THE MODERN MASS NOTIFICATION SYSTEM

A Security Management/Johnson Controls
Critical Conversation

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Security and life safety professionals have the primary responsibility for communicating with a wide array of stakeholders in the context of dangerous weather, natural disasters, or workplace violence. Such emergencies sow confusion, place a heavy burden on communications infrastructure, and reveal the weak points of the tightest contingency plans and the most modern equipment.

The linchpin of any crisis management plan is the Mass Notification System (MNS) a multi-layered technology solution that will vary greatly based on the groups that need to be notified. Depending on the event and the environment, audiences can include employees, contractors, suppliers, the public, disaster response teams and local and federal government authorities.

The modern MNS is a multi-modal automated system that can simultaneously deliver specifically crafted messages to pre-identified groups at diverse endpoints such as cell phones, computers, e-mail, telephones, fax machines, physical security infrastructure and public announcement systems.

Components such as sirens and flashing lights are common, but in recent years many systems have begun integrating social media channels as well. Today MNS systems also typically provide a response mechanism that allows specific groups of recipients to confirm receipt and a central log from which the message confirmations can be monitored. An effective MNS will use a range of solutions and technologies in a system of overlapping layers designed specifically for the unique organizational requirements , communication scenarios, and the intended recipients.

In a recent JCI/SMM survey of more than 900 professional security practitioners, more than seventy percent of respondents report that their organizations have experienced a crisis situation in the past two years that required the mass notification of staff, customers, or members of the public. A separate 2014 survey from Johnson Controls indicated that communication was the number one priority for improvement to be addressed by facilitates and security managers. This paper provides an overview of survey research as well as a Johnson Controls/ SMM "Critical Conversations" event held in Atlanta in September 2014 with participation from corporate, higher education and municipal security experts from Canada and the U.S.. To get the full results of the survey, conducted by ASIS International in partnership with Johnson Controls, refer to "Get Survey Results" on the last page of this paper.
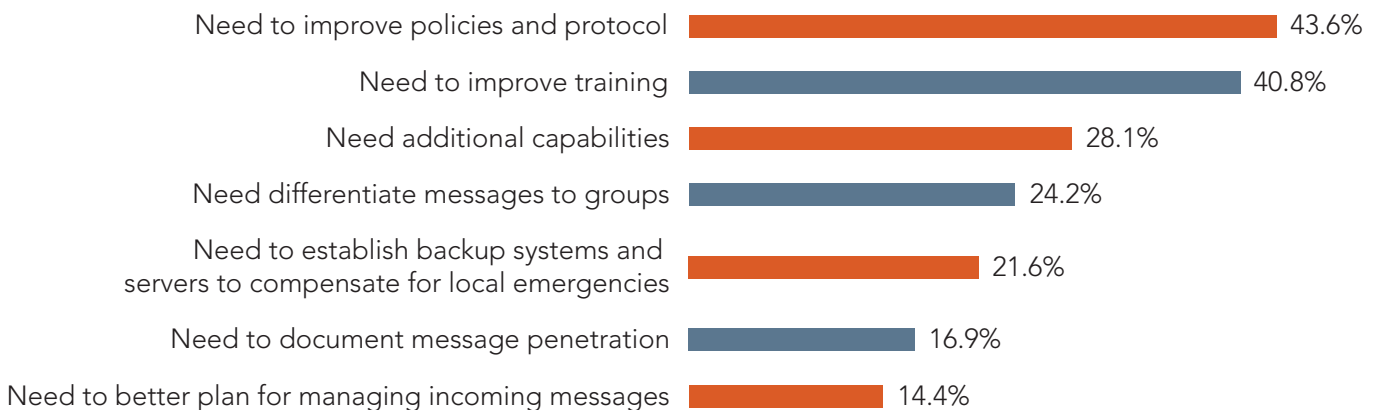
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Crisis events in the past two years illustrate the tremendous technological evolution in the capabilities of Mass Notifications systems over the past decade. Most industry leaders attribute the mass shooting at Virginia Tech as the seminal event that fueled demand for more sophisticated systems and the rapid investment in communications infrastructure. Large public universities are one of the most challenging environments to address due to the diverse physical plants, open campuses, and variety of public events. Because this environment has served as a proving ground for mass notification systems, today's systems have features and capabilities that give them broad application across a wide range of markets. Despite the technical potential of modern systems, security practitioners who have used their systems in the past two years find room for improvement in how their organizations meet the challenges of mass notification events.

BY THE BOOK

The most common issue cited by respondents (see figure 1) was that policies and procedures are the cornerstone of a crisis communication and MNS plan, and there is a lot of

FIG. 1: KEY LESSONS LEARNED FROM MASS NOTIFICATION EVENT

Lesson	Percentage
Need to improve policies and protocol	43.6%
Need to improve training	40.8%
Need additional capabilities	28.1%
Need differentiate messages to groups	24.2%
Need to establish backup systems and servers to compensate for local emergencies	21.6%
Need to document message penetration	16.9%
Need to better plan for managing incoming messages	14.4%

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work to be done. Fully 41% of organizations did not have an emergency response manual in their central station and for those with documentation, there is a common sentiment that manuals have become too bloated with information not immediately useful in a crisis. There is broad agreement that updates to crisis procedures need to be simplified and documentation needs to be refined on a regular basis with a goal of eliminating as much as is being added. Another popular suggestion is put contextual or organizational detail into addenda at the back of the manuals.

TRAINING

More than 40% of security directors cited a renewed commitment to training as a key area in need of focus. These respondents observe that high percentage of personnel fail to comply with even simple tasks laid out for them. Some do not report to their correct station, some do not have the required equipment for an emergency situation, others are simply slow to respond. Increased training and frequent drills are a time-honored remedies for such performance.

For the recipients of emergency messages—including general staff, students, members of the general public—most organizations have shifted their focus to keeping messages to this group as simple and explicit as possible. Often this means using plain language rather than terms as opposed to terms of art like as "shelter-in-place". Others have adopted 144-character message restrictions typical of a Tweet to enforce an economy of language.

Drills and tests cannot be limited to technical and institutional readiness and system checks. According to survey responses, preparation must include the social and organizational rehearsals of communication procedures and responses.

Mass Communication During Times of Crisis: A Peer-to-Peer Conversation, sponsored by Johnson Controls and *Security Management* magazine, was held in conjunction with the ASIS Seminar and Exhibits in September 2014.

"So we test the whole mass notification system at least twice a year," says Mark Connor of Cornell University. "We do silent testing monthly with our staff just to make sure those systems stay up and operational. The unforeseen is what is always going to get you". Failures can occur with text message delivery, broken links on social media, or blind spots in cellular service in the area.

"It is very valuable to have your IT infrastructure people— your communications people—knowing what you are doing as you constantly test your system to make sure it is active and working," says Connor. "You can't imagine how your heart sinks when you get right to that moment and…it doesn't go."

THE EMERGENCY PLAN AS A COMMUNICATION FRAMEWORK

Twenty-eight percent of respondents said message differentiation is critical based on their recent experience in mass notification. Messages can be pre-defined for audiences in specific areas or facilities, allowing crisis managers to manage group movements and actions in an orderly manner without attempting to provide broad direction that can confuse those outside the area of concern. The content of these messages should read like a public-facing distillation of every crisis scenario the organization has a plan for. Finally messages can be differentiated in their content, providing either general information or immediate direction based on the specific nature of the crisis or the stage.

- Messages for distinct audiences
- Messages for distinct areas or zones
- Messages for different types of emergencies
- Messages for different stages in the crisis

Most modern MNS allow for nearly unlimited creation of pre-set groups, the key is to be intentional in the identification of groups that might benefit from specific direction. While some large organizations require more than a hundred groups to provide the needed flexibility in a crisis situation, fewer than 30% of respondents in our survey indicated their organization had 20 or more such groups. Nearly half had 5 or fewer pre-defined groups resulting in emergency messaging that is likely more generalized complicated and probably less effective than it could be.

THE EVOLVING ROLE OF SOCIAL MEDIA

More than two-thirds of companies are active in social media generally, and use it for marketing and customer relations objectives. Just 23% say that they are actively using social media to communicate during Mass Notification events. However, 54% report monitoring social media channels for

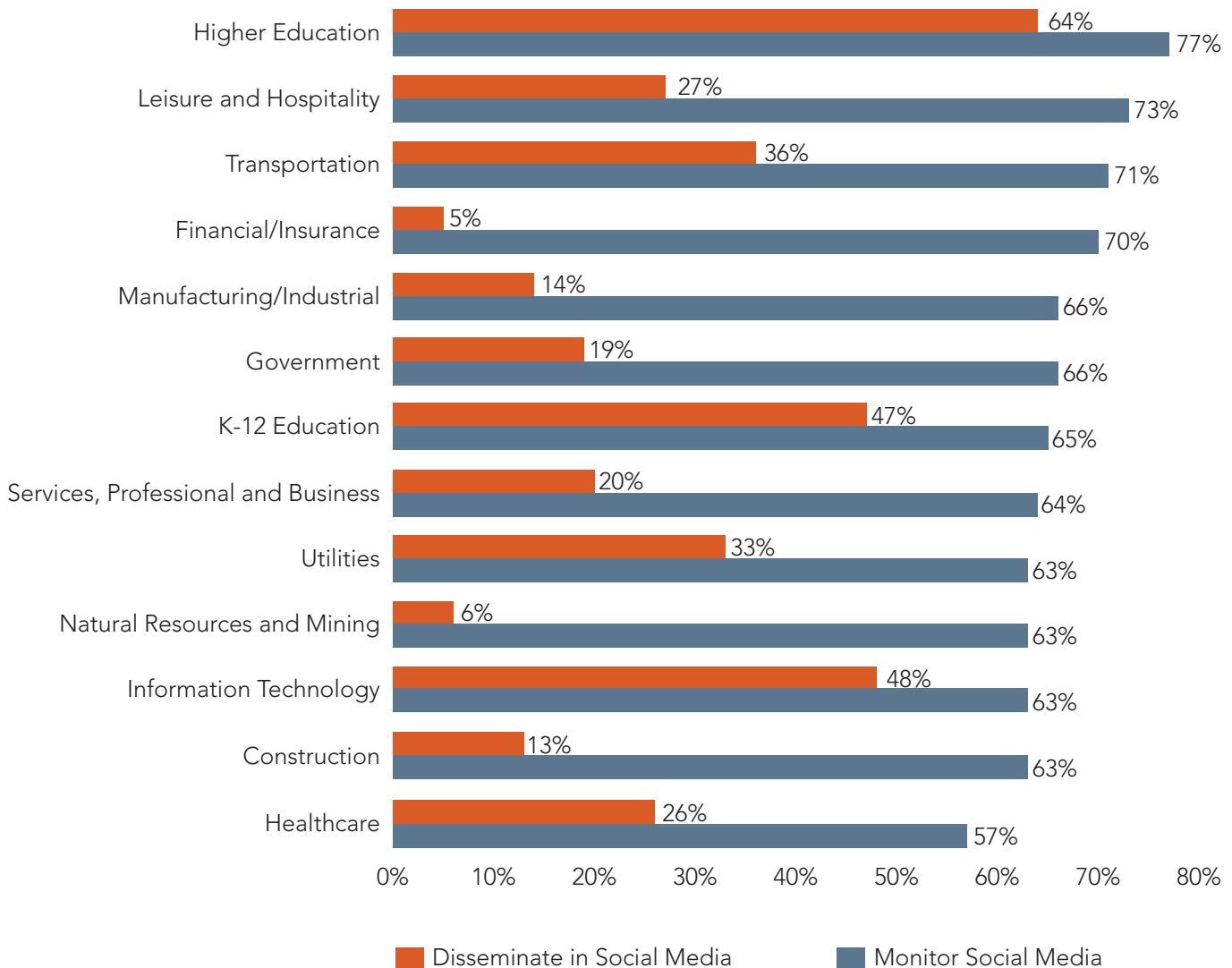SECURITY
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crisis-related information during emergency events and another 15% plan to do so in the next event.

The social media channel is used very much according to the needs of specific operations and environments. Examining specific industry sectors provides a helpful illustration of how social media is being adopted for security and life safety (see fig. 2).

While it is fairly common across industries to monitor social media for the purpose of advanced warning, risk awareness, and counter-intelligence. However, as Figure 2 indicates, the use of social media for disseminating information

in times of crisis varies greatly from industry to industry with as few as 5% in the financial sector using it for this purpose and as many as 64% in higher education. When considering social media in mass notification situations a key factor is to whom the organization is responsible and what communication channels are preferred by those constituencies. Approximately 85% of college students own cell phones, but most are hesitant to provide their cell phone contact information to authorities due to privacy, spam, and cost concerns. That leaves open the practical solution of using social media, where students tend to turn as a reflex for both information and communication. As a minimum education administrations should make announcements

FIG. 2: **USE OF SOCIAL MEDIA BY INDUSTRY**

Industry	Disseminate in Social Media	Monitor Social Media
Higher Education	64%	77%
Leisure and Hospitality	27%	73%
Transportation	36%	71%
Financial/Insurance	5%	70%
Manufacturing/Industrial	14%	66%
Government	19%	66%
K-12 Education	47%	65%
Services, Professional and Business	20%	64%
Utilities	33%	63%
Natural Resources and Mining	6%	63%
Information Technology	48%	63%
Construction	13%	63%
Healthcare	26%	57%

0% 10% 20% 30% 40% 50% 60% 70% 80%

■ Disseminate in Social Media   ■ Monitor Social Media

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CALGARY FLOODS

On June 21st Thursday morning Owen Key got a call at 9:30 in the morning on his cell phone. A computer-generated voice on the other end told the City of Calgary's Chief Security Officer, Manager of Security that as part of the Emergency Management Agency he was being summoned to the Emergency Operations Center. The call was followed by an e-mail and then a text message.

Sensors on the Bow and Elbow rivers were warning both rivers were about to spill over their banks and flood the City of Calgary, which sits at their confluence. "Because of our sensors and because of the emergency management common operating picture with everything mapped within our system, we knew that we were facing an evacuation of 80,000 people in 6 hours—32 different suburbs." Key tells a group of corporate, higher education, and municipal security experts from Canada and the U.S. that had gathered for a Critical Conversations roundtable.

"We have an e-government portal where a lot of Calgarians sign up to pay their taxes," Key tells the audience. "When they sign up we have the ability to send out e-mail to them, push notifications" in the event of emergencies. The city also deployed Calgary police service, animal and bylaw services, the fire department to go door to door in the areas that would be hit first.

The agency also turned to social media to spread the word of the evacuation. "We have is we have a very tech-savvy Mayor" says Key, "Mayor Naheed Nenshi. "He loves twitter," says Key, and regularly posts updates for his 180,000 followers--which equates to approximately 10% of Calgary's population. "So he's out there tweeting people everything that's going on during this flood.

As the waters rose Key and his team would be forced to evacuate the municipal building that housed the EOC. Having evacuated 2,500 personnel to a secondary operation work center, which in turn lost power when the power substation failed.

Photo: City of Calgary

Mayor Naheed Nenshi

The flood was Canada's largest insurable loss for a disaster, doing $6 billion in damage and devastating large sections of the City of Calgary. But thanks to the City's notification system and the hard work of the city staff and leaders, the flood only claimed two lives in entire Southern Alberta province.

"So I just want to leave you with there is no one mass notification system that is going to meet all your needs," Key tells the assembled group. "Look at what you need for internal communications to your own staff whether it be one-off incident that happens in a single building, whether it is because you need to rally your troops, or get information to staff members that were affected by this particular flood and that needed to stay at home."

Key is proud of how his team and his city responded to the flood. "I think we did a bloody good job, I'll be blunt. We recovered extremely well afterward, but we can always do better."

in the most popular networks where the most current and accurate information can be found—often referring them to school websites which can be the clearinghouse for high-quality information.

Public-facing organizations such as municipalities, departments of transportation, and casinos, theme parks and hotels should consider social media as an essential part of a larger multi-model solution. Power failures, overburdened commercial cellular service, and the sheer size and diversity

of the organizations' constituencies require every forum and channel be leveraged with the intent of overcoming potential failures at any given point.

Many organizations using social media in crisis communications have developed rigid processes for outbound communication requiring approval for individual messages, establishing formal policies on the use of social media channels, and explicit direction on who is expected to communicate on any given channel, and those who should

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refrain. Most establish a small group of staff to manage the social media channel. These teams typically include someone from media relations, executive, and security functions but are often unique to the specific organization. Other disciplines often tasked with monitoring social media during crises were campus law enforcement, environmental health and safety, public affairs, communications and even marketing. These disciplines also had a variety of roles in terms of threat identification through message delivery, message construction, group identification, and others. In some regulated environments such as public education there are legal obligations that dictate not only who is involved in the mass notification process, but what procedures are required by legislation. Organizations with such legal requirements often mandate any postings or replies have at least two-person review prior to publication.

CORRECTING THE RECORD

Of those who actively engage their audience in social media forums during crises, 64% of respondents said that more than half of the information they see during crisis situations from non-official sources is either incorrect of or of no appreciable value. That is why many security and life safety practitioners choose to disseminate information in social media. Organizational credibility can be leveraged to communicate accurate information in the midst of rumor or bad information from uncredentialed sources. Successfully serving as a reliable source of information in a crisis can also burnish organizational credibility in a way will enhance the effect of communications in the next crisis.

Some organizations publish a blanket policy in social media channels that simply directs people to official sources to get verified information. Dedicated emergency pages on the organization's website are the most common clearinghouses for both useful public information as well as official information from the organization. These pages can also include specific external links, phone numbers, and contact information for different purposes. This method reduces the complexity of having to manage communications on multiple channels.

Several respondents indicated they followed up observed inaccuracies by explicitly reaching out to media and affiliates to alert them of the false information circulating and advise them of the best facts available. When corrections are made, there appears to be broad agreement that bad information needs to be corrected via the same channel in which it was originally circulated, and that timeliness of the correction is vital.

CREATIVE USES FOR SOCIAL MEDIA IN CRISES

Social media does offer capabilities that no other medium or tool does. Some creative uses mentioned by security practitioners include:

- Monitoring civil disturbances near critical facilities in high-density environments
- Identifying problems in the early stages when mitigation is more effective
- Using it as an alternative channel when corporate information systems are compromised
- Promoting website portals where official information is being disseminated
- Monitoring for specific mentions of company that might represent an evolving threat or require a formal response
- Use it as a source of corroborating incidents and information and developing insights

SUMMARY

There is little public research available identifying the factors that influence the performance of different methods and solutions for mass notification. The development of this area of security and crisis communication has largely depended on an advancing conversation between practitioners and industry suppliers. There are numerous companies making novel contributions to specific niche sectors and a handful of organizations that supply broad-based modern notification systems applicable across a wide range of situations and environments.

More than 60% of respondents indicated their organizations were comfortable with the perception that their existing system "satisfies" the organizations requirements despite its age or limitations. The disparate requirements of unique environments and the rapid advance of technology suggest conversations need to continue between industry suppliers and practitioners to design effective mass notification systems and upgrade their capabilities from both a technical and process standpoint.

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