

The Perfect Storm of Mobile, Social, Cloud, and Big Data

Imagine taking a business trip and leaving your computer behind, instead stashing your smartphone and iPad in your luggage without removing them to pass through airport security! As you wait to board the plane, you check e-mails regarding a recent environment, health, and safety (EH&S) incident; add information to an incident record; check incident trends in that region; and communicate concerns to a colleague—all using your smartphone.

by Jill Gilbert

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This scenario is becoming a reality as four of the fastest-growing technologies—mobile, social, cloud, and big data—collide. Combined, their impact creates a “perfect storm” that can wreak havoc or generate opportunity for IT departments. The task is to accept that these technologies are here to stay, and use them to your best advantage.

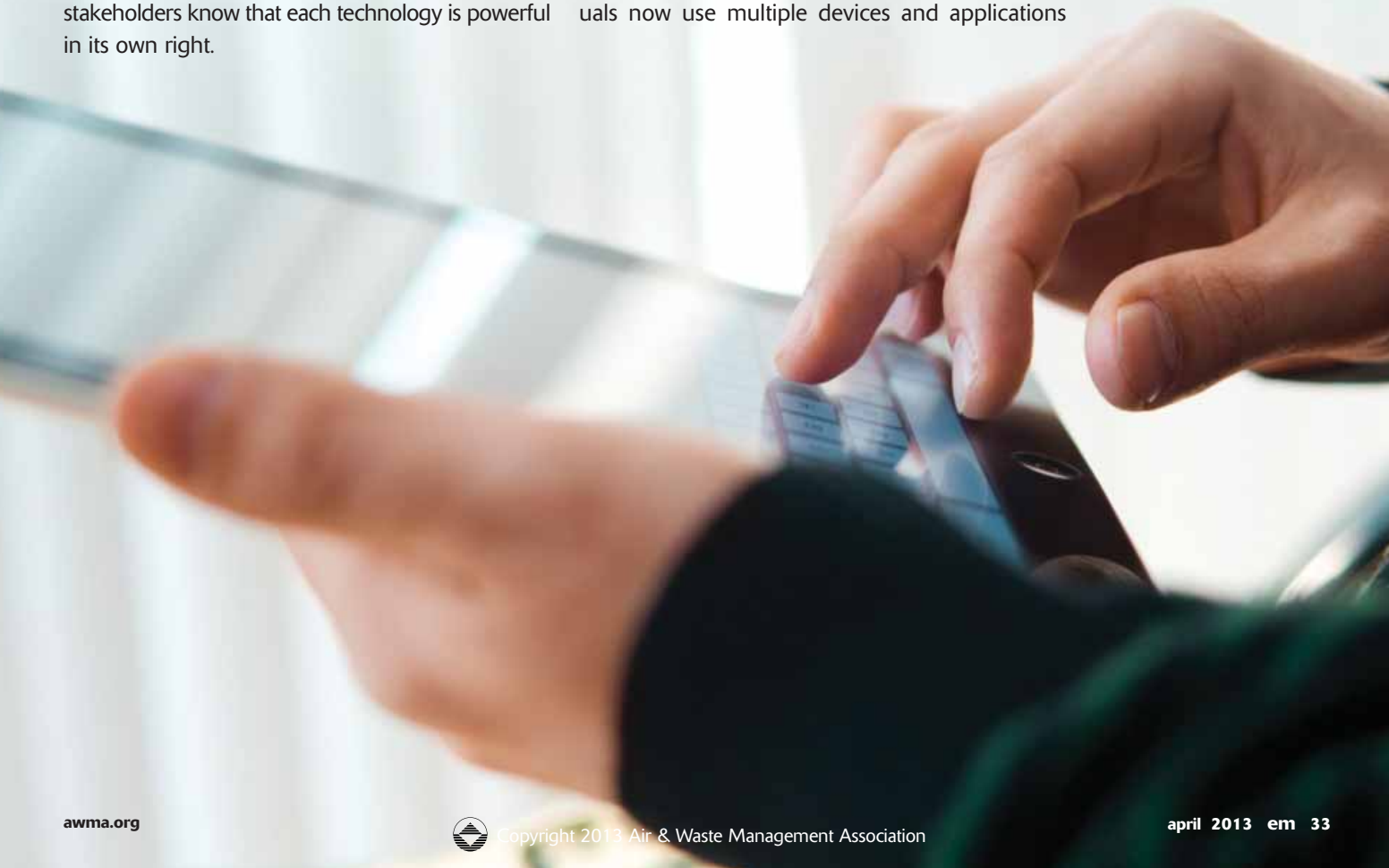
The Brewing Storm

Mobile, social, cloud, and big data have not arrived unnoticed. EH&S regulators, the regulated community, vendors and service providers, and other stakeholders know that each technology is powerful in its own right.

The ability to access critical business information 24/7 globally removes familiar tethers of time and place. Mobile technology in business requires reliable, near 100% connectivity with high-speed cellular, wireless network and/or satellite coverage.

BYOT: There’s an App for That!

Consumerization, the use of smartphones and tablets in business, called “BYOD” or Bring Your Own Device, is now “BYOT” or Bring Your Own Technology (see “Tech Trends: Bring Your Own Device to Work” *EM* August 2012, p. 38). Individuals now use multiple devices and applications



► Storm Preparations

If the perfect storm strikes your organization, you should act quickly, and be informed:

- 1 Understand how you can benefit by applying new technology.
- 2 Evaluate alignment with company strategy.
- 3 Determine the value and return on investment.
- 4 Develop a strategy.
- 5 Involve the right team of stakeholders.
- 6 Spend adequate resources planning and rolling out the technology.
- 7 Communicate with and train stakeholders to prepare them for change.



designed for portability. They often expect IT/IS support for several different technology platforms using their own business and social applications (example BYOT platforms include Android, Blackberry, iOS, Linux, and Windows). Following this trend, companies are starting to issue business apps to field personnel.

Social Networking Is Not Just for 20-Somethings

Social networking made inroads into business a few years ago. Many companies realize that they need social networking to be competitive and to reach a variety of stakeholders. They use social media to help to convey EH&S and sustainability performance. Yet, these same companies often limit the use of social networking at work to executives and marketing staff. Thus, professionals who could benefit from social media must network on their own time.

Working in the Cloud

In the past, most EH&S knowledge workers, managers, and executives required a computer, a hard drive, and an Ethernet connection to do their jobs. Today, ubiquitous WiFi plus data storage in the cloud allow anytime, anywhere access to information (see "A Sunny Outlook for Cloud Computing" *EM* July 2010, p. 36). Individuals may use multiple devices to store and access information in public and private clouds. The benefits are a "single version of the truth," transparency and collaboration, without the need for manual version control and data syncing.

Bigger Data = Better

Companies want to view real-time metrics and key performance indicators (KPIs) to make business decisions. They manage transactional data in many business domains. In EH&S, most of the data are structured operational or transactional data (e.g., 15-sec continuous emission monitoring system and other process data, wastewater and industrial hygiene analytical results, and inspection or audit checklists).

A huge volume of data is nontransactional, unstructured data. This largely untapped and potentially useful information lies in e-mails, documents, spreadsheets, Web, and cloud sources. The challenge is to aggregate the data and put it in context for valued-added business intelligence.

Big data is the collection and analysis of large amounts of information to detect trends, personal preferences, or another competitive advantage. Some data sets are so large that analysis requires hundreds or thousands of servers. The attraction of big data is the ability to correlate large volumes of information quickly, using new algorithms to produce surprising, and useful results.¹ Big data helps market-driven companies to get a clearer picture of their market. It also helps product- or service-focused companies to gain competitive distinction that their competitors don't have.²

The Perfect Storm

When organizations adopt several new technologies at once, it changes the way people do their jobs, causing disruption until people integrate the change (see "Confronting Disruptive Innovation" *EM* December 2012, p. 38). EH&S already leverages three or more of mobile, social, cloud, and big data technologies. More capabilities are in development stages. For example,

- a smoke reader uses a smartphone to photograph an emission source, record a visible emissions reading, notify an environmental specialist that the reading is out of spec, and send data to the cloud;
- an EH&S auditor uses a tablet offline to complete an audit questionnaire, record observations, draft findings, and recommend corrective and preventive actions; they upload the information to a



central database once back in the office; and then they and other audit team members edit the results, assign action items, and initiate an electronic approval process; and

- a waste inspector uses a handheld barcode reader to inventory drums in a temporary hazardous waste storage area. The device transmits data to a central database, where the shipping department can aggregate drums for offsite disposition.

The greatest challenges are forecasting the need—causing an unbudgeted effort and organizational change management—and helping people adapt to new technologies (see “Change Happens... Embrace It!” *EM* April 2012, p. 32). Big data adds challenges like data cleanup and storage, data center workloads, and developing new talent to analyze data.³

► Challenges

Some of the challenges associated with the perfect storm include:

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| ✘ Business and IT alignment | ✘ Data privacy |
| ✘ Cost and budget | ✘ Security |
| ✘ IT and business know-how | ✘ Organizational change management |
| ✘ Integration | ✘ Maintenance and support |

The perfect storm can create competitive advantage and the demand for new career paths for data scientists, IT and IS engineers, and hybrid EH&S/IS specialists. This is an exciting time, as emerging technologies invade the business world. It is our job to determine how best to embrace them, and integrate them into our day-to-day business. **em**

References

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2. Weathington, J. Getting the Right ROI on Big Data; *Big Data Analytics Blog*, TechRepublic, November 22, 2012.
3. Shacklett, M. 10 Roadblocks to Implementing Big Data Analytics; *10 Things Blog*, TechRepublic, November 12, 2012.