Shaping the Future of Information

Diane Carlisle, IGP, CRM, and Vicki Wiler

Keeping pace with rapidly evolving information technology has been a decades-long challenge for records and information management (RIM) professionals. In today's business environment, though, keeping pace is no longer enough. For RIM professionals, the future promises a grueling information security race; they will have to get stronger not just to stay ahead of hackers, but to shape the course of the race so they can beat them.

Where there are challenges, though, there are opportunities, and a panel of four experts facilitated by ARMA International CEO Robert Baird, IGP, CRM, PMP, discussed both on September 26 at ARMA International's Annual Conference and Expo in San Antonio.

The range of the challenges ahead for RIM and information governance (IG) professionals is broad – from the Internet of Things (IoT), block chain technology, and big data to the impact of the sharing economy – as captured below.

Internet of Things

It might be a refrigerator that knows when its owners need to buy milk or a utility meter that reports electricity usage to the power company for billing. Or, it could be a "smart home" that allows its residents to control their lights, locks, and garage doors from their cell phones. It could even be a tracking device drivers agree to let their insurance companies install in their cars in anticipation of being charged a discounted premium because they're such good drivers, or it could be a car that can drive itself. Each of these is a part of the Internet of Things (IoT), which is a network of interconnected devices that can collect, store, and communicate data without requiring a human interface.

IoT Benefits

Collecting data in this way can have huge benefits for organizations

and their customers alike. Refrigerators that track the contents and create a shopping list for owners as the products are used can make life easier for their owners. But that is not the manufacturers' only motivation for offering this, as panelist Tera N. Ladner, J.D., IGP, CRM, pointed out. Ladner, ARMA International's president and the director of information governance for Aflac Inc., said the companies are after the data being collected.

Organizations can use this data to learn what their customers are doing as a way to track consumer trends. It's the truth test that doesn't depend on consumers' forthrightness; it tracks their actual actions and decisions.

Consumers can benefit from IoT in many ways. Location data that is routinely collected from Internet-connected cars, for example, can provide their location quickly if their occupants need help. These devices also can predict cars' maintenance needs based on driving patterns, and they can help drivers more efficiently control their cars' fuel use and reduce their energy costs.

IoT Risks

Using Internet-connected devices can also increase an organization's liability and potential for litigation. One of the most obvious risks for companies is that their devices will be compromised and cause unforeseen and severe damage.

Manufacturers of vehicles, which often have embedded sensors that allow them to function, have learned this first-hand. Chrysler and Tesla provide good examples of these risks – and how an organization's response can help mitigate them.

Panelist Erik Laykin, CEDS, CHFI, managing director for Duff & Phelps, recounted that hackers quickly found their way into the computer systems of a new vehicle line Chrysler rolled out in 2015 and took control of some cars. Though

the hackers only steered the cars off the road, they easily could have caused much more damage had they been malicious.

But the hackers did make the hack public, prompting Chrysler to recall 1.4 million vehicles, at its great expense and even greater embarrassment. When Tesla, which manufactures a self-driving vehicle, was hacked a few weeks later, the company made what might be considered a counter-intuitive move. It hired a team of hackers that within one week was able to help create a "patch" that Tesla remotely sent out fleet-wide around the globe to correct this vulnerability. In doing this, the company avoided the need for a costly and embarrassing vehicle recall.

Organizations and consumers alike also must be aware of the privacy risks associated with their use of IoT devices, particularly the "digital debris" they might be leaving behind for others to discover and exploit.

For example, Ladner said, connecting a cell phone to a rental car's Bluetooth system is convenient, but the device could be collecting personal data, such as contact information and sensitive text messages, that could be available to the rental company's employees or might fall into the hands of the next person to rent the car.

Laykin shared that this is not far-fetched; he had just a few weeks earlier rented a car, connected to its

Bluetooth system, and discovered a previous renter's telephone contacts and addresses that had not been cleared from the cache.

Panelist Jeffrey R. Hewett, J.D., CEO of Granite Legal Systems Inc., warned that organizations that lease fleets of trucks should likewise be aware that truck rental companies could have access through Bluetooth phone connections to the trucks' geographic locations based on the phone's GPS system or pings from the cell towers that were passed, possibly revealing who the organization's customers are and other proprietary information.

Laykin, who is a Certified Hacking Forensic Investigator (CHFI), also warned that there are Internet search engines designed to search out IoT-connected devices like corporate phone systems and video recording systems, the latter of which should be a concern for consumers as well as organizations.

He said in his testing, he was able to document going into a retail store in South Korea, accessing its camera system, and watching sales transactions taking place. If this type of video were recorded by a malevolent hacker, it could be reviewed for names and credit card information to exploit. Laykin said he also was able to log into a large corporation's IP telephony system in Switzerland and act as though he was an employee and make calls.

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RIM/IG Response

Responsibly handling this digital debris, which is being generated in a variety of digital formats, is an area of concern that RIM and IG professionals in these organizations should proactively address. To guide the actions taken to protect both their organizations and customers, they must determine:

- What information their organizations are collecting and why
- What the emerging information formats are and how to manage them
- What information is being actively used and what employees are keeping "just in case"
- Whether that information is being used appropriately
- How to mitigate the risks of information that some may be poorly managing

Block Chain Technology

Ladner described block chain technology as a data structure that makes it possible to create a digital ledger of transactions that is shared among many networks. Because the transactions are captured and verified by many parties, rather than by a single clearinghouse (MasterCard, for example), it is very difficult to hack and change the data. Any change requires a request to be sent to all the parties that captured the transaction (i.e., the transaction "verifiers"), and

they each would re-run algorithms to verify that the request is a valid change to the ledger before accepting it.

Block Chain Benefits

This system, Ladner said, creates provenance and ensures information integrity – a fundamental principle of RIM and IG.

Block Chain Risks

Panelists cautioned against adopting technology without first considering the organization's real security needs. It is possible that more traditional security methods may serve the organization just as well.

Laykin and Hewett made the point that block chain technology is still being developed and goes beyond what most organizations need. Hewett said it is most suited for organizations that exchange common information with a series of peer organizations, such as financial institutions do. For others, investigating the potential of block chain technology could be put off until farther down the road, he suggested.

Agreeing with Hewett, Laykin said standard encryption is still effective for securing information in day-to-day practice when used correctly. "We can all do a much better job at encrypting [with standard encryption] our data both at rest and in transit for managing the security risks," Laykin pointed out.

Panelist Richard Hogg, CITP, global IG solutions leader for IBM, interjected that for the future, block chain, as a distributed ledger that moves away from silos of what is "the authentic source and system of trust" toward an open and transparent system of trust, presents great opportunity for records and IG. He also said that organizations will have to be able to move far more rapidly in the future, and that block chain technology will give them the extra speed to do that.

Laykin added that although block chain will allow for trust to be placed in transactions, it and many other information technologies come at the cost of privacy, one of the two elements – along with security – he said are needed if these technologies are to succeed.

"As we look at the Internet today, and the Internet of Things, and all of these converging technologies in the information governance world, we have given up much of our privacy. So what's left?" Laykin asked. "Security is paramount, and block chain technology is one of those building blocks to ensure that security will be in place to allow us to communicate effectively."

Laykin also said it's important to consider the operational impact of adopting a new technology that is still in development. The expense and the disruption it will cause to existing processes may outweigh the potential benefits.

RIM/IG Response

Ladner said block chain creates a new kind of information/record that RIM and IG professionals will have to figure out how to manage. They also must determine:

- Whether this level of encryption is appropriate for the organization's business
- When the technology is mature enough to adopt
- What its impact on costs and operations would be

- Whether the technology would be easy to adopt or would have a significant learning curve
- If the organization has the necessary skills in-house to handle the new technology

Big Data

The big data challenge is not only about its volume, for which there are standard technology solutions, Hewett said. It is a combination of the volume and many other factors: the speed at which it floods into organizations, the variety of formats it is in, and its distribution across multiple platforms and under the control of multiple parties.

These all complicate an organization's ability to get a clear view into the data, to find and track the data, identify who the responsible parties are, apply consistent IG policies across systems, and ensure that all parties follow the same policies.

RIM/IG Response

Big data is part of the "new world of IG," Ladner said; it and the other information technologies under discussion by the panel are thrusting information professionals into a new world of security, analytics, and understanding the data itself, Ladner said.

The same data that is coming into the organization in a flood is being put to different uses at different times by multiple users, so it may not easily fit into an organization's pre-defined taxonomies, retention schedules, and policy structures.

"Trying to shove it into these models isn't going to work anymore," Ladner said. "So we're going to have to think differently, and be a 'schema on the read,' create our schema based on what the data tells us it is, and think differently about the way we approach it."

Information professionals need new skills to step up to this challenge, Ladner said. They will need to be able to source the data, analyze it, and understand the business needs for the data. Big data is not going away, she continued, and it is going to continue to change how RIM professionals look at the management of information.

Laykin agreed, citing a recent U.S. Federal Trade Commission report that said it expects there to be 70 billion IoT devices connected to global networks by 2020. Factoring that in, he said, makes the scale "unfathomable."

Information professionals will be at the heart of what he envisions will be a literal "data state" in 50 to 100 years, in which data will become the most valuable commodity in the global economy.

"Those that are figuring out how to manage it, how to interpret it, how to record it – those are the goldminers of 1849 in California," he suggested.

Data Analytics

Baird moved the discussion toward data analytics, asking the panelists about the organizational struggle over how much data should be retained for potential use and how little data should be kept to minimize potential liability.

Hogg specifically highlighted the dichotomy between analytics professionals, who want to keep it all, and RIM/IG professionals, who argue that the organization can't keep it all.

This could be resolved, Hogg suggested, by RIM/IG working with the data scientists to clarify and define the age and provenance of information that is really useful. For example, Hogg said, they could discover that the organization doesn't need 50 years of sales transactions; perhaps only data from the previous five to seven years would be relevant.

Common Themes
Key Advice for Shaping the Future of Information

- Strive to learn something new every day to keep pace with evolving technology and business goals.
- Develop new skills to meet the challenges of governing information in the dynamic business environment.
- Identify yourself as a stakeholder and get involved with IT to influence information system design and implementation.
- Partner with data analytics team members to clarify what data really needs to be retained based on their knowledge of its age and provenance and to do whatever is needed (like scrubbing data) to ensure that they can keep that data.
- Understand the potential risks, as well as the convenience and benefits, of adopting any new technology so you can identify preventive actions to mitigate the risks.
- Measure the impact of adopting technology that's still in a developmental phase; more traditional means may be more applicable to your organization's environment and needs.
- Don't get married to any one solution; technology evolves too quickly.
- Keep an eye on shifts in society that will have an impact on IG in your organization.

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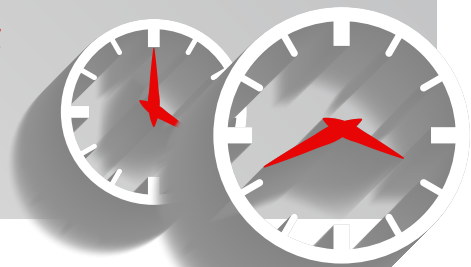
"We can peer together with them and focus and rationalize those policies," Hogg said.

When Baird said he thought this dichotomy "really creates the case for information governance," panelists readily agreed.

Ladner challenged the audience not to shy away from working with analytics professionals, telling them to "stick your head under the tent" to find out what they are doing and how to be a part of it. She said IG professionals need to become negotiators and do what is needed – scrubbing data to make it anonymous, for example – to ensure that the analytics team is able to keep the data it needs.

The theme of collaboration was underscored with the ensuing discussion about structured database repositories and what Hewett called the "next generation" data structures that are behind them; they are no longer fixed schemas (e.g., Excel files).

"They represent a method and manner of storing information which is completely unique and almost unable to be visualized," Hewett said.

These systems are designed around data storage requirements and business processes with no thought given to being able to extract data in layers across business processes, such as for litigation purposes, or to data destruction.

Hewett said the solution is for RIM and IG professionals to collaborate with those designing these systems, telling the audience, "Get up and get involved now because it has to happen at the point of system design and implementation; it's almost impossible to implement afterwards."

Hogg concurred. "They need our governance leadership," he said.

Predictive Coding

Related to analytics, predictive coding uses key words, sampling, and review to accelerate the identification and culling of information for the discovery and review phase, Hogg said.

To accomplish this, Hogg said, subject matter experts first review and classify, or code, a small sample set of documents. Predictive coding software uses the sample data set to evaluate and classify the whole corpus of information to more rapidly identify what is non-relevant or non-responsive. This results in a much smaller amount of information to be reviewed by humans, which saves considerable time and costs.

With external review costs at $18,000 per GB (about 10,000 documents), according to Hogg, the financial savings can be significant. He said case studies have shown that predictive coding can cut review costs by 60%-75% – and review costs make up about 70% of a case's total costs.

Although predictive coding has been accepted by the judiciary in multiple countries and jurisdictions, Laykin and Hewett pointed out that the technology is not as accurate with certain types of documents and data, so it is important to understand the technology and the specific products that are available before deciding to employ it.

As Laykin put it, "You ought to kick the tires before you bet the company on one of these magic solutions."

The Sharing Economy

The sharing economy refers to a relatively new phenomenon of sharing under-used assets, rather than having to purchase an asset that will be used only on occasion. Uber, Lyft and AirBnB are all good examples of this. The challenge of the sharing economy includes determining who manages the asset, how others get access to it, and who maintains it, according to Ladner.

This phenomenon is disruptive because the sharing transaction is not usually governed by regulations in typical ways. For example, in various jurisdictions, an Uber or Lyft, driver may not fall under the same regulations as a taxi driver, an Airbnb owner may not have to meet the same requirements a landlord does, and Airbnb customers may not have the same rights they would have at a hotel.

In the IG world, the sharing economy is often facilitated by the use of the cloud with services like Dropbox and OneDrive and software like Office 365.

RIM/IG Response

RIM and IG professionals should keep constant watch on changing business practices to determine how they affect IG procedures.

Hogg said organizations need governance partnerships for applying data policies and managing information through its life, wherever it is located and whatever information service is being used.

Parting Advice

In closing, each of the panelists gave words of advice to RIM and IG professionals.

Laykin said his approach is to strive daily to learn about technologies through reading and interacting with colleagues. He urged audience members also to stay engaged, to learn about technology, get behind it, and drive it for the right purposes. Finally, he suggested, have an open mind and prepare for the future.

Reiterating his earlier admonition, Hewett told audience members that they need to get involved in IT processes, that being an identified stakeholder is key.

"Dive in and embrace analytics," Hogg said. "It's your friend, your future." He said analytics would help audience members solve the challenges of managing sensitive and critical information and put "records in the wild" under control.

Ladner said education is impor-tant, that she tries every day to learn new things and have conversations that expand her mind. She told the audience to "jump in" to understand these disruptive technologies and not to be scared that they will supersede the organization's need for their professional expertise. Technologies can do a lot, but they can't do what you do, she said. "That's why we play such an important role in our organizations, and we need to be playing that role well." Ⓔ

Facilitator

Robert Baird, IGP, CRM, PMP, is chief executive officer for ARMA International. A certified Information Governance Pofessional, Certified Records Manager, and certified Project Management Profession, Baird holds a master's degree in business administration from George Washington University and a master's of science degree from The Dwight D. Eisenhower School for National Security and Resource Strategy. He can be contacted at *robert.baird@armaintl.org*.

Panelists

Jeffrey R. Hewett, J.D., is founder and CEO of Granite Legal Systems. His 20+ year career in the legal industry includes systems selection and implementation projects, customized litigation systems development, and large-scale discovery projects requiring unique and challenging technical solutions. A Microsoft Certified Professional, Hewitt has a bachelor's of arts degree in computer science from the University of Kansas and a juris doctorate from Washburn University. He can be contacted at *jhewett@granitelegal.com.*

Richard Hogg, CITP, is IBM's global solutions leader for information governance, where he focuses on assessing clients' information governance (IG), making recommendations to further their objectives through their IG programs, and leading clients through a model for improving information and e-discovery economics towards defensible disposal. A Chartered IT Professional, Hogg earned a B.Sc. in computer science from The University of Salford. He can be contacted at *rghogg@us.ibm.com.*

Tera Ladner, J.D., IGP, CRM, is director, information governance, at Aflac, and ARMA International's current president. A certified Information Governance Professional and a Certified Records Manager, Ladner earned a bachelor of science degree from the University of South Alabama and a juris doctorate from Georgia State University College of Law. She can be contacted at *teraladner.arma@gmail.com.*

Erik Laykin, CHFI, CEDS, CFLC, is managing director for Duff and Phelps' disputes and investigations practice and a member of its forensic technology and analytics group. He is an internationally recognized authority on complex information technology disputes who frequently provides expert witness testimony, a certified Computer Hacking Forensic Investigator, a Certified Electronic Discovery Specialist, and a Certified Forensic Litigation Consultant. He can be contacted at *erik.laykin@duffandphelps.com.*

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