"Connecting Collections, Cultures, and Communities" was the theme of the 2014 Annual Meeting of the Association for Information Science & Technology (ASIS&T), which met in Seattle October 31 – November 5. Following are notes from various highlighted sessions of the meeting.

ASIS&T members are well situated to help encourage more young people to develop into creative, excellent and passionate professionals. That's the opinion of Alaska Air Group Vice President for Information Technology Kris M. Kutchera, the first plenary speaker at this year's Annual Meeting.

Kutchera began by observing that she didn't even know an association such as ASIS&T existed until President Harry Bruce invited her to speak. That show how much we need to get the word out!

She said she shares ASIS&T's "tremendous passion for education." Her passion started early, with playing "school" in her basement in 2nd grade. She had a lot of encouragement from her parents, who encouraged her to get an education and do something with it. Her mother used to always say "you can do anything you want and be anything you want." Her father taught her there is a method for anything you do. She carried both of these messages throughout her schooling.

Kutchera said her best school experience was in her eighth grade algebra class. Her teacher would pick 10 kids at random to go to the blackboard and do homework problems. Then he'd have the other students critique their work. No one wanted to come to class unprepared. So everyone practiced; through that practice they gained competence. She found that algebra was the key to every STEM class she took. So her parents were right: she could do anything so long as she mastered algebra.

She presented an overview of the Alaska Air Group. The company started in 1932 in Alaska, but it's now based in Seattle. Its planes fly up and down the west coast, as well as across the country and to Hawaii. It's a $5.2-billion dollar company, the 6th-largest US airline with 13,000 employees and 185 airplanes. They try to be fuel efficient; it makes things more cost-effective.

Most of Alaska Air's operations are in North America, but most of its customers like to fly worldwide. So the company has a lot of partners, such as American, Delta and others. It's the only North American legacy air carrier that has not gone through bankruptcy. The goal is to stay independent, and to stay that way, the company must perform.

Everything depends on the employees, she said. In return for great jobs and great pay, the company asks for great employee productivity. If employees reach their goals, everyone gets a bonus worth 5% of their pay. Alaska Air believes that if everyone works together, they work better as a company. She said safety is paramount. Giving back to Alaska Air's communities is a big part of who they are, with a primary focus on youth and education. The idea is to grow the service through low costs and low fares, producing strong returns for the owners and employees.

Kutchera pointed out many are things beyond the company's control: weather, the economy, fuel prices. Managers focus on how to control the things they can. For example, the company flies a fuel-efficient fleet to make fuel costs more controllable. Information technology is essential for its success. An airline is a vastly complex operation. Everything must come together at the right time for success.

Alaska Air, Kutchera said, was one of the first airlines to enable ticket sales on the web. It was also one of the first to have kiosks where passengers can get their boarding passes. "Ask Jenn" is a virtual

assistant – created by one of the students at the University of Washington Information School. Fifteen percent of Alaska Air's check-ins are now made via its mobile app. Nearly all the company's airplanes feature Wi-Fi and power. The company has leapfrogged over seatback entertainment to provide streaming; that's a better entertainment option. Connectivity for nearly every customer on the plane opens up a world of possibilities. Soon, passengers will be able to print their bag tags at home, too, so that it won't be necessary for an agent to do it for them. The company is also testing biometric finger scanning for access to its airport lounges. Kutchera said there were other innovations she couldn't discuss yet.

The airline is also taking a mobile-only strategy with its employees. It employs 13,000 persons, most of whom don't work at a desk. Their communication will be through mobile devices. In 2010, when iPads were new, an employee showed her how he'd downloaded all the manuals onto it. It showed that if employees could download the information, they wouldn't have to carry heavy flight bags anymore. Now that they do that, the fuel savings from not carrying those bags has paid for the devices. Not too long ago, when a mechanic would be alerted to a pending problem, he or she would print out the manual page needed to address it; if another problem was found, the mechanic would have to go back and print out another page. So by putting the manuals on the mobile devices, the company can save 30 minutes per day per mechanic. That's huge when you're operating on slim margins, she said. By the end of 2015, it plans to have devices for all employees. Employees will have information they can share with customers, which means better service.

Kutchera said the definition of innovation is "solving a problem or providing a value in a new way." There's nothing about technology. Business leaders need to understand the drivers and strategies for their business, then go out and look for ways to move the needles. Lots of times, she said, new technology is the last thing they do. Then they measure the results of these innovations in terms of business results. An airline is a very tangible business, she noted. You can see the results; your neighbors can talk about the results you've just achieved.

All this innovation depends on people. In the last couple of years, the airline has increased its commitment to technology. Her team has grown. People are thinking about the type of talent needed to grow the organization. There are technical jobs (technology, engineers, web designers, analytics, etc.), as well as leadership positions (project management, change management, vendor management, basic people management). Kutchera said it's very hard to find people with these skills, and they make all the difference. Alaska Airlines is training its employees in the basics of that business. All the leaders received leadership training. They know much about how the company works and what's important to the airline and its culture. She said her ideal employees have "CREAPY" characteristics: Creative, Results-oriented, Excellence, Articulate, Passion, Yes (with an optimistic can-do attitude).

Kutchera told members of her audience that as educators, they were in a tremendous position to provide these people to a world that's looking for them. Talented people are in short supply. She noted that the state of Washington is #1 in the concentration of STEM jobs. Currently more than 25,000 jobs are unfilled in the Puget Sound region; experts predict 59,000 will be unfilled by 2017. 130,000 children start school in Washington each year, but only 8,000 (6%) take in-state STEM jobs. There's a lot of untapped potential. Three-quarters of living wage jobs in the future will require some familiarity with STEM disciplines, she said. That means there's a huge talent gap, but also a huge opportunity gap. This gap contributes to lower living standards.

Minorities are underrepresented. African-Americans, Latinos and Native Americans hold only 10% of the science and engineering jobs, even though they represent 30% of the working population. Among 18-24 year olds, 40% are underrepresented. The good news, she said, is there's a huge amount of untapped potential.

"Pledge it. Prove it. Take flight." is a program done in one of the hangars to inspire kids to finish their education and then go and do what they want to do. It's inspiring to see kids pledge to finish their education. She'd like to see equal access to opportunity. She'd like to see more teachers of color. She also wants to see more organizations like ASIS&T and the iSchool program that work on the interplay between knowledge and information, because that will spread the wealth and get more people involved in this mission. She'd really like to see professionals, businesses and others get more involved in getting kids more excited about STEM. She believes our future depends on these things. Kutchera concluded by asking audience members what they can do to inspire and encourage others to pursue STEM careers.

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The second plenary speaker was Alessandro Acquisti, of Carnegie Mellon University. He noted people enjoy the connections made possible by the internet and the many social media applications it offers. But what are these connections doing to our privacy?

The decisions we make have economic consequences, Acquisti stated. When we search something on Google, we are selling some of our information.

We hear how someone hacks into a corporation's web site and compromises customers' personal data. California was first to enact a breach disclosure law to force companies to reveal these attacks. The first reason for the law was to inform consumers – once there's been a breach, they can take action. Disclosure is costly. To avoid paying these costs, organizations can invest more in security to avoid experiencing (and having to disclose) the breaches. Acquisti and his fellow researchers studied this and determined that laws that imposed mandatory breach disclosures have resulted in a 6% reduction of identity theft.

Acquisti asked his audience to consider a Facebook user wondering whether he should discuss his sexual interests there. Maybe he'll find a lover, but maybe his boss will see them. Most people don't decide rationally how much to disclose; they often use an emotional approach. A model of privacy decision making should include lessons from the behavioral economics of privacy, and account for asymmetric information, bounded rationality (we're not stupid, but we're not rational in the traditional economic sense either), as well as the cognitive and behavioral biases which may affect decisions.

In a 2013 study [1] research assistants were sent by Acquisti and his colleagues to a shopping mall and offered people who completed a survey a $10 card, which they could use anonymously. Then the researchers waited 60 seconds and told participants about a $12 card: more valuable, but tracked. Participants were asked which card they'd like. The researchers also studied a second group in which subjects were given the tracked card first and then offered the untracked card second. Researchers found that in the first situation, 52% of participants chose the untracked cards. In the second case, only

9% chose the untracked cards. The results bring up a broader issue: how do we protect privacy when we're in world where we're constantly encouraged to click items and surrender information?

In another study [2], Acquisti and colleagues did experiments in which they tried to manipulate the specific levels of control in transactions. They found that, paradoxically, more control can lead to less privacy. If people feel protected, they start taking more risks with their data.

How useful is transparency? Acquisti noted people don't read privacy policies, and if they do, they may not understand them. He and others did a study of CMU students [3]. They conducted a survey which included sensitive questions, such as, "Have you ever cheated in class?" Some subjects were told that other students would see the answers; a second set of subjects was told students and faculty would see the answers. They found more persons answered the more sensitive questions when they thought only students would see their responses. However, this effect was nullified when a mere 15 second delay was inserted between the moment subjects were told who would see their answers and the moment subjects were actually asked to answer the questions. The effects of notices and transparency seems short-lived.

Acquisti has also investigated hiring discrimination via online social networks [4]. In the US, it is risky for employers to ask interview questions about family status, religious orientation, political orientation or sexual orientation. However, many candidates put that information online. Employers say they use social media to gauge the professionalism of a candidate. They don't say they want to see whether a woman is pregnant, etc. Thus, Acquisti and colleagues set up candidates who had the same professional information, but with vastly different Facebook profiles, and submitted their resumes to actual job openings in the U.S. They found not too much difference in terms of "call-back" ratios (that is, invitations to interviews) between gay and straight candidates. But for Muslims vs. Christians, there was a drop for Muslims being invited for interviews. It's not just what you publically put out about yourself; it's also what can be inferred from what you write.

Facial recognition software is getting better all the time. Acquisti and colleagues compared facial features on a dating site, and using a facial recognition software, they could identify one tenth of the people on the site [5]. Then they went further: using photos and information from Facebook, within four attempts, they found the first five digits of 27% of subjects' Social Security numbers [6].

Advances in data accretion are continuing, Acquisti said. An anonymous face could be matched to a face from social media, which could lead to a presumptive name, which could lead to other information online, which could lead to information that could be sensitive. Whoever's doing this could overlay the information over the photo of a person. This doesn't work quickly or correctly… yet. But algorithms keep getting better and better. In the next 10 or 15 years, inferences will keep getting more accurate. Acquisti asked his audience to consider a future in which we go around with Google glasses and know strangers' political affiliation and credit scores. Most people find that creepy.

There could be a backlash to all this information acquisition. But companies can become more subtle. He discussed with the audience studies he's working on: imagine that a company can see your Facebook wall and download a picture of your friend. The company could then create a product spokesperson using morphing to combine the features of your friends – because you act more positive toward that spokesperson who reminds you of your friends.

There's a paradox, Acquisti noted: people want connection, but they also want privacy. What if there is a deep psychological need for privacy and security? He made a conjecture: the need for privacy is as innate as the need for socializing and sharing. Then he made a hypothesis: if that were the case, "visceral" stimuli may elicit (unobservable) privacy concerns and reduce (observable) privacy responses. He designed an experiment to investigate the hypothesis. He set up two rooms separated by a two-way mirror. Persons in one room were asked to type their sexual fantasies; some subjects were alone, but some had a guard behind them. The presence of the guard decreases how much a person is willing to write and reveal. In a second experiment, there's a noiseless fan in the room (control) and a confederate goes outside and doesn't interact in the second room. The decrease still happens. Another experiment checked olfactory stimuli. The researchers put oil of cloves in the control room, and added a pheromone at undetectable levels for humans in the second room. They found again a decrease in willingness to reveal personal information when pheromones were added to the clove oil vial. Sensorial cues alerting us of the presence of other persons may affect our willingness to discuss sensitive and personal information by arousing privacy concerns.

Acquisti also outlined an evolutionary conjecture: our responses to threats in the physical world may be sensitive to sensorial stimuli signaling proximity and extraneous presences which we have evolved to use as cues of potential risk. So-called privacy concerns may be evolutionary by-products of those visceral responses. In cyberspace, the sensorial cues we evaluate to detect threats are absent, subdued or manipulated. This may help explain the paradoxical online/offline privacy behaviors: why it is so hard to protect privacy online, and why the design of privacy and security technologies may need to consider visceral interventions.

Acquisti concluded that much can be inferred by what's out there about us.

People wanting more information can visit www.heinz.cmu.edu/~acquisti/economics-privacy.htm . They can also just Google or Bing economics privacy.

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One of the most interesting and topical sessions involved the role of social and other media in the unrest in Turkey, Iran and Ukraine.

Panelist Selenay Aytac of Long Island University talked about ""The role of social media during the Gezi Park Protests in 2013: #occupygezi." This protest in Turkey centered, she said, on the Turkish people's belief in a lack of democracy and being unable to express their views.

They began as civil protests against the government's urban planning project for the Gezi Park in May 2013. The peaceful protest was started to prevent the demolition of trees in the park and convert the area into hotels. Activists camped in the park to keep the bulldozers out. Social media became important for communication.

Turkey's population is about 80-million; internet penetration is about 35-milion. Turkey has many active Facebook and Twitter users. Google, Linked-In and Instagram are also heavily used. She showed graphs showing check-ins using Foursquare at the demonstration sites. The number of tweets in Turkey tripled May 31st, 2013. #ResistGeziPar generated 4.5-million tweets over three days. There were other trending hashtags with lots of tweets too. The number-one word is "police." There were two roles for social media: to disseminate information among the activists and to attract international attention to the crisis.

Conventional media during the protests did not focus on what was going on because they were not free to talk about it. Social media broadcast what was happening in real time. So the lack of freedom of expression led to the move toward social media. Also, she said, the Turkish culture is an oral one, so it lends itself well to social media.

Turkish President Recep Tayyip Erdogăn said, "There is now a menace which is called Twitter. … to me, social media is the worst menace to society." He said there were many lies being told there.

Protesters were being gassed. An ad was taken out in the New York Times to demand an end to police brutality and permit more freedom of expression.

Governments should not underestimate the role of social media and its undeniable power to transform a small scale environmentalist protest into a 21st century collective movement, she concluded.

The University of Pennsylvania's Emad Khazree titled his presentation "Iran's Twitter (R)evolution." First, he presented some background. In the 2009 presidential election, a hard-liner beat a reformist candidate. Many people doubted the election results. On June 15th of that year, a silent peaceful protest turned deadly. The Green Movement people took to the streets and protested. The *Washington Times* reported on the "Twitter Revolution," but Khazree was there, and he said no one was using Twitter. Only 1 or 2% of the protesters had Twitter accounts. Since freedom signs were banned, they used a "Trojan horse" approach. A cartoon showed a protester disguising himself as religious leader.

More than 300,000 Persian blogs are updated daily, he said. They are evenly divided between conservatives and liberals. The biggest users are aged 20-24. That's 15% of population, but 44% of social media users. Social media users are educated: only 4% have less than a high school diploma. The main reason for using Facebook in Iran is staying in touch with families and friends (60%). Only 5% used it as way to contribute to social and political activism. Other media channels in Iran are heavily regulated by the government. Many Iranians follow politics but don't share on it because of security concerns.

Khazree and his colleagues studied three-million tweets (460,000 of which were Persian). These were dated a few weeks before and after the presidential election in 2013. Peaks of usage occurred around the time that Iran's Guardian Council disqualified former president Ali Akbar Hashemi Rafsanjani from running in the presidential election, then around the three presidential candidates' debates. The biggest spike took place during the election itself. The government limited internet connections inside Iran, so Persian tweets were down, but tweets in English spiked. The most influential users were official news and media outlets such as breaking news from CNN.

Institutional users are most important in English tweets. Khazree said the Iranian president opened an English Twitter account to show a moderate picture of Iran to the world.

Khazree also said one group hated in Iran is highly valued in the United States: former allies of Saddam Hussein.

Most of the people on Twitter, he said, were in favor of reformist candidates.

Different social media environments have different political landscapes. The empirical window is very limited to the younger, more educated population. Persian Twitter, he said, has a different power structure than English Twitter. The structural value of messages and the centrality of users who tweet the messages within the communication networks should be considered. The political landscape of Twitter is more dominated by the reformists, in contrast to the findings of Kelly & Etling (2008) about the Persian blogosphere.

Young people now use social media to organize and share information about underground jazz concerts and fashion shows, free from the rules of conservative leaders. On Twitter, they can joke around and express themselves openly. This may be the real Twitter Revolution, Khazree concluded.

Anatoly Gruzd of Dalhousie University discussed the situation in Ukraine. Some will say social media played a central role in the unrest there. Others are doubtful.

In 1991, Ukraine declared independence from the Soviet Union. Until 2004, most of the governments were Russian-leaning. 2004 (pre-social media) brought the Orange Revolution. Facebook was founded in 2004, YouTube in 2005, Twitter in 2006, Instagram in 2010. 2010 also saw a Ukrainian presidential election which brought into power a pro-Russian government. On November 21, 2013, the Ukrainian government suspended the trade and association agreement with the European Union. The action led to protests in Kiev. On February 18, 2014, the protests turned deadly.

Gruzd said a wide variety of social media platforms were used. Web sites were still important, but often led to social medial accounts. Blogs were often used by activists and journalists, often in the context of

combatting misinformation seen on Russian TV stations. The Russians said 650,000 Ukrainians sought refuge in Russia; in reality only 16 applied for refugee status there at that time.

Activists, news agencies and government officials used YouTube and ustream.tv. Pro-Russian protestors shut down TV stations, so the only source of information for many was via online stations.

Gruzd and his colleagues collected data sets in Ukrainian, Russian and English. In English, the main Twitter account mentioned Ukraine – to gain international attention. It was used to disseminate what had already happened, not to organize people on the ground. Wikipedia editors had a lot of discussion about how to proceed. Should they change the name to the Republic of Crimea? Crimea declared independence from Ukraine and joined Russia. Wikipedia was hit with propagandists from both sides.

"Maidan" is the main square where the protests started. There are more than 3500 social media groups with Maidan in their name. A pro-Maidan friends network - similar to Facebook - has more than 140,000 members. It was formed in early April 2014 to support Maidan and Antiterrorist Operation (ATO). Gruzd displayed a chart showing a large clump of users; people are more likely to participate if their friends already do. The outliers were identified as marketing and gaming people – no connection to protests - along with Crimean Tatars who are strongly pro-Ukraine. The analysis shows the need to be careful when analyzing; don't assume everyone has similar political views. The anti-Maidan group has 69,000 members; it showed only one cluster. It has been in existence since 2011. It's focused on Anti-American and Pro-Russian discussions. One densely connected cluster suggests a stronger agreement among group members from both Ukraine and Russia.

To sum up, Gruzd noted some of the special characteristics of social media use in Ukraine. Social media is use by opposing activist groups: governments, elected officials and politicians. There's also a dichotomy between social media use for "locals" vs. Westerners (in English). And while multiple social media platforms are used, content is duplicated across platforms.

Another speaker from Egypt was unable to address the session because of technical problems.

During the question-and-answer session, Diane Sonnenwald of University College Dublin asked the panelists about their vision of the future. Governments are getting more sophisticated in countering the effects of social media. In future, they won't unplug the network, but rather penetrate it to spread their own opinions. Will we develop new detection methods to see when this happens? Khazree said the Iranian government getting more sophisticated at this. It can collect data and find out the main users in the social networks. So now encrypted messages are developing. Not long ago, 12 persons were arrested and put on TV to confess because they were joking about the government. Gruzd noted each case is unique. The VK network in Ukraine was actually hosted in Russia. So now there are efforts to create a Ukrainian site. But how do you filter out activists or non-activists?

An audience member from India noted that in her country – a democracy – the government sometimes shuts down social networks, giving as a reason that it's curbing unrest.

Khazree noted it's hard to do online research in Iran. Projects not approved by the Iranian equivalent of the CIA are considered espionage. Gruzd said researchers must use multiple methods.

Khazree also said the Iranian government acquired software that would block certain messages from being delivered. The user would send it, but not realize the intended recipient had not received it.

He also related the story of two climbers lost in the Himalayas; no one would mount a rescue effort until someone started creating messages including “CNN” and “Christiane Amanpour.” After two days a rescue effort was organized.

Open access (OA) around the world was the topic of another interesting ASIS&T Annual Meeting session.

Panelist Abebe Rorissa of the University at Albany, SUNY, discussed the “Role of Policy Frameworks.” She defined open access as the “provision of unrestricted online access to results/outputs of research and developments such as publications, reports, journal articles, data, etc., through self-archiving and open access repositories.”

Rorissa noted open access is not possible without investment in research and development and commitment by governments at all levels, business of all sizes and types, academic institutions, publishers, individuals, etc. There must also be a conducive environment and culture for research and development, collaboration and sharing, infrastructure (e.g., technology, personnel, etc.) to make resources available and facilitate access. The right policies are needed too.

He said a basic assumptions about open access is that it leads to the generation of more new ideas and discoveries, a wider availability and accessibility of those ideas and discoveries, increased use of results of research and development, and the translation of research results into practice, than traditional means of access. When you have that translation, you hope to get improved education, economy, welfare, etc. To quote George Bernard Shaw, “If you have an apple and I have an apple and we exchange these apples, then you and I will still have each one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas.”

In terms of policy frameworks, there have been several statements regarding open access, including the Budapest Open Access Initiative and the Bethesda Statement on Open Access Publishing. Rorissa said open access mandates and policies by funding agencies such as NIH, academic institutions, governments and international organizations are also needed. Publishers are coming on board, too, with approaches such as CHORUS, the Clearing House of Open Research in the United States.

Rorissa noted that if there is funding involved, and your institution provides support, with the condition that those receiving funding deposit their results into the repositories, you can force compliance with the standards. But the wider the scale, especially at the international level, the harder it is to enforce compliance. The right policy matters, though. He said without the mandates, compliance was only 5%. With the mandates, compliance jumped to 85%.

Developing countries face special challenges and opportunities, he said. The more investment in research and development, the easier it is to create those policies which amount to mandates. Also, open access collections are more inclusive than non-open access collections. In conclusion, Rorissa said that for OA to flourish in developing countries, you need investment and the right policies.
Krystyna Matusiak, of the University of Denver, echoed some of Rorissa’s remarks. Research indicates, she said, that we have the infrastructure to set up repositories, but lack the policies for them. The policies address whether the provision of OA is voluntary or mandatory. There’s much less compliance in voluntary situations. It’s a much bigger consideration than just OA, she said. Tenure and promotion come into play, too. So does academic freedom. Open access journals in the gold model are still scarce.

The mandatory policies are primarily targeted at green OA. There are several specific types of repositories: central, disciplinary, institutional. In Europe, she said, about 78% of policies cover hybrid models. UNESCO has set up a Global Open Access Portal. The European Community has been developing policies and measures on open access since 2006.

Daniel Alemneh, of the University of North Texas, said that while the notion of open access to scholarly information is not new, various factors, including federal mandates for shaping the products of federally-funded research, are driving scholars to rethink traditional scholarship models. There have been some concerns, questions and misconceptions about intellectual property and copyrights, predator publications, and other issues.

There are five basic copyright factors, Alemneh said. Copyright holders have the following rights:

- To distribute their copyrighted works
- To reproduce their copyrighted works
- To create derivatives their copyrighted works
- To display their copyrighted works
- To perform their copyrighted works

These rights can be affected when making work open access, utilizing Creative Commons Licenses, and depositing work in a repository. There have been national and international initiatives to address these issues, such as the Coalition of Open Access Policy Institutions (COAPI), which brings together representatives from North American universities.

In a world that links knowledge with economic growth, the ability to build an indigenous knowledge base and to publish and disseminate local, national or regional academic books and journals is critical. Traditional university academic presses worldwide are undergoing transformations in the current digital and open environment.

The Library Publishing Coalition supports the creation, dissemination and curation of scholarly, creative and /or educational work. In Africa, African Minds is an open access, not-for-profit publisher. At The University of North Texas, UNT Libraries Scholarly Publishing Services provide services to help members of its community disseminate the results of their research. He outlined some of the key provisions of the UNT Open Access Policy. The Denton Declaration is "an open data manifesto." It encourages a culture of openness in research.

Alemneh concluded by showing sample language in CVs: "I pledge that I will not give free labor, including editing, peer review, or consulting to closed access, or Gold OA journals."

The University of Denver' Shimelis Assefa began his presentation by asking, "What technological infrastructure is needed to support and sustain a global open research communication framework?" The answer lies, he said, in building a global research communication infrastructure with a network of interoperable digital archives, a content network framework with a globally interoperable repository system, and a federated system of national, regional and global network of digital archives.
The Ebola crisis, he said, is a wake-up call. It's not just a West African problem. Scientists need to get the medical information quickly and come up with a solution.

The infrastructure must include a manuscript submission system, e.g., the NIH Manuscript Submission System and bioRxiv, an online archive and distribution service for preprints in the life sciences.

For OA crawling, harvesting and indexing, there's the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) and Apache Solr. For mirroring, there's the SAO/NASA Astrophysics Data System (ADS). OA discovery services include OpenDOAR – the Directory of Open Access Repositories, with links to more than 2600 repositories – as well as Google and Google Scholar.

Specific technologies include open standards, OAI-compliant solutions, web services and API technologies, URI (uniform resource identification), FTP and servers, repository systems and high speed internet. Assefa concluded that the global infrastructure should be built on or around National Research and Education Networks (NRENs). In North America, it's internet2. In Europe, it's GÉANT. There are others in other parts of the globe.

During the question-and-answer period, Samantha Hastings of the University of South Carolina, the session's moderator, asked how repository materials could be kept in perpetuity. Matusiak responded that the curators need to provide context for the data.

The question also came up about incentives for junior faculty trying to achieve tenure to participate in OA publishing. Rorissa suggested that institutions mandate that junior faculty publish in OA publications. Matusiak responded that she doesn't like mandates; she doesn't like people telling her what to do, perhaps because she was raised in a formerly Communist country. What's needed, she said, is a culture shift in academia, to recognize that publishing in OA is a public good. Put that in PTL guidelines and encourage faculty to publish in OA, she said. It will take awhile, but the shift can come. Another person noted her institution mandated OA, and the faculty rebelled, again, because they didn't want the administration telling them what to do. When they took it out of the policy, they started getting more OA publication.

Another participant noted we've been talking about tenure and OA for20 years and nothing's happened. Hastings said publishers have an incredible lobby. Perhaps a good place to push for change is in our professional associations. She said she'd be happy to sign an ASIS&T manifesto.

A session of theoretical reflections on social informatics and social media was Introduced by Indiana University's Howard Rosenbaum, who noted Social informatics (SI) emerged as a field of study in the 1980s in Europe, especially in Norway, Croatia and Russia. American informatics developed in 1990s, influenced heavily by the Norwegian version.

With the availability of large-scale data generated by the use of social media, much area for research is now available. Researchers are moving from more descriptive to more analytical approaches.

The University of Maryland's Brian Butler (bsbutler@umd.edu) spoke about "Social Media and Informatics." He began by asking, "What's different about social media and social computing?" The answer: nothing. They're examples of things we've talked about for years. For instance, the OED is a widely distributed information work. Group decision making is also old hat. So is collaborative editing. We know and understand much of this within SI.

People are taking pictures of their food - kind of like the Dutch painters in the 1700s. He showed how Instagram filters mirror Andy Warhol's Campbell soup can. We forget that we know how these things work at some level.

Maybe it's not new, but we can see it more clearly now – there's lots of data. We get statistical power, and therefore conceptual power. We can look at all the versions of Facebook's policies over the past 10 years. We can look at things in ways we couldn't before. How do we adapt our methods?

We can now look at people's pictures in ways we couldn't before. Older paintings and photos were of important people. Now we see everyday people. So we notice things we missed, such as volunteer work and organizations; knowledge artifact creation and management on a large scale for the long term, rules, policies and deliberation; and information aspects around creating places. These concepts are covered in other disciplines but not so much in ours.

People who haven't thought about it before are discovering communities.

Some people were excited about maker spaces to try out food. But we've had them all along: they're called "kitchens." We just don't see kitchens that way.

And yet Wikipedia is weird and wonderful. You're creating an institution where you know people are going to fight. President Obama's Wikipedia page is a point of contention, and it's that way by design. They' don't have "consensus." Social media reminds us that there is no "THE source of info." There are multiple sources. You have a dynamic of competition with which we're uncomfortable.

With food, you have a conflict between family farms and big food producers. Many people are hard-pressed to discuss and understand the issues.

Proving that one of these positions is "right" is not the point. The important thing is to be consistent, Butler concluded.

An audience member asked Butler about ethical issues in collecting data from social media. Butler said that as a researcher, you should recognize your Institutional Review Board isn't going to be a good check on you. Also recognize that if you become visible to a group by asking them to sign forms, you destroy the group and its behavior. And bear in mind people who use Twitter are not a good representation of all of humanity: they're people who can afford a mobile phone, a data plan and have a lot of time.

Kenneth Fleischmann of the University of Texas at Austin addressed "Social Informatics and Human Values." He began by asking, "What are "human values?" Think of it in terms of what people value. Different people want different things. Rob Kling did some of the earliest work in this area. Batya Friedman of the University of Washington has refined it: "There has been increasing interest in the social implications of computing technology."

One widely-used tool is the Schwartz Value Inventory, a complex three-layered approach to social values.

There are a series of studies on the traditional expert approach to content analysis. For example, people in favor of net neutrality are more likely to value innovation; people who oppose it are more likely to value wealth. He co-authored a study studying the values of self-identified homeless Twitter users in 2012.

Fleischmann said the notion of "agency" is the idea that agency is not a sudden light bulb going off to make changes; it's more of a spectrum. We're seeing increasing degrees to which technology is

becoming autonomous. Then there's the notion of "trust:" if you're going to use information, you first must trust it. He also said it's important to make sure the technologies are as transparent as possible, but there are tradeoffs. Some technologies are transparent, and some are opaque.

Fleishmann concluded by discussing the theme of his current book (*Information and Human Values* [1], which is "everyday information values." It looks at the interplay of agency, trust and transparency in government, business and health care. Trust in government is likely at an all-time low, and in a democracy you must trust the government; if you don't, it may be time for a revolution. There's lots of concern about the lack of transparency in election funding. In business, when you own mutual funds, you are delegating your work to others. Increasingly, that agency is being delegated to machines. Trust in advertising is critically important. Health care: pits a paternalistic system where the doctor is in control against patients who can search the web and diagnose themselves. In technology, we consider Asimov's three laws of robotics to designate how robots should behave, but we are giving more and more decision-making to robots. In sports, there are different approaches to the instant replay: in football you have multiple cameras with multiple views of a play; in tennis you have the virtual representation of a virtual ball on a virtual court.

Next, Mohammed Jarrahi of the University of North Carolina at Chapel Hill spoke on "Social Technologies and Knowledge Sharing in Organizations." He said social media in organizations is basically used in three ways: 1) external-facing communication, 2) human resource management and 3) knowledge sharing. The third is the focus of his research.

Research at the beginning, he said, was mostly focused on explicitly social contexts. It typically focused on teens' and students' uses of social media. It can be found in the disciplines of computer-supported cooperative work (CSCW), information science, and communications and media studies. Social media research on organizations considered the uses in the workplace of wikis, corporate social networking tools, blogs and LinkedIn: most focus on a single social technology in isolation from others.

Consider information and communications technology (ICT) as assemblages: people interact with a portfolio of social technologies in organizations, so interactions among people and tools cannot be examined in isolation [2]. So how do knowledge workers use multiple social technologies as a whole or in combinations to share knowledge within an organization? Jarrahi did 58 interviews as well as five "micro-studies" to focus on practices. The setting was a large management consulting firm. He considered the importance of knowledge sharing; the similarity of organizations provides for comparability.

Promising frameworks include actor-network theory, a useful conceptualization of the role of humans and non-humans. Multidimensional networks are easier to operationalize. You can examine all the actors using multiple nodes, different types of ties and actors.

Jarrahi said a practice-centric approach is to focus on every practice of workers. Look at a practice shared in common by people, and its production and perpetuation is a collective accomplishment. This approach is useful for understanding the sociotechnical nature of social technology uses in organizations.

He concluded by outlining three approaches of research: passive, reactive and pragmatic. He noted his wife says they parallel parenting styles.

At that point, the session was opened to audience questions. One person asked, "What is a theory and how do you develop one in SI?" Butler said a good theory is one with which I can work for a year or two, and then someone with 20 years' experience talks with you like a peer. In SI, our target audience is sociotechnical hackers. Fleischmann added a theory also deals with how people view the world. Jarrahi said he agreed with the other two; in addition, he believes the boundaries of the SI community are very porous. Butler said he develops a theory as a way to explain things. Personally, he said, he figures it out by talking; others do it by writing.

References:

[1] Fleischmann, K. R. (2013). *Information and Human Values*. San Rafael, CA: Morgan & Claypool.

[2] Belanger, F. & M. B. Watson-Manheim (2006). Virtual teams and multiple media: structuring media use to attain strategic goals. *Group Decision and Negotiation 15*, 299-321. doi: 10.1007/s10726-006-9044-8

The final session covered in this report was titled "Plural- , Multi-, Trans- , Meta-, and Interdisciplinary Nature of LIS: Does it Really Matter?" The moderator was Fidelia Ibekwe-SanJuan of the University of Lyon, France. She said the bad press of "discipline" is linked to its etymology. She refined the definitions of these prefixes. The levels of combination will vary, creating varying levels of interdisciplinarity. To quote from her own work, "Many of the most interesting scientific questions are lodged in the interstices between disciplines." [1] It reflects reality that many topics don't fall into neat categories. "Many of the great research triumphs are products of interdisciplinary inquiry…" [1]. But there are still squabbles among the disciplines, each with its own approach to an issue. Does it matter? Is it really a problem? This panel will address these issues.

The first panelist to speak was Sachi Arafat of the University of Glasgow, Scotland. He worked on applying mathematics of quantum theory to IR. But as research proceeded, he discovered an incoherence in the approach. He discovered the necessity of developing an epistemology. IR is not a natural science; it deals more with how users relate to facts in general. Our problem, he said, is treating issues in the physical world like those in the natural world. There are limits to what you can borrow from other disciplines.

Making the clearest distinction between LIS and other disciplines is becoming more difficult with development of topics such as Big Data. Should we fear the LIS label? He doesn't think so. At one time math and physics were considered separate disciplines, but now it's customary to describe physics ideas in mathematical terms. But we must be aware of being at a competitive funding disadvantage with other disciplines which are better defined. Can we leverage the attributes of highly developed research communities to help us? It's not easy, but it could be a good approach. Determining LIS's particular compartment is not easy, but it's crucial for progress.

Next, Michael Buckland of the University of California at Berkeley said this may be the most important session in the conference. Why? Disciplines are a form of social formation. They are opportunities or hindrances that are part of the world we live in. Universities are organized by disciplines. But disciplines are not merely social formations; they combine those formations with specific methodological approaches. Each has its own way of speaking and defining itself. But the problems that matter in the world are usually complicated real life problems. They will have social, technological, economical and

psychological aspects. He noted the conference's second plenary didn't fit into a tidy discipline, and that's what made it such fun. "If there's any doubt about reincarnation you'd better have fun the first time around," he said. He added he hasn't noticed business courses worrying about whether they're interdisciplinary. They're too busy making money.

Problems are not disciplines, Buckland said; disciplines are problems, or at least problematic. If you want to talk about disciplines, you're talking about issues, not solving problems.

Next, Melanie Feinberg, of the University of Texas at Austin, gave the audience what she called "Melanie's Confessions," like those of St. Augustine. A sense of common discipline gives you a sense of common ground. But that's not sufficient for development of a community. She's not sure it's necessary, either. Without a strong sense of community, she worries about the continued viability of information studies. She's a classificationist. She began enthusiastically with ASIS&T's SIG CR (Classification Research), but began to feel constrained by its limits; there seems to be a tendency to maintain separation of disciplines. HCI is not her discipline, but she now feels a stronger sense of common mission with members of the group studying it. She's looked outside her immediate community] to find support for her research, and feels a little guilty about it. Maybe in these fields we all need multiple communities and to forge potentially unexpected bonds among the disciplines. Instead of concentrating on definitions for information science, we may want to concentrate on studying among whatever disciplines are involved. We can best grow as a field by expressing our ideas in contrast with those in other disciplines. Students and faculty, though, are hard-pressed to see the internal coherence. We have to do the work that interdisciplinarity involves, forging a community among diverse people, she concluded.

Ryan Shaw of the University of North Carolina at Chapel Hill said he's never really been disciplinary. His degrees are all in interdisciplinary programs. He's not spent a lot of time worrying about it, except when he finished his dissertation and went on the job market. Discussions in the literature helped him figure out what he thought and how he fit into the disciplinary model. He referred to an article about the difficulty of being interdisciplinary [2]. The temptation, he said, is to say we're interdisciplinary when we're really annexing parts of other disciplines. Commentators picture the iField as a superdiscipline that will transcend or even replace other disciplinary boundaries. You can see some of this in economics or computer science or law, where other institutions provide the power to do these colonizations. Shaw said he doesn't think IS have the resources for that; IS may be absorbed into other disciplines.

It's also been said we can look at other disciplines to find support for ideas in our own discipline, at least in a shallow way. The risk is we can see our own disciplines as one among many "approaches," rather than as a "knowledge field." We must be comfortable listening to others' ideas and how they conflict with our own. That's a problem, Shaw said, because humility is not a winning strategy in universities.

Julian Warner, of Queens University of Belfast, Northern Ireland, said there's a feeling that we're all overburdened by knowledge, and yet we must deal with it. Everyone has a distinct idiolect – a way of talking – and it must be supported by the institution for which we work.

Ordinary discourse has value to large numbers of people over long periods of time. Some of the ideas are adopted outside the field. It's necessary to look outward to ensure our survival as an intellectual community. Maybe it's both something to be combatted and be to be afraid of. It's Important in the sense of obtaining grants and institutional affiliations.

Warner quoted from a *Time* article from 1999: “Everyone who taps at a keyboard, opening a spreadsheet or a word processing program, is working on an incarnation of a Turing machine.”

He added disciplines originated as a division of intellectual labor following the urban and literate revolutions.

He also said Mark Twain capsulized the advantages of interdisciplinarity with a reference in *Huckleberry Finn* about how it’s better to cook things together: the juices get swapped around “and things go better.” Twain also said, “It’s no wonder that truth is stranger than fiction. Fiction has to make sense.”

During the question and answer session, one audience member asked about “Library” science. Are we no longer interested in that? Buckland said he considers there’s no way to separate library science from information science. Several other panelists noted that they don’t train librarians; they train people who may become librarians, or other people who work with information.

Buckland said there’s a long distance between what we’re discussing here and how someone applying for a job would describe themselves. The notion of a school needs very serious consideration in its own right. It’s not just how one gets the degree; it’s a broader perspective.

Feinberg said sometimes her students hide behind the labels. They say “I can’t do data management,” because they see themselves as “librarians.” And yet that’s what they do. The label can be constraining. Shaw noted that if you’re brought into a project as a computer scientist, you’re not free to say, “We don’t need computers to solve this problem.”

Buckland said he came to library science directly, but his most interesting colleagues came to library science from other disciplines in which they didn’t feel comfortable. He cited an economist who joined his faculty because he could study his interests better in library and information science than in economics.

In the wake of Edward Snowden’s revelations, one questioner wondered why there hasn’t been a response from the IS community about the nature of metadata and what someone can do with it.

Buckland said iSchools must resist the temptation to become professional schools. They should also offer electives just because they’re interesting and have a bearing on the rest of society.

References:

[1] Ibekwe-SanJuan, F. & Dousa, T. M. (Eds.) (2014). *Theories of information, communication and knowledge: a multidisciplinary approach.* Dordrecht, Germany: Springer.

[2] Fish, S. (1989). Being interdisciplinary is so very hard to do. *Profession,* 15-22. Retrieved from http://www.jstor.org/stable/25595433