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Manuscript 8377

Don's Conference Notes- Creating Strategic Solutions in a Technology-Driven Marketplace: The 61st Annual NFAIS Conference

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by **Donald T. Hawkins** (Freelance Conference Blogger and Editor) dthawkins@verizon.net>

Creating Strategic Solutions in a Technology-Driven Marketplace: The 61st Annual NFAIS Conference

Column Editor's Note: Because of space limitations, this is an abridged version of my report on this conference. You can read the full article which includes descriptions of additional sessions at https:// www.against-the-grain.com/2019/04/v-31-2-dons-conference-note-2019-nfais/. — DTH



NFAIS President Deanna Marcum opens the meeting

The 61st NFAIS annual conference drew about 110 attendees to the Hilton Old Town in Alexandria, VA on February 13-15, 2019. Deanna Marcum, NFAIS President and Senior Advisor, Ithaka S+R, opened the meeting and noted that technology is forcing immediate changes as user demands increase

Opening Keynote: Information Needs of Developing Countries

The opening keynote speaker, Dr. Samuel Zidovetski, a member of the Global Health Faculty at the University of California-Riverside, described his very interesting involvement making information available and searchable to several global health projects. He has worked in

countries with refugees and health professionals who do not have the widespread access to information that we enjoy.

Although most people get information from the Internet, and significant progress in worldwide connectivity has been made, access is still not widely available in many developing countries



Dr. Samuel Zidovetski

because of infrastructure and censorship problems. One solution to these problems that is enjoying some success is the Internet In A Box (IIAB) project — a small device costing \$30-40 that functions as a wi-fi hotspot. It has a range of a few hundred feet and can be accessed by

about 30 simultaneous users.



Internet In A Box

The devices are periodically updated with content from Wikipedia. Because the IIAB devices are not connected to the Internet, they can be used in areas (such as Cuba) where Internet access is restricted.

Zidovetski said that Wikipedia's health information is very reliable. Statistics show that it is used by over

50% of physicians, 35-50% of pharmacists, and 94% of students in developing countries. Students who use it have significantly better grades in their medical classes than those who do not. High quality information is delivered quickly and reliably saves lives.

Publishers Creating New Value

The Institution of Engineering and Technology (IET), is the producer of the well-known INSPEC database, which is 50 years old this year. Vincent Cassidy, IET's Director of Academic Markets, said that INSPEC contains 18.4 million records, 890,000 of which were added in 2018. The database is known for its in-depth curation and indexing of source materials.

Despite INSPEC's high quality and well-deserved reputation, core subscriptions to the database were declining because of the emergence of "good enough" alternatives that have fundamentally

changed user behavior. A major analytic development effort was therefore undertaken:

- Semantic tagging was applied to all 18 million records in the database.
- A domain model was developed from the INSPEC ontologies.
- User studies identified workflow issues and pain points.
- Customers were engaged.

Here is a timeline of the development history.



Lessons learned:

- Highly structured and human-created databases can be repurposed to retain relevance, provide new value propositions, and grow their impact.
- The IET is now a 150 year-old startup, which is a new and exciting position.
- The focus must be on the data, not technology.

Peter Beckery, Executive Director, Association of University **Presses (AAUP)**, reviewed the history of digital humanities in university presses and identified four major initiatives:

- Rotunda (University of Virginia Press) was founded in 2001 and seeks to apply press strengths (such as peer review) to research from digital humanity centers.
- Manifold (University of Minnesota) is a web-based platform for publishers, university departments, and scholarly groups. It charges for its services, but many researchers are willing to pay because they do not want to spend their time performing functions that the press can do.
- Fulcrum (University of Michigan) provides a set of services committed to publishing scholarship in a flexible, durable, discoverable, and accessible form.
- .supDigital (Stanford University) applies the rigors of traditional university press publishing to born-digital scholarship, creating digital objects to present, display, and explain the research.

Beckery concluded with this quotation by Alan Harvey, Director, **Stanford University Press:**

"The goal is not to publish a book in digital form. The goal is to publish digital scholarship in its native form. That means embedding the scholarly argument within the digital object."

Catherine Ahern, Senior Project Editor, MIT Knowledge Futures Group (KFG),² a joint venture of the MIT Press and MIT Media Lab, described how **MIT** is reimagining the future of knowledge production. According to KFG's website, its mission is to "transform research publishing from a closed sequential process into an open, community-driven one by incubating and deploying open source technologies to support

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both rapid, open dissemination and a shared ecosystem for information review, provenance, and verification. The partnership is the first of its kind between an established publisher and a world-class academic lab devoted to the design of future-facing technologies."

- KFG provides support for mission-driven publishers and brings like-minded groups and individuals together. It is a test bed with 4 projects:
- PubPub³ maps the process of collaboration, turns publishing into an iterative process, and encourages the socialization of reading.
- Underlay is a protocol for interoperability.
- Prior Art Archive is an open industry-led archive hosted by MIT and indexed by Google Patents.
- · Ecosystem Map is Mellon-funded environment.

Technology Impact For User-Centric Discovery

Tim McGeary, Associate University Librarian for Digital Strategies and Technology, **Duke University**, closed the first day of the conference with a plenary address reviewing the evolution of discovery services.



Tim McGeary

Users expect both personalization and privacy. Libraries are strong advocates for users, but can they incorporate discovery services to users without compromising privacy? How can a system be user-centric if it is not all about the user?

OPACs were one of the first developments in user-centric discovery. Index-based discovery

interfaces such as EDS, Summon, and WorldCat Local followed OPACs. Identification of the best discovery service for all users is still elusive.

Users want to be able to search in one system from anywhere for all the information they need, then select the service they want and receive support from the library. Studies have shown that 32% of users select places to search other than libraries. Libraries must take stock of the user data they collect while maintaining their values of privacy. Some providers are now approaching libraries and requiring them to share user attributes (which is a violation of some state laws). User data has become a commodity and should not be sold, shared, or used as a bargaining chip. It should be collected with the expectation that the absolute minimum data required to complete the transaction will be collected. User-centric data has created a new environment for libraries; we should be willing to go farther than ever before in gaining the trust of our users and protecting their privacy.

AI: The Promises of Automated Solutions to Tell the Story of Research

Sabine Louët, Founder and CEO, **Science Prose-On-Demand (POD)**, opened the second day of the conference by asking what content automation brings to open science. Innovation comes from startups, many of which have been acquired by companies outside of our industry. **SciencePOD** makes authors shine by translating complex ideas into simple language, thus producing more content in less time without compromising quality, which in turn helps publishers raise the profile of the research they publish. Robots are not replacing us; they are helping us do our jobs faster. Summarization increases content discoverability, saves editorial time, improves literature searches, and helps curate and choose the most interesting stories, all of which is bringing science out of its silo.

Unconventional Partnerships

Preprint Power in Scholarly Communication

This session featured three presentations examining significant industry partnerships. **John Inglis**, Executive Director, **Cold Spring Harbor Laboratory Press** and co-founder of bioRxiv and medRxiv, illustrated the power of preprints using the bioRxiv server for life

science preprints — a service of **Cold Spring Harbor Laboratory** (medRxiv is a similar server for health science preprints). Advantages of preprints are:

- Results are distributed immediately when the author is ready to share them.
- Everyone can read and evaluate the manuscript free of charge and provide comments to the author.
- Authors can show hiring committees evidence of productivity.
- Articles can be certified by peer review.
- Thus the pace and transparency of research is accelerated.

Some editors are now proactively inviting authors to submit their preprints, and 67% of bioRxiv manuscripts are published within two years of submission. Preprints illustrate the power of a partnership.

Morphing Unconventional Enemies into Strategic Partners

According to **David Kochalko**, Co-founder, **ARTiFACTS**, ⁵ today it is hard to distinguish your friends from your enemies. Technologies bring many opportunities for collaboration, and business models range from disruptive to complementary value enhancers.

ARTiFACTS enables researchers to establish proof of existence, protect and manage intellectual property, and provide and receive attribution and assignment of credit.

Partnerships at EBSCO

What is a partnership? According to **Nathaniel Lee**, Strategy Analyst, **EBSCO Information Services**, it is a relationship between two or more entities to exchange goods, services, and ideas to create outputs. Partnerships are everywhere.

EBSCO started as a subscription service business and built a network of publishers. Premium content was loaded on its databases, and services and solutions were leveraged to provide a single channel for libraries to access information (EBSCOhost, EDS). **EBSCO's** partnership values are:

- Thinking long-term,
- Working with local libraries to teach them how to resell in new ecosystems,
- Making society better off by making research easier to use, and
- Believing in partners and customers, and connecting them to our vendor network.

The Role of Library Consortia in the Transition to Cloud-Based Infrastructure and Open Access Publishing

Roger Schonfeld, Director of Libraries, Scholarly Communications, and Museums Program, **Ithaka S+R**, closed the morning with a plenary presentation focusing on collaboration. He began by saying that orga-

nizations should expect their collaborative vehicles to stay in sync with changes in their objectives and the broader context in which they operate and noted that we are at a moment of change with many of our collaborations. Many academic support services are being refocused or even discontinued,⁶ and research management and publishing are being transformed.



Roger Schonfeld

Our pre-digital history extends back over 100 years with the dream of collections efficiency: the universal collection delivered as efficiently and seamlessly as systems of the day, such as card catalogs, could enable.

The role and value of metadata have shifted in a digital content environment. **OCLC** is the long-time leader in shared cataloging. Regional networks emerged and disrupted many collaborative vehicles on which libraries relied because efficiencies in one space can disrupt others. Commercial imperatives in systems and repositories have led to more architectures and broader adoption. Institutional repositories started with strong open source options; **bepress** Digital Commons, now part of **Elsevier**, has emerged as a strong competitor. Digital preservation is an essential imperative for scholarship and society, even though its value is intangible and the rewards may be deferred.

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Here are three challenges facing collaborations:

- 1. Licensing and open: subscriptions will give way to various open models, but many collaborations lack the systems necessary to enable open access. Many also lack the scale and unanimity to secure transformative agreements.
- 2. Many collaborations were set up to process print collections. With the rise of cloud-based systems, networks are not widely used and cannot be sustained.
- 3. State support for higher education has declined, and continued scrutiny of library budgets has resulted in pressure to show value and differentiate against peers.

These challenges have resulted in a crisis especially for membership organizations. They tend to be durable because of peer pressure to be "in the club," but members can become jaded as work drifts from its original focus or is not suited to members' current priorities. Not every membership community or governance structure is well suited to every purpose. Many libraries or publishers belong to consortia and membership organizations, and the parent organization often has no idea how many memberships are held by their libraries.

Academic libraries need to realign with the data and systems of their parent universities. Here are some essential transformations:



Lessons learned:

- Every good idea does not require a new organization.
- For a new non-profit organization, grants should be used to establish a business model.
- Membership models are not well suited to product organizations and marketplace competition.
- Open source solutions have an especially precarious balance between community governance and strategic agility.
- Startups have a precarious existence.

Member Lunch Event: What Would Scholarly Publishing Look Like If We Rebuilt It From Scratch In 2019?

Jon Tenant, an independent researcher and consultant, posed this interesting question. He said that scholarly publishing is either

a brilliant industry or a problem, but something is not right; in fact, it is the exact opposite of what it should look like. There is a strong bias based on results which are not in the control of the publishers. In Tenant's opinion, scholarly communication is a 19th century process applied to a 17th century communication format (i.e., journals).



Jon Tennant

There are three core aspects of success for any future platform:

- 1. Quality control. There is little evidence that peer review is doing what we expect.
- 2. Certification and reputation are poorly applied to researchers and are difficult to measure. High rejection rates cause frustration for all parties.
- 3. Incentives for engagement must align with certification and reputation. Many researchers feel that they receive too little credit for their peer reviewing activities.

No one is denying the value that publishers provide to scholarly communication; however, some people want a more level playing field where they compete fairly as service providers. It is quite possible to move toward open scholarship with for-profit organizations as part of the system. We need interoperability between communities so that all participants will be interested. The ultimate goal is to make science a public good for the betterment of society. Future challenges include:

- A shift to digital processes to reflect the adoption of Web-based communication.
- Understanding the changing roles of editors, librarians, and publishers.
- Reconciliation of changes across disciplines and communities with differing norms, practices, and biases.
- Resolving the major tensions between all parties.
- Pooling knowledge and resources to create a decentralized scholarly infrastructure based on strong values and principles of open scholarship.

Unlocking the Benefits of Semantic Search

"Things, not Strings": Introduction to Semantic Search

Bob Kasenchak, Director of Product Development, Access Innovations, Inc., provided a useful tutorial on semantic search. Basic search fails because it simply matches text strings in documents. Language is ambiguous, and there is a huge amount of content available. Google Scholar simply looks at what is entered in the search box; it does not recognize plurals, word variants, or acronyms. So it is necessary for authors to title their papers to account for these variants.

The irony of document categorization is that we are interested in concepts, not simply words, but they are all we have to work with unless we apply good metadata. Semantic search systems use fuzzy matching and similar techniques to go beyond word matching and examine the context of queries to produce relevant results. They may use recent searches, lexical variants, ontologies, knowledge graphs as input, or even the searcher's location (using the IP address). The Google knowledge graph connects search with known facts about entities and is driven by a large ontology, but building such a graph is a very large undertaking.

Optimizing Content and Meeting Audience Expectations

Travis Hicks, Director, Web Operations, American Society of Clinical Ontology (ASCO), said that the practical application of semantic search is to make our content discoverable. We need to understand search because external search engines are the primary mode of discovering unknown content. Good content with a high value to users is discoverable content.

Analytics and user research must be used to understand users' intents. Some considerations:

- What types of queries do your users employ?
- What terms are searched but do not produce any results? (This is content that you do not have.)
- Are your users more likely to search internally to your organization or externally?
- If you have facets, do users actually use them? (Many do not.)
- How satisfied are your users with their search results?
- What content types are the least discoverable?

The ASCO.org website provides information to ASCO members and the public about the organization. The two major user groups are heavy users such as board members and internal staff, and occasional users: average members, meeting attendees and the public. Dissatisfaction by all users had grown with the increased usage of Google. Ongoing evaluation and iterative testing of improvements is necessary to enhance users' expectations.

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Startup Challenge

Four entrepreneurs with products under development were invited to give brief presentations to a panel of judges who asked questions, then decided on the winner, who will receive an opportunity to conduct an **NFAIS** webinar about their company and product. Here are the judges:



Startup Challenge Judges (L-R): **Jignesh Bhate**, Founder and CEO, **Molecular Connections**; **Ann Michael**, President and Founder, **Delta Think, Inc.**; **Kent Anderson**, CEO, **RedLink**.

The challenge contestants were:

- Peter McCracken, Publisher, Shipindex.org: a database of over 770,000 ship names named in an English-language resource.
- Violaine Iglesias, CEO and Founder, Cadmore Media: a platform for publishing tour videos and podcasts online. A media player, management platform, and architecture supporting integrations and partnerships is included.
- Leslie McIntosh, CEO and Founder; and Rebekah Griesenauer, Data Engineer; Ripeta: an analyzer for research manuscripts to determine reproducibility of the research and quality of the manuscript (ensuring that all necessary data are present, etc.).
- Nicole Bishop, CEO and Founder, Quartolio: Intelligence management for research using the power of AI to combine trusted systems of library science and create an ontology of scientific research. Users can discover, manage, and curate research automatically.

After deliberation, the judges declared the challenge winner to be **Cadmore Media**.

Lightning Talks

Six 6-minute presentations addressed solutions to problems, overviews of new products, and other critical issues.

The Challenge of Getting Discovered

Mark Gross, President, Data Conversion Laboratory (DCL), said that getting discovered is a never-ending battle and not as simple as turning on a light. Google will deliver results for well-known topics, but for obscure searches, it can take up to 15 clicks for a researcher to find something. Scholarly publishers have a complex web to navigate as well as a network of discovery vendors that propagate content. DCL's Continuous Discovery Platform structures content to make it discoverable.

Facilitating Peer Review of Code and Data

Pierre Montagno, Director of Business Development, Code Ocean, described Code Ocean's online code execution system that integrates with any scholarly publishing platform. Authors can publish code, data, and their computing environment, and users or readers can build on published findings using the same environment as the original author used, but without the need to install any software on their devices. Code Ocean has also developed a workflow for peer review.

Author Choice in an Open Access World

Serena Tan, Senior Editor, John Wiley & Sons, said that Wiley believes publishers and scientific societies play a crucial role in enabling

researchers to do their best work. Authors have choices to make in sharing their research: how to disseminate their findings, funding and support for Author Publication Charges, and publication outlets that match their needs around scope, audience, and speed. **Wiley** is investing in growth to improve author choice; it is the first publisher to partner with **Projekt DEAL** in Germany.⁸

I Am Scott Livingston; I Am Not a Book

Scott Livingston, Executive Director, **OCLC**, noted that most of us think about books when we think of public libraries, but consumers do not use books as much as they used to. Circulation statistics continue to decline every year. Now when libraries talk about what they do, it is about people and events. But most library automation systems are still focused on books. **OCLC** Wise⁹ is a new community engagement system for public libraries.

The Future of Access: How a Mosaic of Next Generation Solutions Will Deliver More Convenient Access to Users

John Seguin, President and Chief Librarian, **Third Iron**, **LLC**, said that **Sci-Hub** has set new standards for users' experiences. A legal system like **Sci-Hub** must understand

- An institution's authentication mechanism,
- Entitlements of the user,
- · Access rights to content, both OA and licensed,
- Routes to fulfillment mechanisms if access to subscribed content is not available, and
- How to generate links as close as possible to linked content items

LibKey, ¹⁰ developed by **Third Iron**, provides links to millions of journal articles that may be in the user's environment. It enables frictionless journal browsing and reading of PDFs and is now available for **ExLibris**, Summon, Primo, and other discovery systems. Over 700 institutions in 25 countries are supporting LibKey. The combination of Google Scholar, RA21, and LibKey assures users of easy access.

Formation of a Research Data Management Librarian Academy

Jean Shipman, VP, Global Library Relations, **Elsevier**, wondered if there is a need for a Research Data Management (RDM) Librarian academy. Librarians are partnering with researchers and becoming more involved with big data, so there is indeed a need for such an academy. A survey of library and information science educators identified the needs and content of an RDM curriculum containing eight units, which will be launched in the summer of 2019. Further information is available in an article in *Library Connect* and on the RDMLA GitHub website.¹¹

Closing Plenary: Designing User Experience for Business Impact

Willy Lai, VP of User Experience at Macy's, closed the conference with a fascinating and entertaining discussion of User Experience (UX) design. Using many illustrations, he illustrated good and bad

UX designs that we all encounter in our lives. The definition of UX by the International Organization for Standardization (ISO) is: "a person's perceptions and responses that result from the use or anticipated use of a product, system, or service." Sometimes UX has nothing to do with technology; many things from the physical world apply to



Willy Lai

the digital. Bad UX is bad for business; if users cannot figure out how to use a website, it is easy for them to go elsewhere (possibly to the competition). Studies have shown that 70% of customers abandoned a purchase because of a bad experience, and 67% of them say that a poor website experience negatively affects their opinion of a brand.

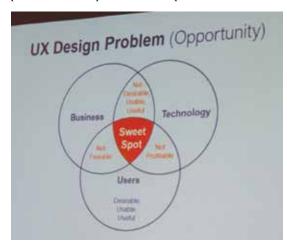
On the other hand, good UX design is good for business. A well designed site can have up to a 200% higher visit-to-order conversion rate than a poorly designed one. Some studies have shown that every dollar invested in ease of use returns between \$10 and \$100, and abandonment

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rates are significantly lower. Here are some principles for good UX design:

- Design for your target audience.
- Provide all the essential information at the upper part of the site "above the fold" (80% of the time that users spend on a site is near the top).
- Promote helpful information and make it look like relevant content.
- Shrink or eliminate forms to be filled out, which will result in significantly more conversions and increase order values.
- Users do not read digital sites; they scan them first and then read what interests them.

Design is creative problem solving. Bring customers into the development process at the beginning. The traditional approach of presenting a fully developed product to users can result in lost customers and unsuccessful products. Develop for the sweet spot:



Lai's key points:

Key Takeaways

Bad UX Design

- bad for users AND business
- helps your competition

Good UX Design

- good for users AND business
- competitive advantage
- short-term and long-term value
- more than skin deep

Designing Good UX

- involve users early and often
- isn't just about users
- target "sweet spot" of users, business & technology

NFAIS News

At the conference, it was announced that NFAIS and NISO (the National Information Standards Organization) are proposing to merge. Details on the future arrangements and meetings will be posted on the websites of both organizations.

Donald T. Hawkins is an information industry freelance writer based in Pennsylvania. In addition to blogging and writing about conferences for Against the Grain, he blogs the Computers in Libraries and Internet Librarian conferences for Information Today, Inc. (ITI) and maintains the Conference Calendar on the ITI Website (http://www.infotoday.com/calendar.asp). He is the Editor of Personal Archiving: Preserving Our Digital Heritage, (Information Today, 2013) and Co-Editor of Public Knowledge: Access and Benefits (Information Today, 2016). He holds a Ph.D. degree from the University of California, Berkeley and has worked in the online information industry for over 45 years.

Endnotes

- 1. https://meta.wikimedia.org/wiki/Internet-in-a-Box
- 2. http://kfg.mit.edu
- 3. http://pubpub.org and pubpub.org/explore.
- 4. https://sciencepod.net/#static/about
- 5. https://artifacts.ai/
- For an example, see **Schonfeld's** December 13, 2018 article in the *Scholarly Kitchen* entitled "Why is the Digital Preservation Network Disbanding?"
- 7. https://www.bepress.com/products/digital-commons/
- 8. https://www.projekt-deal.de/about-deal/
- 9. https://www.oclc.org/en/wise.html
- 10. https://thirdiron.com/libkey/
- 11. https://bit.ly/2r1YHFi and https://rdmla.github.io/home/.

The Miles Conrad Memorial Lecture

Martin Kahn, Chairman, Code Ocean, has held executive-level positions in several information companies including Ovid Technologies, OneSource Information Services, and ProQuest. He was surprised and honored to be named the 2019 Miles Conrad Lecturer and wondered why he was. In his lecture, he recounted some of the major highlights of his career that might provide an explanation, and then he described his philosophies relating to Code Ocean.



NFAIS Director Chris Burghardt (L) presents a commemorative plaque to Martin Kahn

Twenty years ago, Kahn spoke at an NFAIS meeting on a book by Kevin Kelly, founding editor of Wired Magazine, entitled New Rules for a New Economy (see https://

kk.org/newrules/), which are:

- 1. Embrace the swarm: There is power in decentralization as we connect everything to everything.
- 2. Increasing returns leads to self-reinforcing successes.
- 3. Plentitude, not scarcity: value flows from abundance.
- 4. Follow the free: the Net rewards generosity and ubiquity drives increasing returns. The best way to get ubiquity is to give things away.
- 5. Feed the Web first. Members prosper as the Net prospers.
- 6. Let go at the top. It is often easier to start a new organization than to change an
- 7. From places to spaces: Place becomes less important as physical proximity is replaced by multiple interactions with anything, any time, and anywhere.
- 8. No harmony, all flux: Seek sustainable disequilibrium. Networks are immensely turbulent and unstable.
- 9. Relationship tech: start with technology and end with trust.
- 10. Opportunities before efficiencies: don't solve problems, seek opportunities.
- Kahn has been identified with some significant successes. Some were his ideas, but he worked with extraordinary people with extraordinary views of information (for example, BRS which led to Ovid). He saw that online services would be temporarily supplanted by CD-ROM databases because superior access would maintain value.
- The product plan for what became Summon was developed at ProQuest in 2007 by a team that was separate from the rest of the organization. **Kahn** saw that lack of a single front end might have doomed libraries to a subsidiary position.

Code Ocean

Code Ocean is an early stage investor-owned company. It has yet to make a big impact, but it is an example of Kelly's rules and under Kahn's leadership, it follows many of Kelly's prescriptions for success. Now a for-profit company, it works in the areas of open access, open science, etc. and supports all members of the ecosystem. Trusted relationships with users and respect for their privacy and security needs are critical. Users can publish code and data for free, upload their own data, and run it against the code. (Charges only apply at the university or publisher level.) The environment can be shared or published on Code Ocean's public repository and used by anyone globally.

Code Ocean is deeply committed to reproducibility. It is an immensely complicated and large-scale undertaking. Kahn concluded his lecture by observing that none of us can afford to throw out the good from the past as we embrace the future. — DTH