A person is silhouetted against a large window in a modern building, holding a laptop. The scene is bathed in a deep blue light, and the person's reflection is visible on the polished floor. The background shows a grid of window panes and a large pillar.

From Papyrus to Protocols: Libraries in the Digital Age

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Overview

- **Cyberinfrastructure**
- **Fundamental roles of information professionals through the ages**
- **How these roles will continue to be critical in the Digital Age**
- **What will change/what will stay the same**
- **Trends and how librarians are responding**
- **Future key issues**

A person in silhouette is standing in a modern office, holding a laptop. The office is illuminated with a strong blue light, likely from large windows or glass walls. The floor is highly reflective, mirroring the person and the surrounding environment. The overall atmosphere is futuristic and professional.

Cyberinfrastructure

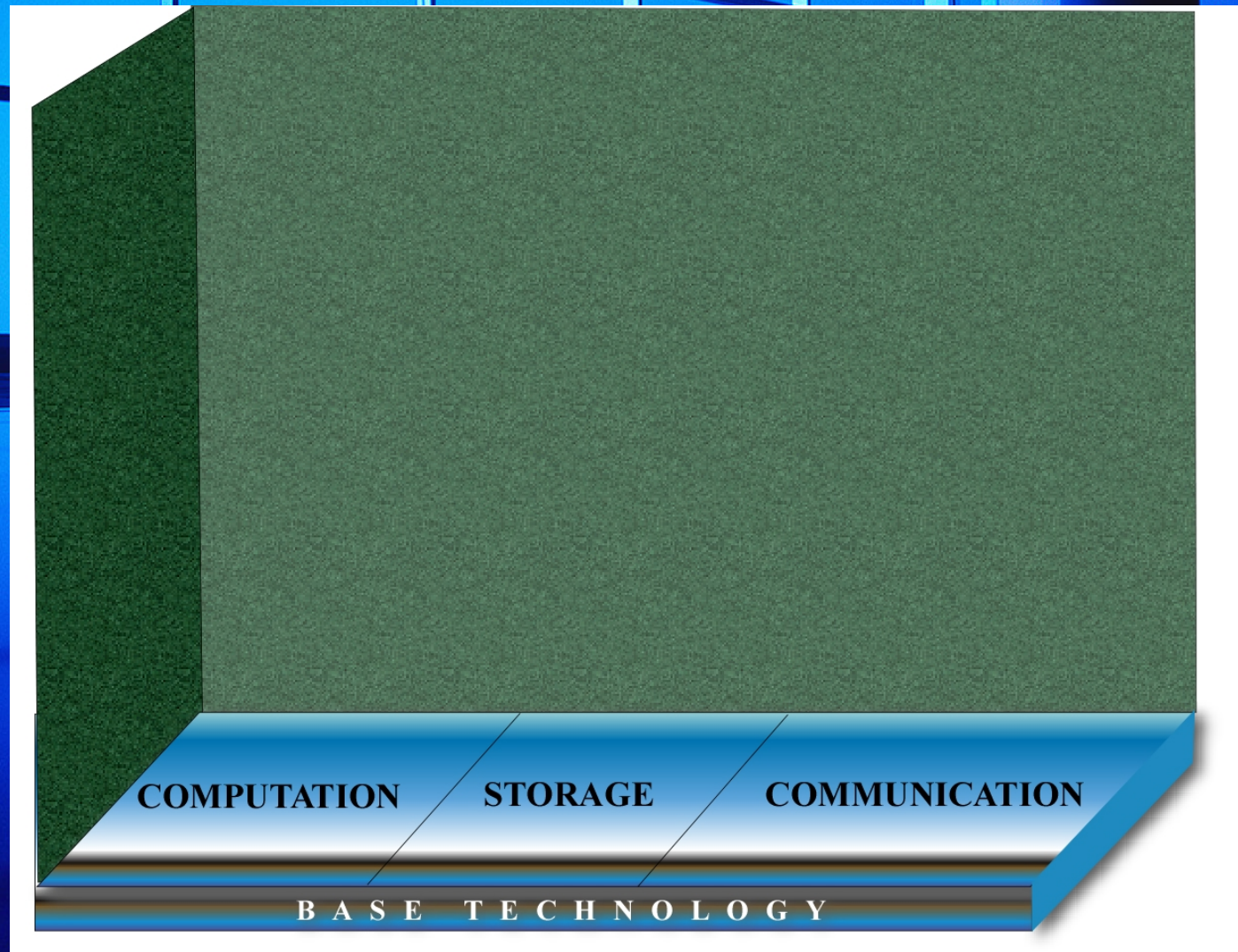
Cyber-Infrastructure

- **E-Science and global competitiveness, not “serials crisis,” will be key drivers**
- **Supporting discovery, dissemination, preservation of knowledge**
- **E.g., space physics, high energy physics, bio-informatics, etc.**

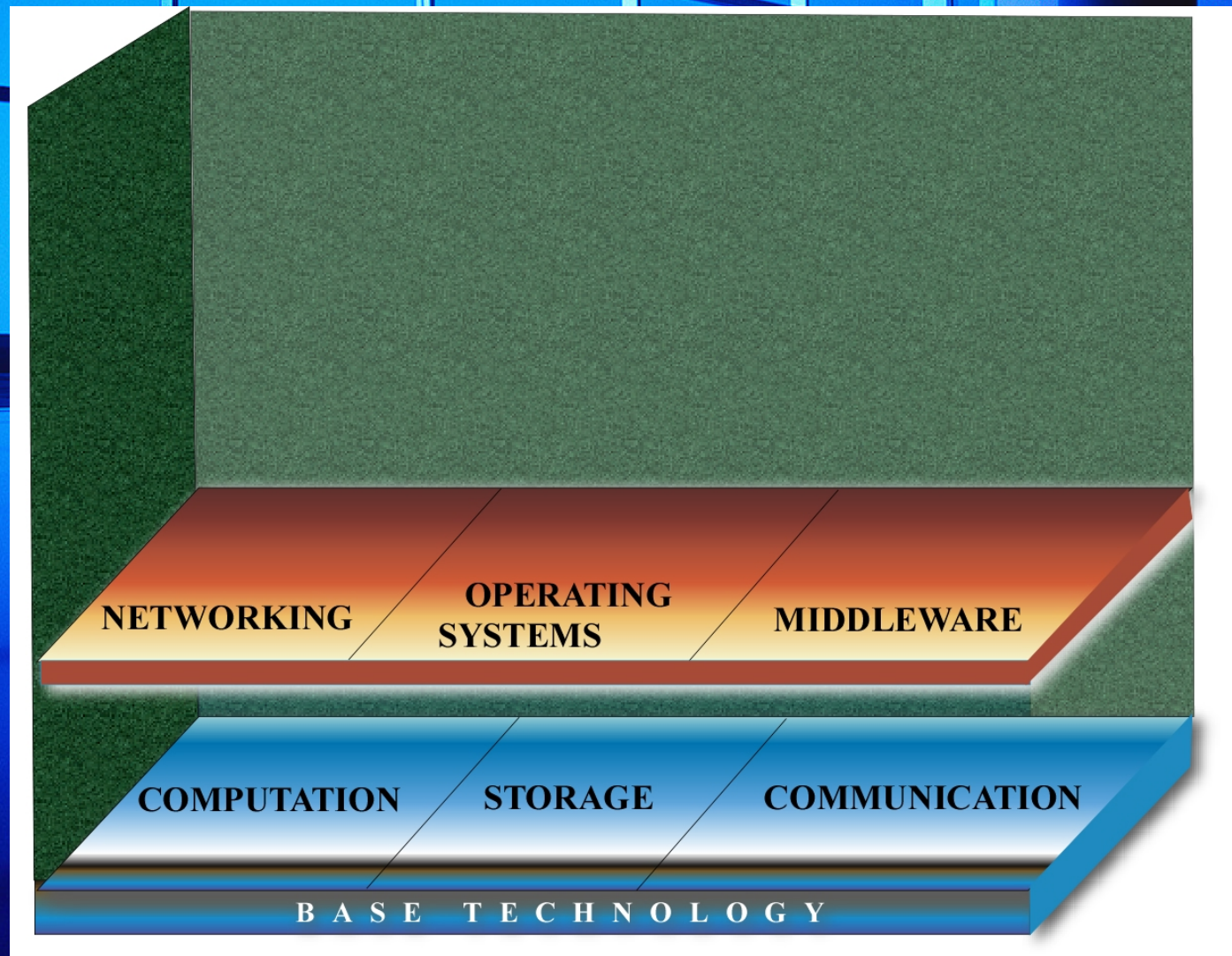
Multiple Accelerating Trends

- **Vast improvements in:**
 - **computing power**
 - **storage capacity**
 - **algorithms**
 - **networking**
 - **instrumentation**
 - **data and text mining techniques**

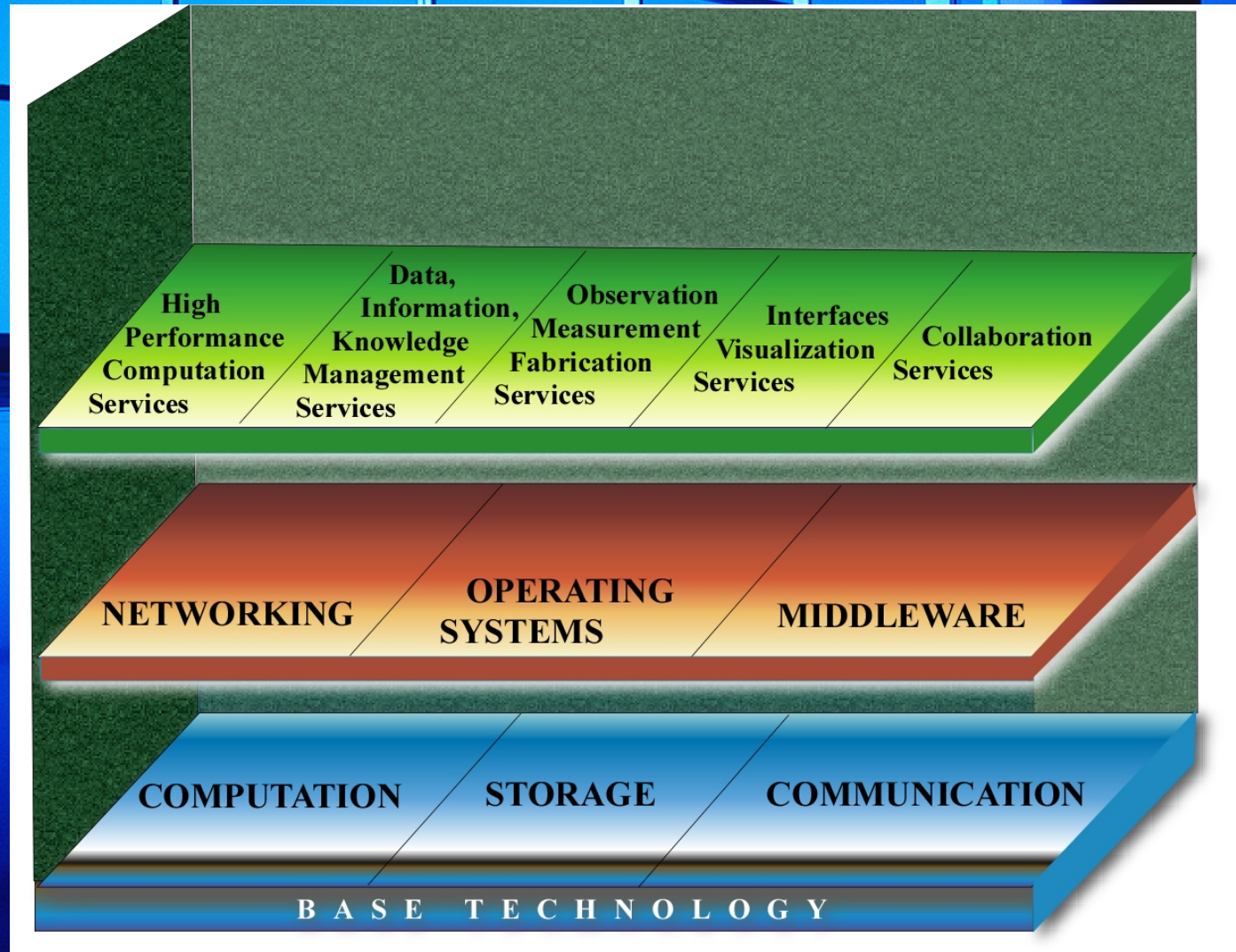
Cyber-Infrastructure



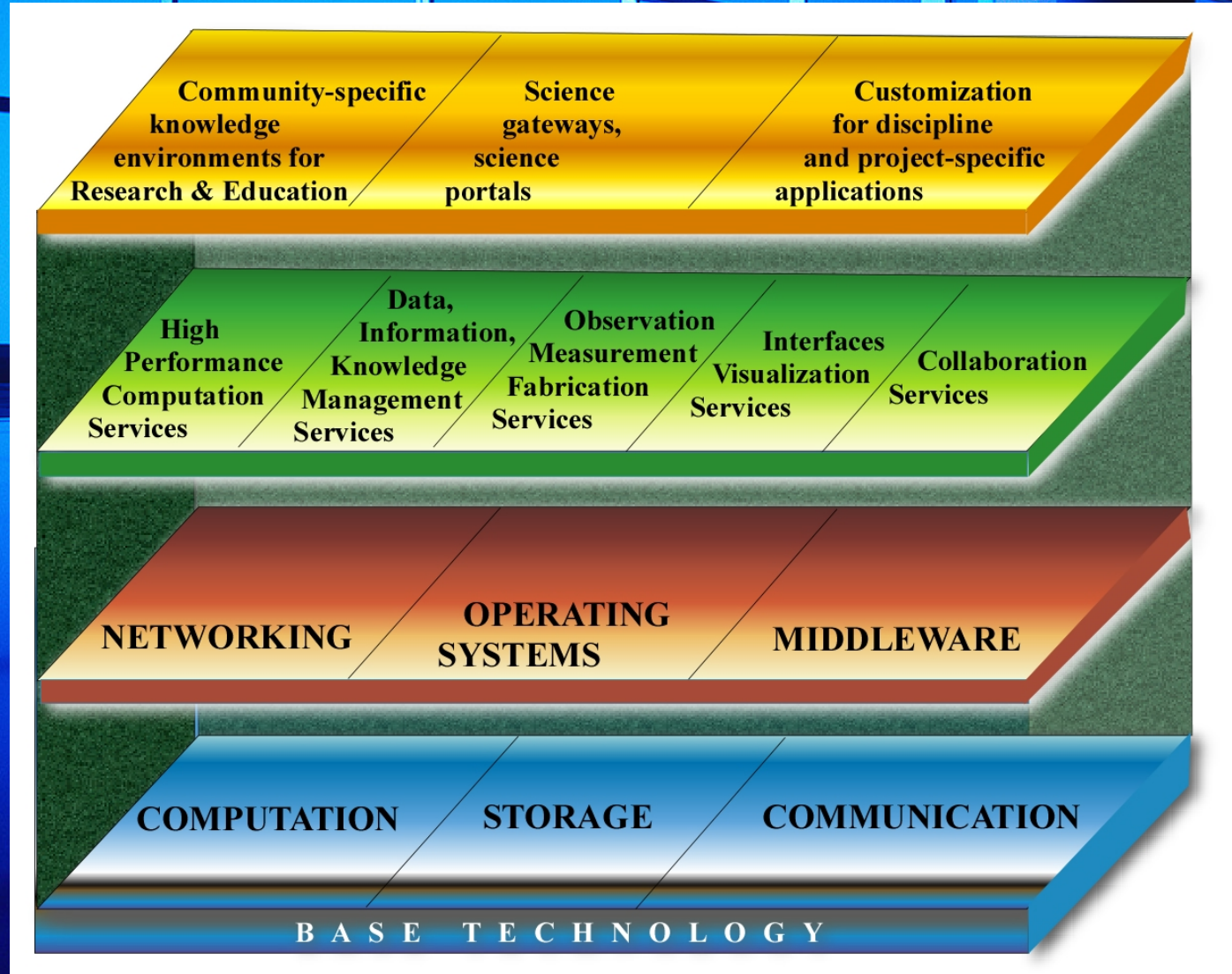
Cyber-Infrastructure



Cyber-Infrastructure




Cyber-Infrastructure



Cyber-Infrastructure

A person is silhouetted against a large window in a modern building, holding a laptop. The scene is bathed in a deep blue light, creating a high-tech, futuristic atmosphere. The person's reflection is visible on the polished floor. The background shows a grid of window panes and a large pillar.

- **Hardware**
- **Software**
- **Services**
- **People**
- **Organizations**

A person is silhouetted against a large, multi-paned glass wall in a modern building. The person is holding a laptop and appears to be working. The scene is reflected on a highly polished, dark floor. The overall lighting is a deep blue, creating a futuristic and professional atmosphere.

Fundamental roles of librarians and libraries through the ages

Collectors and stewards

- **Trusted collectors and stewards of our heritage**
- **The importance and implications of collections are not always known at the time of their creation**
- **Collections have always included more than just books**
- **Preservation and curation**

Organizers of recorded knowledge

- **Adding value by cataloguing, classifying and describing the resources**
- **stewardship of both the selection and the collection of resources**

Enablers of access

- **Enable equity of access to recorded knowledge for all citizens**
- **“Democracy is malleable. It is tempered by the human behavior called free public access to information.”**
- **Development and application of access tools/technologies**

Educators

- **About information resources**
- **About how to access and use those resources**
- **When to access oneself**
- **When to ask librarian for help**

Contributors to value and economic growth

- **Work impacts**
- **Education impacts**
- **Personal impacts**
- **Increases in GDP and job creation**

A person in silhouette is standing in a modern, blue-lit office space, holding a laptop. The room features large windows and a reflective floor. The text is overlaid on the bottom half of the image.

**How these roles will
continue to be critical
in the Digital Age**

Changing perceptions

“Brought up on the web and the endless flow of marginally organized information that is CNN, MTV or ESPN -- a flow that makes almost no distinction between the important and the trivial, fact and speculation, authority and gossip -- students have little patience with the formal organizational structure of the library and the authority of the librarian.”

John V. Lombardi, University of Florida

Collectors and stewards

- **Need for comprehensive collections and trusted sources still exists**
- **Need for validated collections of digital materials**
- **Must establish the relationship of digital materials to validated non-digital materials**
- **Move to digital curation and preservation**

Organizers of knowledge

In the digital world:

- challenge of incomplete sources
- lack of verification,
- lack of usable indexing
- search engine inconsistencies and limitations

Enablers of access

- **libraries continue to be a significant access point for people, even digital access**
- **Librarians have to be “knowledge prospectors” for people, getting them access to relevant “nuggets” of information**
- **Increasing demand for analysis/synthesis/interpretation**

Educators

- **Issues of identifying and validating sources**
- **How to effectively and efficiently use technologically based tools like search engines**
- **How to effectively and efficiently use the information resources**

Contributors to value and the economy

1990s – 1 librarian saves the equivalent of 5 FTE

Librarians consistently deliver more relevant content, more efficiently than end-users can themselves

Recent study in Florida:

- Return of \$6.54 for every \$1.00 invested**
- Annual economic return of \$2.93 billion**
- 1 new job created for every \$6,448 invested in the public library system**

A person in silhouette is standing in a large, modern office space with floor-to-ceiling glass walls. The person is holding a laptop and looking at it. The room is filled with a strong blue light, and the floor is highly reflective, mirroring the person and the glass walls. The overall atmosphere is professional and futuristic.

**What will change/
what will stay the
same**

Change and progress

A person in silhouette is standing in a modern office with large windows and a reflective floor. The scene is bathed in a blue light, creating a futuristic and professional atmosphere. The person is holding a laptop, suggesting work or research. The background shows a grid of windows and a large pillar, emphasizing the architectural details of the space.

- **Change and progress are not synonymous**

Collective intelligence



- “The innovation that will most alter the way that we live in the future.” Tom O’Reilly
- Wikipedia
- Amazon
- Flickr

Information and economics

- **Information will continue to be an economic driver**
- **In addition to existing economic impacts, will be new impacts as a result of digitization of more and expanded resources**
- **Move to more of an infrastructure rather than individual systems**
- **Collaboration will become the predominant mode of work**

A person is silhouetted against a large glass wall in a modern building, holding a laptop. The scene is bathed in a deep blue light, creating a monochromatic atmosphere. The person's reflection is visible on the polished floor. The text "Trends and how libraries/librarians are responding" is overlaid in white, bold, sans-serif font at the bottom of the image.


**Trends and how
libraries/librarians are
responding**

Library as place

- **Library as the location of the collection is**
 - less relevant in a digital world: few care who has the copy they find online and
 - more relevant: draws people to the physical collection
- **But the library still has relevance as place**
— neutral location and environment where people can interact

Expanded participants

- **The new information world must involve much more than just libraries — must also include other information environments in research, technology and industry**
- **Everyone is a librarian to some extent**

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Some examples of responses...

Digitizing

- **Open Content Alliance**
- **Google Initiatives**
- **EU Digital Library**



Key Issues for Libraries and Librarians in the Digital Age

Digitization process

- is an expensive, labor-intensive, industrial process -- potentially dealing with huge volumes of materials, even if selective about what to digitise. books alone, in the EU25 there were more than 2.5 billion in 2001 in libraries
- long term costs of digital preservation are unknown, though expected to be significant

Digitization tools

- **Need new tools for digitization**
- **Digitization and indexing of texts, particularly for non-English language and for old materials and fonts**
- **Need to be able to reduce costs and increase efficiency**
- **More sophisticated and automatic indexing of future resources – audio, visual, 3D constructions, data sets and accompanying metadata, as well as text**

Workforce issues

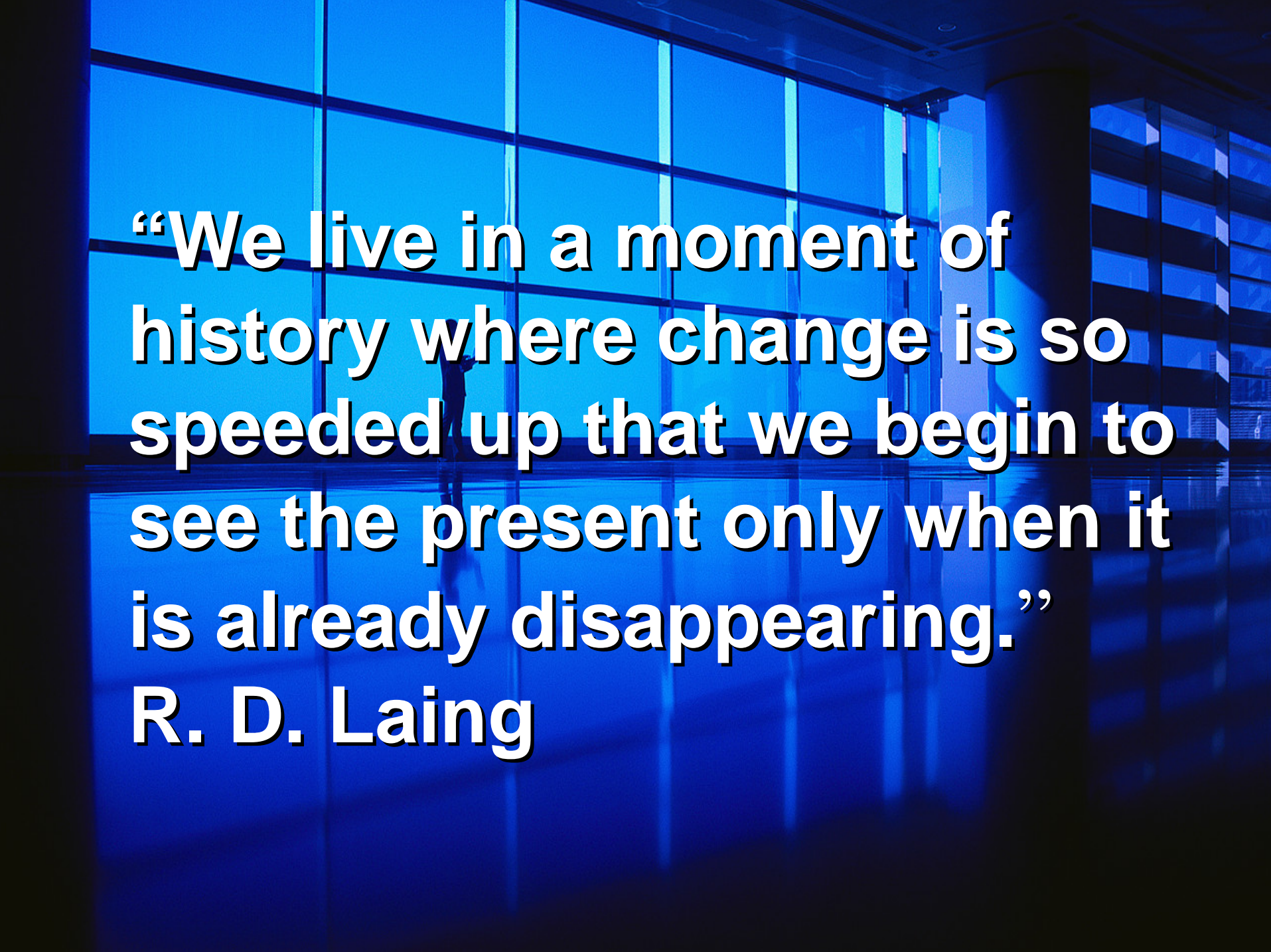
- **Anticipated retirements**
- **New types of skills are necessary to deal with the technological tools**
- **Training and re-skilling existing staff**
- **Training/recruiting staff with new skill-sets**
- **UNC's The Knowledge Trust**

Copyright and privacy issues

- Digitized materials create new challenges for traditional copyright protection and challenge
- Privacy issues are complex in a digital world

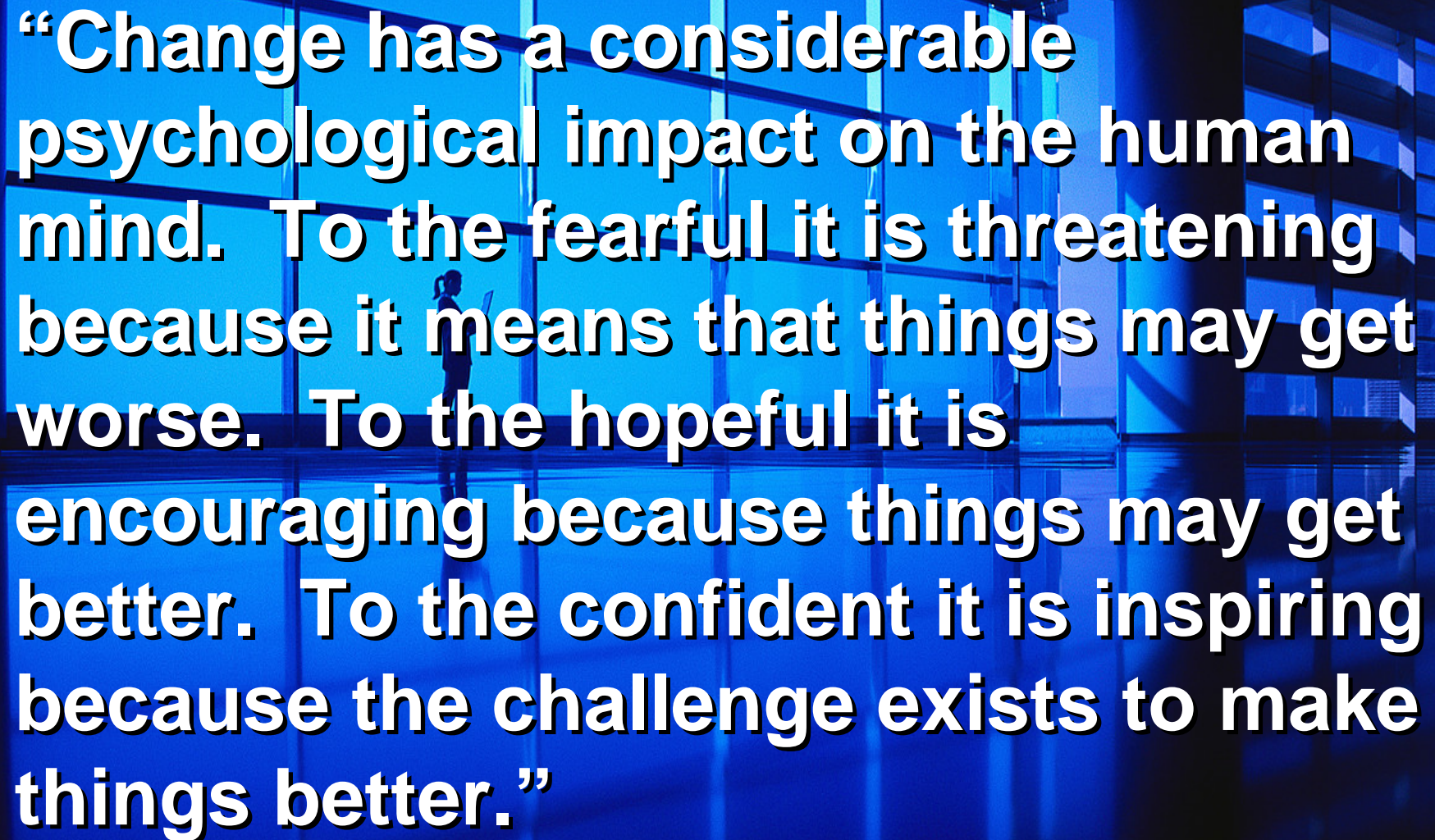
Organizational changes

- **Digital world breaks down traditional organizational and disciplinary boundaries**
- **Requires new organizational structures to support new types of collaboration and shared endeavors**

A blue-tinted photograph of a modern building interior. The scene features large glass windows and a person standing in the distance, looking out. The overall atmosphere is contemplative and futuristic.

“We live in a moment of history where change is so speeded up that we begin to see the present only when it is already disappearing.”

R. D. Laing



“Change has a considerable psychological impact on the human mind. To the fearful it is threatening because it means that things may get worse. To the hopeful it is encouraging because things may get better. To the confident it is inspiring because the challenge exists to make things better.”

King Whitney Jr.

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