a few people who'd vote for that.

Alice.

ALICE PROCHASKA: I guess to pick up on John’s point, I think there was an enormous amount of back and forth about communication -- communication trumps everything. But the feeling I get overwhelmingly is that the move to communication openness and the gap that none of us yet has quite been able to fill is how we cope. You know, we all of us are dealing with it, strategies to help our constituents, our universities

But how are we going to get together to fill this great [indiscernible]? It's a cloud. What do you do next --

DUANE WEBSTER: I think that is a real opportunity to have additional discussions that might be organized, structured and intended to develop action lists with possible projects coming out of it. I think this has been more of an exploratory.

What is happening? What do we envision? What are some of the issues? What are some of the experiments that are going out?

Kevin.
DR. GUTHRIE: Don and Karen spoke briefly about open access [indiscernible] engaging in practical aspects of how we can access [indiscernible].

DUANE WEBSTER: Yes. A blind belief in the value of open access needs to be -- take the cautionary advice that Don was suggesting. What are the implications? How do we become more strategic. We've got the attention of the Academy -- the provosts let's say -- in this arena of publicly accessible -- of federal-funded research.

But how does that relate to open access, and how do we make sure that the food chain is in fact healthy, and that we move toward a blended model, and not necessarily throw out the successes and the advantages of the current model?

Bob.

BOB: I was struck by how little relevance there had been in the last two days to LIS education. It was exclusively mentioned only in Andrew's question at lunch. It was implicit on a number of things that Jim said.

But basically it's been absent from the discussion in terms of what LIS programs should be doing to prepare professionals to practice in the research libraries. And from that I think that the point that
essentially begs the question, as Jim says, is that LIS education is irrelevant.

PRESIDENT DUDERSTADT: I didn't say that.

JEFF: I know you didn't say that. I think you [indiscernible] in observing it's essential assets for this discussion.

DUANE WEBSTER: Or maybe it's the character nature of the degree and how we're viewing the degree. I think we're still looking to those schools certainly for the type of talent they attract, how they select that talent, how they groom it and prepare it for our communities.

But whether or not they need to have the traditional credential is maybe not as important to our community, although we continue to look at, how do we attract ABDs, PhDs, scholars and specialists into our community.

If we can get them into the library school, our information school environment, great. But we need that talent one way or the other.

Lorcan.

DR. DEMPSEY: I suppose it's natural to talk about collections. But Cliff made a very brief remark in his talk about the differentiation on the basis of services offered on a couple of things. Kevin came back
to the issue of services as well and made some comments
that integration would work well as to Karen.

    But it was interesting that people only get
excited about collections. That seems [indiscernible].
But the issue of how one mobilizes one's resources in a
search and learning environment [indiscernible] much less
attention to that issue -- collection.

    Of course it seems to me a major issue based on
research and how those resources are mobilized in the
research and not a learning environment --

    That seemed to resonate much less proactively
within the group in terms of the specialty --

    Joseph reported a portion of conversation --

DUANE WEBSTER: Good point.

Sarah?

SARAH: I sort of felt the other way that -- I
came in really worrying about how on earth we'll bring the
large general collections, and how we'll care for them and
[indiscernible]. And how to protect them.

    And President Duderstadt -- you almost wouldn't
even know that large general collections existed
[indiscernible] of the [indiscernible]. Then I got to
feeling a little bit better --

    And I've heard people [indiscernible] comment
saying, Oh, yes.
Take good care of our collection. They're absolutely necessary, and we'll get this [indiscernible] if we need it. So I was just feeling better until Brian talked. And Brian said that the provosts have no inkling of how they possibly think about how they can get their hands on the [indiscernible] collections.

So I think future conversations would be interesting -- not a whole two-day conference. It would be interesting to talk more about how are we going to care for those things. Maybe it what you're saying. Maybe it is.

Maybe [indiscernible] as a major institutional asset, how are we going to leverage and activate that asset. I would like hear more discussion about it.

DUANE WEBSTER: Good.

Go ahead, Devon.

DEVON: Going back to what Bob said [indiscernible] various models very different from what we're accustomed to [indiscernible] other people can do that, and how do we support the interest. Say, Okay, here's the new model, run with it.

We're even saying [indiscernible] can keep up with this. This also brings up the Center for [indiscernible] acknowledging [indiscernible]. Almost a cultural clash between that from the people in our
traditional [indiscernible], who seem themselves as the
keepers of the [indiscernible].

Whereas there's a perfect complement
[indiscernible] CIT people working with faculty and
technology issues --

DUANE WEBSTER: As well as building readiness
on the part of the staff to move into this new
environment.

VOICE: One of the things that struck me is
something that Karen said, which started making me think
about disruptive technologies. She said that this
community should be very proud of what they've
accomplished up to this point in adapting to the
cyberinfrastructure requirements on the universities.

But I just wanted to go one step further with
that and remind us for a second what a disruptive
technology could really do. And I look at the kids that
are highly productive, rather than consumptive, in the
sense that they're building new environments on the
internet all the time.

They have a different vision that is less
traditional [indiscernible] in the sense that they're much
more visional. And they're looking for streaming
technology, communications technologies.

And I think that it's possible that something
that we should consider in our thinking is there could be a very disruptive technology, especially with e-Science feeding on visualization through sensor-based technology that will be ubiquitous, that we should consider thinking about now.

The library could become the productivity environment to enhance those generations.

DUANE WEBSTER: Good point.

Go ahead, Walt.

WALT: One of the things I [indiscernible] because I saw friction between something that came up several times, which is eliminating unnecessary redundancy. And another thing that came up several times [indiscernible] using the words.

But not the project, but the meaning -- lots of copies [indiscernible] over the word unnecessary. I think that there's a long process that [indiscernible] and the difference that [indiscernible] is to be useful and necessary --

That's an interesting topic.

DUANE WEBSTER: Is it five fingers or six fingers that we need.

VOICE: One thing that I want to always point back on is that scholarship is [indiscernible] technology. Scholarship is a very labor-intensive activity. And
there's a tendency in a lot of our discussions to get futuristic and talk about what's enabled by new technologies.

What's enabled is [indiscernible] and action. The collection [indiscernible]. The collections itself in my view is not as interesting as in some views. So a part of what we're trying to do is enable new [indiscernible].

The human species doesn't change that much.

A [indiscernible] system isn't changing as fast as computer processes. So I think we can get a lot of stability if we recognize that we're in a sociotechnical environment. And let's not recycle [indiscernible].

There's too much of this talk of [indiscernible] Congress.

It tends to lose sight of the fact that we should really be looking out for the human --

DUANE WEBSTER: Good point.

Sarah.

SARAH: So one of the themes that [indiscernible] for me out of this meeting is not to wonder --

And I was thinking of how difficult it is for us in 2006 to be thinking about the library for the 21st century, when we're just tiptoeing.

And then when I look back over my career [indiscernible] access over ownership. And then we have
content is [indiscernible]. Then Lorcan [indiscernible] from managing content to managing consumption. And we're only thinking about user [indiscernible] in talking about [indiscernible].

That's when you have the surveys that were done by our biological scientists and how we could do that. Jim talked about moving from [indiscernible] buildings into the departments that [indiscernible] out there among the [indiscernible].

And then the other thing that is connected to this [indiscernible] watching is the thing from service or servant to partner, and then today to peer -- I thought was really interesting --

DUANE WEBSTER: It's an interesting point. We've put quite an investment in developing the LIBQUAL process, not just to better understand user perceptions of our success, but in a very real sense to find a way in which we can create common methodologies, in which we can better understand our user and then to share that information amongst our institutions in a way that contributes to the community understanding of what is happened with user behavior, as well as user preferences and levels of user satisfaction.

I think that notion of operating at the local level, gaining that knowledge and exploring that user
behavior, but then being able to share that amongst our community, and to look at it over time.

That's one of the real accomplishments of the ARL community is being able to look at user behavior and preferences over time on an inter-institutional basis and in a way that can challenge and stimulate a change in allocation of resources and the local level.

I shouldn't get into marketing I suppose.

Other comments?

BETSY WILSON: I don't know if I can say this correctly. I guess what I'm struck by is a need toward a cultural and behavioral change. Maybe I'm detecting it. [indiscernible] because I'm impatient with wanting to get on with it.

And that has to do with a need for us as institutions to base our prestige and our identify as libraries attached to our institutions, as an institutional [indiscernible]. We talked a lot about competition today.

And I think it's real. It is important because a lot of our -- collections have grown up from huge amounts of [indiscernible] that added a whole [indiscernible] that was put in the libraries here.

Can we get beyond this cultural behavior and the need to identify ourselves as boats on our own
[indiscernible] to truly honoring collaborative work as a prestige factor that allows us to take the next step forward to the collaboration and the networking things that we say that we absolutely have to do. And if so, if that's needed, how do we [indiscernible]. There's a need to honor the legacy collections which North Carolina has or UT has and Texas A&M doesn't have, because we all rely upon those. We'll rely upon them [indiscernible], not only the digital versions of them.

Can we honor that past and still move forward into the future so that we honor in the same way --

DUANE WEBSTER: Good point. And it's a good point to end on, because I need to hand it off to Betty Sue. But I'd like to underscore again our appreciation to the University of Texas for putting together such a useful array of perspectives to stimulate the sort of thinking, reflection and discussion that we've had over the last two days.

Now, Betty Sue Flowers, who is the Director of the Lyndon Baines Johnson Library.

BETTY SUE FLOWERS: That's right. I'm the wolf in sheep's clothing among the lions and Daniels, I guess, because I'm a federal bureaucrat, not an AAU person. I'm here just to continue on. I'm really the relief pitcher
here, since he has to catch a plane.

So I think there's some other ideas floating around here, before I try to link them into a conclusion, because not everybody raised their hand. But everybody had a list.

VOICE: First of all the smart things have probably been said already. I think another set of conversations could be extracted from the beginnings of a remark Alice has a chance to [indiscernible].

There is a certain disconnect, an ironic disconnect [indiscernible] with the fact that we are now, even in this mid-term stage, able to put more and more content in front of our users with more and more sophisticated discovery tools.

[indiscernible] at least our anecdotal evidence is that our students are more and more satisfied with extremely abbreviated and fractional approaches, and our extremely unsophisticated [indiscernible] material that we're busily decided services around.

I think we need to figure out what we should do about that. Two things should not be existing in the same universe.

BETTY SUE FLOWERS: Very good point. Other comments? Questions?

VOICE: From perspective of not being a
librarian [indiscernible] center and [indiscernible] with the flood banks of the information that we already have, which kind of simplifies our life. But we found it 1994 with the [indiscernible] of global resources is that -- bulk of the library and working with the internet.

The [indiscernible] of the group [indiscernible] it's always had a [indiscernible] what the scholars need. And you're also the group that brings credibility to the type of information that you were gathering.

And you're also dealing with such minimal resources [indiscernible] to facilitate and access of bringing documents online that [indiscernible] working with the library [indiscernible] that it's very nice to be working with individuals out there.

But the real strength over time with the finding the internet I can tell you what should --

DUANE WEBSTER: Yes.

VOICE: I just wanted to make the following comment. Is the ecosystem you discussed earlier [indiscernible]. So I think it was the natural information that [indiscernible] natural ecosystem -- if you will.

So this whole question about what's unnecessary duplication -- unplanned duplication. There's not a lot
of planning with natural ecosystems, because we don't
design a natural ecosystem. Therefore we can do planning.

And we make the decisions about what is
[indiscernible]. I like the metaphor, but I think the
natural impulses in [indiscernible].

DUANE WEBSTER: Well, maybe that should be a
lead-in to my closing five minutes, unless there's some
other comment here, because it's probably a closing three
minutes.

(No response.)

BETTY SUE FLOWERS: This group, which has been
commenting for this afternoon, do you have any comments?
You've been patiently observing us.

VOICE: I'll venture one. I happen to sit with
the Latin American microform program, which is CLR-
sponsored. Has a small amount of money to help in Latin
America. It usually has been with my company profits.
About two or three years ago we had this discussion.
Should we fund a first digitization project
related to Latin America using laptops? And so here from
Princeton and Yale and Harvard and Berkeley and ourselves
[indiscernible] in Florida. And this one hand went up in
the [indiscernible] section.

She said, you know, this is very much a first-
world problem. We don't have the technical electricity. I say this to remind all of us of that great distance throughout the world.

BETTY SUE FLOWERS: Thank you. Well, listening here -- and I think my function is just to sum up, to draw some threads together. I said seven threads that I think would form the basis of a next meeting or a blog or something.

And the threads are these. One -- what are we overlooking? What are the disruptive technologies that might create something totally unpredictable? I was at a MacArthur-funded meeting a couple of years ago about the future of education and technology.

And we played with an avatar system -- we wanted to learn about Egypt. We designed what we wanted to look like. We went as a team. I was a different gender and very tall. We sent as a team to Egypt and learned about Egypt together.

This was online. But we were collaborating. You guys are going to be involved in that if it comes to that. It's a gaming, online, interactive, because what we like is we love to learn as human beings. We also love communication.

We also love play. And the Starbucks in the library is an acknowledgment of the learning and play and
communication together. I mean that's who we are as human beings.

So I think one of the things we might be overlooking is this behaving together in alternate virtual worlds, in which the whole world is the library then, the whole world, and how do we build those. That's just out there.

Second, public mandates. Are there differences between public and private, which leads to I think the larger question, question number two. What is the public mandate towards top university libraries? As we get more expensive, as institutions of higher learning get to be a bigger burden on the system as a whole, there are going to be public mandates.

And you better believe they're going to be unfunded. So if we can think in advance about what those possibly might be in this domain, and be able to shape the conversation in advance, it's something that behooves us to think about for the future, ahead of the unfunded public mandate that I believe is going to come down the pike very quickly as our educational standing continues to become lower in relation to the rest of this globalized world.

Third, the profession of what used to be quaintly called librarians. We used to think of them as
people guarding the books. You know, now both the
prestige and the necessity of informational technicians of
the content, of the people who know about archives -- all
these people, it's very interesting.

When I became the director this presidential
library, I though I'd get a lot of applications of people
who wanted to work in the museum. Not so. It turns out
archives is a very sexy profession. I've got filing
cabinet drawers and people out of the blue writing and
saying, I want to be an archivist.

I actually saw someone with a t-shirt about
archives. I don't think when I was in college most of us
knew what the word meant. I'm just saying there's
something about content, the allure of lots of content,
that is sparking a new interest in this profession.

And you know how every academic could rank
every department in a university, not according to their
rankings in the world. But I mean physics is always at
the top, and education is always at the bottom. In the
past the library school was right there with education I'd
say.

It is rising. It is coming up in the world.
Now is the time to take advantage of that curve of this
profession coming up in the world really, really rapidly,
so that other academics really do have a peer relationship
in a way that never was the case when the librarians were guarding the books.

Fourth, in addition to what are we overlooking, the public mandate, the changing profession, this whole issue of communication overload and the curation, both in quality and quantity, of the top tier universities and their libraries -- the curation of material on the web.

This is a key issue. We're in the leadership of it. And we have to articulate that so the outside world, including students, who use any old thing can understand. Fifth, how will open access evolve? There's a way to think about this.

My own experience is that the New York Times sells some of our images that you could download free off our web for $300 to $500. So I'm just saying that because we're happy for people to make money off our public domain documents, because the government never has enough funds, even to have server space for the images, much less put them all up on the web.

But the way to figure out how open access will evolve is, where is the money to be made? And again this is another get-out-in-front, because there will be -- it's the nature of things, and I'm not criticizing it -- there will be money made off access. Where will it be made?

So maybe the next conference we should have
some of our business colleagues modeling how money can be
made in this world, because that's where it will go.
Sixth, redundancy, unnecessary. The word of unnecessary
redundancy, the model of nature.

Nature is abundant. So I would rather, instead
of talking about redundancy, talk about abundance, and
where is abundance good, and where does abundance clog up
the system. Nature is profligate in its play. And
abundance is important, especially at the edges of
creativity.

Wasteful excess is the hallmark of creativity.
And you just look at the stuff left on the cutting room
floor. Last, finally, seventh and this conclusion. A
very important question about human behavior. I'm tying
Andrew's question with that last question that was raised
about the honor prestige system of academics.

We're in the model of Homer. That is we
compete to produce excellence. That's our model as
academics. And in the past we did that through
acquisition. And libraries and collections have the
quote, "People only get excited about collections."

The strength and reputations of libraries were
built on their acquisitions. And now, now and in the
future, the power of information has to do with capacity
to access and organize. It's not about acquisition. In
the same way -- and this is a human question --
collaboration is what we need.

The poet Auden, "We must love one another or
die." And that applies to libraries as well. But
prestige is not in collaboration. So this is part of -- I
think we're at the forefront in the world of information,
of the next evolution of humanity really.

I hate to be so large sounding. But actually I
do think this is really key to this. And I'm reminded of
this with my son. I went to a meeting of the Texas
Philosophical Society, which Sam Houston founded many
years ago.

And there was a speaker talking about how you
could soon have the Encyclopedia Britannica -- trying to
explain this to the older folks, who are most of the
people in the Philosophical Society -- you could have an
implant in your brain which would allow you to look up
everything. I mean that was the image.

And I was on the panel. So I could see that
everyone over 50 was looking horrified. And everyone
under 50 was looking intrigued. So I went home, and my
son, who was ten at the time, I said, You know, somebody
at the speaker talked about implants in the brain that you
could access knowledge.

He said, Oh, cool. So I was thinking, you
know, there's a whole cyborg phenomenon here that we haven't even begun to think about that is part of the evolution of humans in some profound way, that oddly enough we find ourselves in the front of.

So I'm really delighted that we've collaborated enough, that you've taken the time to come here to the University of Texas and share your thoughts and ideas together and the human warmth of interacting, because leaders are always on two legs.

So I'm glad your two legs brought you here. Thanks.

(Whereupon the symposium was concluded.)