ONE Media 3.0
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NEXTGEN
VIDEO INFORMATION
SYSTEMS ALLIANCE



The Case for an ATSC 3.0 Advanced Emergency Information Service

Research on how American consumers view their emergency information options and how new features enabled by ATSC 3.0 can improve them

A Study from NVISA, The NextGen Video Information Systems Alliance, sponsored by ONE Media 3.0

Preface: From Mark Aitken

SVP of Advanced Technology at Sinclair Broadcast Group
and President of ONE Media 3.0



Why did we insert a 32-page study on advanced emergency information services into every NAB issue of TV Technology?

Unlike many NAB Show-related inserts, we are not promoting a catalogue of new products. Instead, we have a single big idea:

Advanced emergency information services using NextGen Broadcast could be the most compelling public service we can offer.

It may not be the "flashiest" service, but it is one with extraordinarily unique advantages and features not found on any other emergency media platforms.

The study measures the value American consumers place on emergency services. It also measures how we choose information resources when facing a local threat. Broadcasters have more relevant local news than any other medium, a robust transmission system proven to stay up under emergency conditions, and the unique features built into the NextGen standard.

Consider how fragile the cell phone system is in the worst of times. Under stress, the cell phone system often loses sites and the associated elaborate interconnected equipment. Even if the system survives punishing elements, thousands of urgent simultaneous requests for information often overload the capacity. Nothing gets through. The NextGen Broadcasting infrastructure suffers neither of those problems. Even if a single hardened broadcast tower goes down, there are several others in each market that can provide service that can never be overloaded. They serve an infinite number of receive devices instantly and simultaneously. Service is always available.

NextGen both alerts and informs. When our routines are interrupted by an alert of imminent danger, we all respond by seeking confirmation: Is this real and does it affect me? We need to know how dangerous things are and where to evacuate or otherwise protect ourselves and others. Our survey suggests precious time can be misspent searching in many directions for essential information before reacting. Reducing the time between alert and action saves lives and property as does receiving quality and uniform information. It certainly makes a case for NextGen Broadcast in the same mobile devices we all have today.

This study makes this case by presenting feedback from over 2,000 American consumers. Please take some time to review it. We put some effort to bring it to your attention and hope you find it valuable.

Mark G. Aitken

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Executive Summary: Why this study is important

Josh Gordon, Survey Project Manager



This study offers the first insight into which features American consumers want most in an ATSC 3.0-enabled emergency information service. When consumers answered a survey question asking them to select the features of a new advanced emergency information app that would motivate them to use it, they were actually selecting from a list of emergency features built into the ATSC 3.0 roadmap. Almost two-thirds (64.8%) of American consumers chose the ability to receive geo-targeted alerts. Over half (56.6%) chose the ability to select only the alerts they want to receive, and over half (50.1%) also chose the ability to opt into a constantly updated stream of emergency information. Almost half of consumers (43.6%) want a system that keeps working when their Internet goes down, and more than a third (38.0%) want a system that keeps working when their cellular phone service goes down. (Finding #1)

Local TV broadcasters that embrace ATSC 3.0 will have a modern media platform with the ability to geo-target alerts and emergency information. Since 2019, local TV station news departments have become the most comprehensive source for local news as they now field more news reporters than any other local news organizations, including newspapers. Broadcasters also have a well-documented history of staying on the air when other services go down.

This study also offers a first look at the dollar value American consumers place on having access to a modern emergency information service, and how much they would be willing to pay for it. When asked how much they would be willing to add to the cost of their next mobile phone purchase to have an app that could deliver this level of service, about two thirds of American consumers said they would pay an extra $5, while half said they would pay an extra $10. (Finding #2)

This study's results also challenge the perception that local broadcasters are fading as an important resource for communities during emergencies. The results show that American consumers view mobile phones, local government information, and local TV news stations as the three critically important resources they turn to during local emergencies. TV broadcast may not be the dominant entertainment program delivery service it once was, but its importance to American consumers during local emergencies remains undiminished.

Three separate findings captured the value American consumers place on the resources they turn to during a local emergency. Each finding corresponds to a step on the timeline that begins when consumers first hear of a potential local emergency (Findings #3, #4, and #5). For Finding #3, American consumers were asked to pick their "first stop," or the first place they turn to after hearing of a local threat. About half reported that they turn to an emergency information source (television, a website, social media, etc.) while the rest said they first turn to an intermediary resource to prepare for the information search to follow (mobile phone, Google). Consumers picked two "first stops" that account for almost two-thirds (65%) of all responses: "Mobile phones" with 37.1%, and "TV news" with 27.9%. After those two, the next three options each captured only about 10% of the remaining audience.

American consumers were then asked which "emergency information sources" they would turn to after visiting their "first stop." The top two sources chosen were local government information sources (65.8%) which includes information from local emergency managers at the state, county, and city/town level, followed by a local TV news station (49.7%). (Finding #4)

Comparing the results of respondents' preferred "first stops" and "emergency information sources" shows that American consumers find mobile phones, local government information sources, and local TV news to be their three most important resources during a local emergency. While respondents rated local TV news as their second most preferred resource for both questions, it was also the only one of the three resources to be rated highly for both questions. In short, American consumers do not see local government information sources as a "first stop," nor do they see "mobile phones" as a local emergency information source, but they highly rate "local TV news stations" as both a "first stop" and a local emergency information source. There is no real competition between mobile phones, local government information sources, and local TV news stations, as they serve very different yet essential functions. The importance of these comparisons is to establish that all three are extremely important resources during a local emergency.

Finally, this study also gives broadcasters a wake-up call on the need to improve their mobile services. When the responses to the "first stop" question were cross tabulated by age group, it revealed an unenthusiastic response to broadcasters by the youngest age group surveyed, the adult members of Generation Z (ages 18 to 24). These younger viewers are very mobile-centric. ATSC 3.0 will enable broadcasters to add the interactive features to their mobile apps that younger viewers expect. (Finding #6).

This study from the NextGen Video Information Systems Alliance (NVISA) was produced in partnership with ONE Media 3.0 / Sinclair Broadcast Group. This report documents consumer attitudes towards emergency information that could drive the development, progress and transformation of the broadcast industry and its industry partners.

Below are the smart, talented people who helped make this study possible, most of whom are quoted in this study:

Ed Czarnecki, Ph.D., *Chairman, NextGen Video Information Systems Alliance, (NVISA). It is our hope that publishing this study in NVISA's name will draw attention to the great work that Ed and NVISA are doing for the ATSC 3.0 community.*

Mark Aitken, *President, ONE Media 3.0 and Executive VP of Technology, Sinclair Broadcast Group, which sponsored this research report.*

Madeleine Noland, *President, Advanced Television Systems Committee (ATSC*

John Lawson, *Executive Director, AWARN Alliance*

Pete Sockett, *Director of Engineering and Operations, Capitol Broadcasting Company, and Chairperson of the North Carolina State Emergency Communications Committee*

Jim DeChant, *VP of Technology, News-Press & Gazette Broadcasting*

Mark Annas, *Emergency Services Administrator, City of Riverside Fire Department - Office of Emergency Management*

Fred Baumgartner, *Director, Next Gen TV Implementation, ONE Media 3.0*

Thanks to all!
Josh Gordon, *Research Project Manager and President, Josh Gordon Group*

Foreword: The Big Picture

Comments from ATSC President Madeleine Noland

https://www.atsc.org



Advanced Emergency Information is a key element of the next-generation ATSC 3.0 broadcast standard. It promises to create significant value for viewers, consumer electronics manufacturers, broadcasters, and emergency message origination authorities. The addition of advanced emergency messaging capability and the accompanying rich-media emergency information represents a compelling application for ATSC 3.0.

The results of this survey demonstrate the numerous opportunities for broadcasters to serve consumers in new and innovative ways. Of all the services that local stations have performed over the years, public safety is perhaps the most important—and most remembered contribution to their local communities. When other services are down, broadcast stations stay on the air, serving the public in ways that only the one-to-many architecture of broadcasting can do. While many of the results documented above are encouraging, some represent challenges. With challenge comes opportunity.

ATSC 3.0 was designed from the start to be extensible and to evolve as technologies evolve, and as the needs (and wants) of consumers change. The architects of the system knew they could never anticipate what services might be needed five or even 10 years out and so they designed into ATSC 3.0 the ability to signal enhancements without compromising existing features. The questions posted in this survey—and especially the answers—serve as a "report card" of sorts on the extensible nature of ATSC 3.0. The services that consumers want can be met with ATSC 3.0 today or added in the future because of the extensibility of the basic system.

The ATSC 3.0 Advanced Emergency Information system enables broadcasters to deliver timely, in-depth emergency-related information to their viewers, which serves to strengthen the connection between the audience and the station and provide critical information in times of need. The system includes a "wake-up" function that allows receivers in stand-by mode to detect when an emergency message has been initiated by a station. It provides a mechanism for delivering rich media via broadcast and/or broadband, such as evacuation maps, images associated with AMBER alerts, weather radar maps, user-generated videos, and other information. It defines video and audio watermarks that are capable of enabling receivers that do not have access to the full broadcast signaling tables (e.g., those connected to pay-service set-top boxes) to access Advanced Emergency Information rich media via broadband or a subset of information directly in the watermark. The ATSC 3.0 Advanced Emergency Information system is capable of sending public-facing messages intended for consumers, and non-public-facing messages intended for first responders or other restricted audiences. Many other features are possible, as needs are identified.

For decades broadcasters have served a critical role in their local communities by providing fast, accurate information on all manner of emergency situations. With the tools provided by ATSC 3.0, those services will expand as the needs expand.

More information on the ATSC 3.0 AEA system is available in the following documents:

- **"ATSC 3.0 Advanced Emergency Information System Implementation Guide"** – This document, developed by the ATSC Advanced Emergency Information Implementation Team, describes methods and examples for implementing the ATSC 3.0 Advanced Emergency Information (AEA) system features. Description of the system's technical elements, such as the Advanced Emergency Information signaling table, physical layer pipe configuration, and more are included, along with examples of how broadcasters might configure these in the broadcast stream to achieve various use cases. https://bit.ly/3scGoxy
- **A/300, "ATSC 3.0 System"** – This document describes the complete ATSC 3.0 Standard, which encompasses a set of individual standards documents. An overview of the Emergency Messaging system is given in Section 5.2, along with pointers to the individual standards that comprise the Emergency Messaging system. https://bit.ly/3q4EdJw

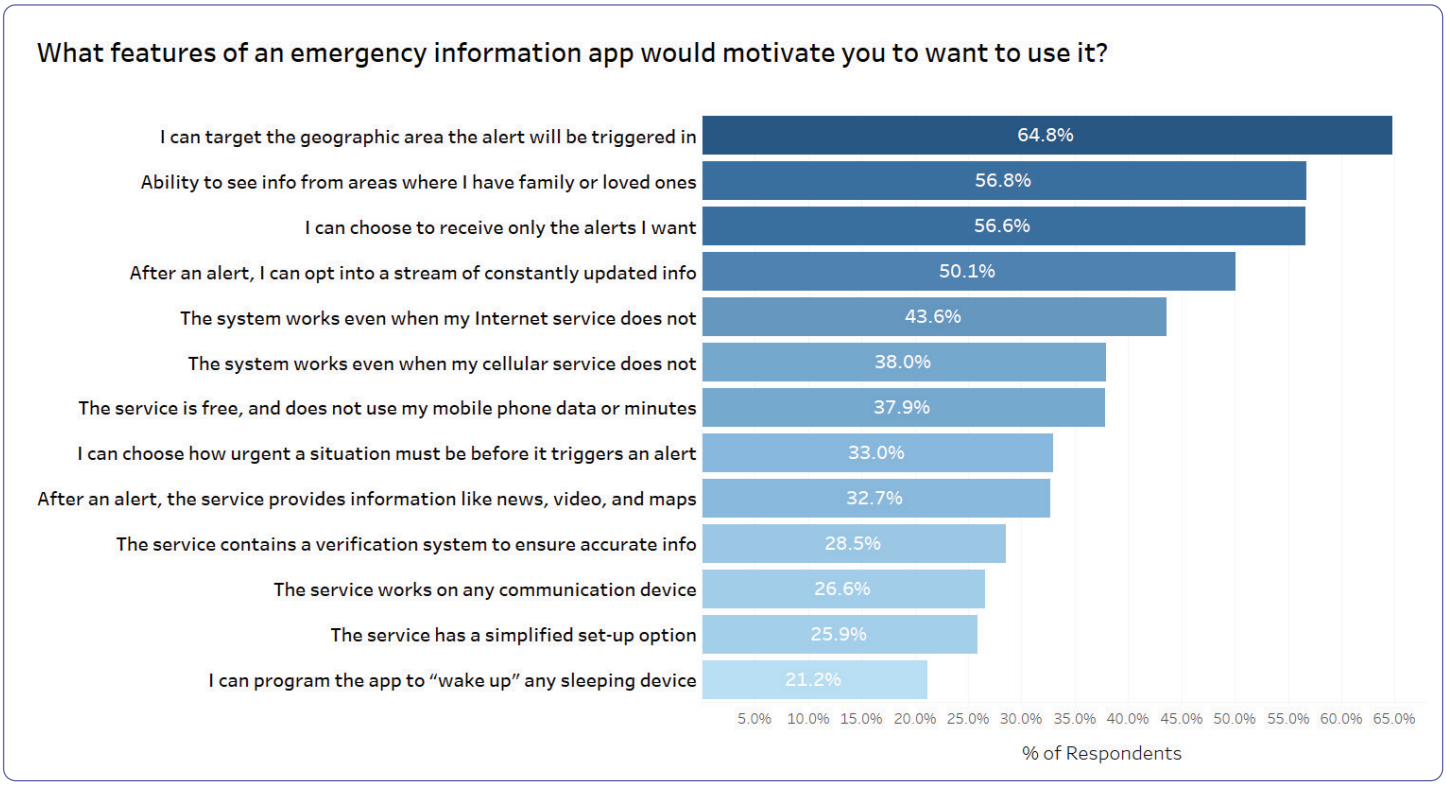
Madeleine Noland, President, Advanced Television Systems Committee

https://www.atsc.org

The Findings

Finding #1

User personalization and constantly updated information are the features American consumers most want in an advanced emergency information service



Respondents were asked to select the features of an advanced emergency information app that would motivate them to use it. They selected from a list of features that an ATSC 3.0-enabled advanced emergency information service could one day deliver, all of which are on the ATSC 3.0 roadmap. Of the 13 options, four key features were selected by more than half of the respondents:

- Ability to target emergency information for the geographic area where they are located: 64.8%
- Ability to see emergency information in other areas, such as where loved ones are located: 56.8%
- Ability to opt into only the alerts they want: 56.6%
- Ability to opt into a stream of constantly updated information: 50.1%

In addition, almost 44% wanted a system that would work even when the Internet is down, and 38% wanted a system that worked when mobile service was down.

Finding #1 continued

User personalization and constantly updated information are the features American consumers most want in an advanced emergency information service

Cross tabulating this finding by the four adult age groups surveyed in this study (Boomers, ages 58-76; Generation X, ages 42-57; Millennials, ages 26-41, and the adult members of Generation Z, ages 18-25) revealed that the top four features chosen were the same across all age groups, with only one exception: The second most frequent feature chosen by Boomers was, "The system works even when my Internet service does not." Boomers seem to have more concern that their Internet service will go down than the other age groups.

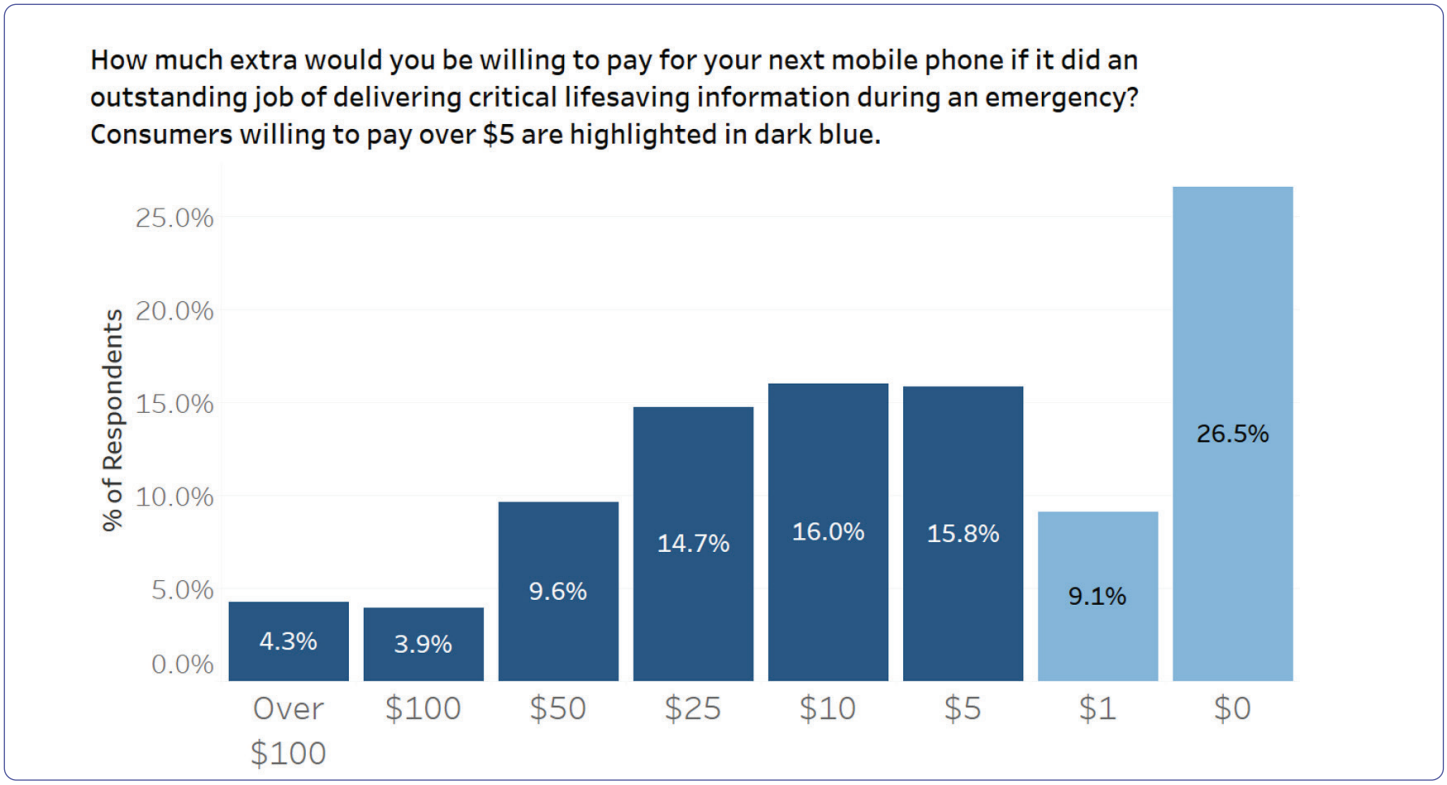
Ed Czarnecki, NVISA's Chairman and Executive Director, says this set of findings reflects core public concerns: "The public wants access to information that is relevant to them, wherever they may be, and to be able to opt out of information that may be irrelevant, by location, information type or other criteria. This level of response raises the question as to whether the public feels they are currently getting emergency information that is not relevant to them, or their location."

Jim DeChant, VP of Technology at News Press and Gazette Broadcasting, sees the top choices selected by American consumers as consistent with his observations: "This is not surprising and supports studies I have seen going back for many years. The first preferences come down to providing information that keeps my family safe. After that come user preferences in how the information gets shared. Then it breaks down quickly to how and when the service works and keeps working."

John Lawson, Executive Director of the AWARN Alliance, sees parallels between what American consumers want in an emergency information system and what emergency managers want. Says Lawson, "There are two main reasons emergency managers get in trouble. First, for sending out alerts or evacuation notices to people who don't need them. These alerts cause inconvenience and stress for people in unaffected areas. Second, for not sending out alerts when they are needed, and people get hurt. This is a major stressor of the job. I'm not surprised that geo-targeting and targeting by alert intensity include the top three selections by consumers. This reflects the priorities of alert creators as well."

Finding #2

Two-thirds of American consumers would be willing to pay an extra $5 or more for their next mobile phone if it could do an outstanding job delivering critical lifesaving information in an emergency. Half would pay an extra $10.



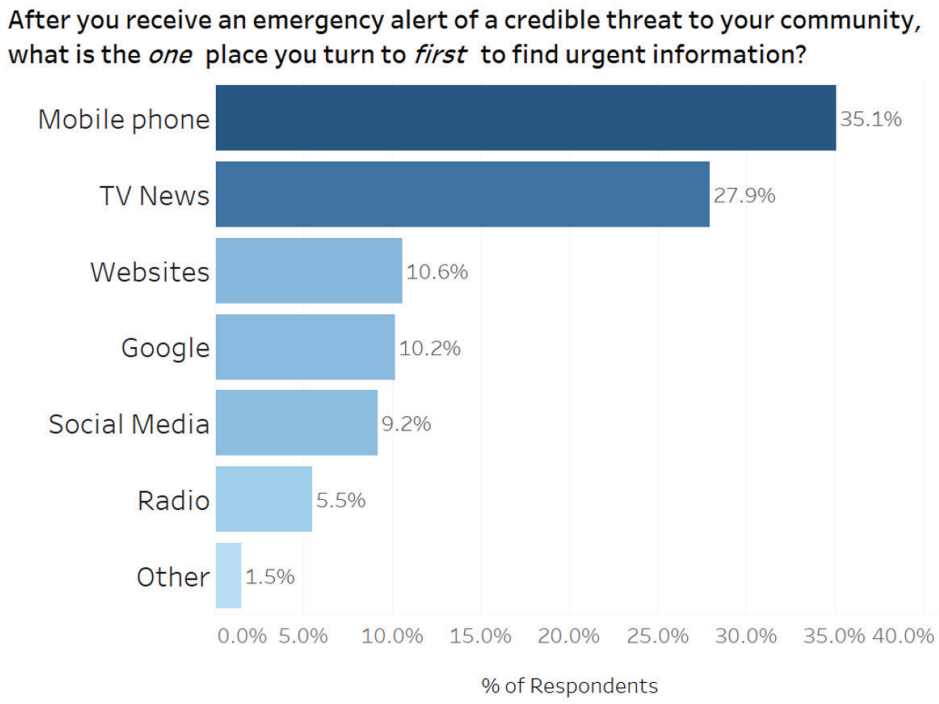
As this finding demonstrates, there is a perceived value among American consumers for a mobile phone with the new safety features they stated wanting to have in the previous finding. About two-thirds, or 64.3%, of respondents reported that they would pay an extra $5 for a mobile phone with their desired safety features, while almost half (48.5%) stated they would pay $10 more, and one-third (32.5%) said they would pay $25 more. A significant number of respondents reported they would be willing to pay still more, even as much as $100 for a phone with these safety features.

Based on this finding, Jim DeChant suggests that broadcasters could one day offer a subscription based on emergency services enabled by ATSC 3.0: “If there is perceived value here, broadcasters could consider developing a subscription service. Many consumers who are already paying for a monthly security alarm would be willing to pay for a premium emergency information service.”

Observes Ed Czarnecki, “This finding seems to point out that current mobile phones are lacking some functionality that consumers desire. The question is, how can we satisfy it? We could start by connecting this question to the previous finding (Finding #1) and look at the new features of a new emergency information app which over half of American consumers say they want.”

Finding #3

Mobile phones and TV news are the most frequent "first stops" for American consumers as they begin searching for emergency information after hearing about a credible local threat



When asked to choose the one place they turn to first when seeking emergency information about a credible local threat, about two-thirds (63%) of the survey's respondents reported heading first to their mobile phones and to TV news.

The answer choices respondents were offered for this question were based on the results of a separate pre-survey of American consumers conducted just prior to this study (see the Methodology section for more details). Because consumers chose "mobile phones" and "Google" in significant numbers, it was clear that many are using this "first stop" as a point of orientation to find their way to the emergency information they need. The use of mobile phones and Google as an orientation point was further confirmed by respondents' answers to another pre-survey question which asked which emergency information sources they use. While thousands of responses were offered, there were very few mentions of mobile phones or Google. As Pete Sockett, Director of Engineering and Operations at Capitol Broadcasting, explains, "A device does not give information on its own; it is a pathway to information. A mobile phone can get me to information on a government website, or a broadcaster. But as a standalone device, it offers no information."

Finding #3 continued

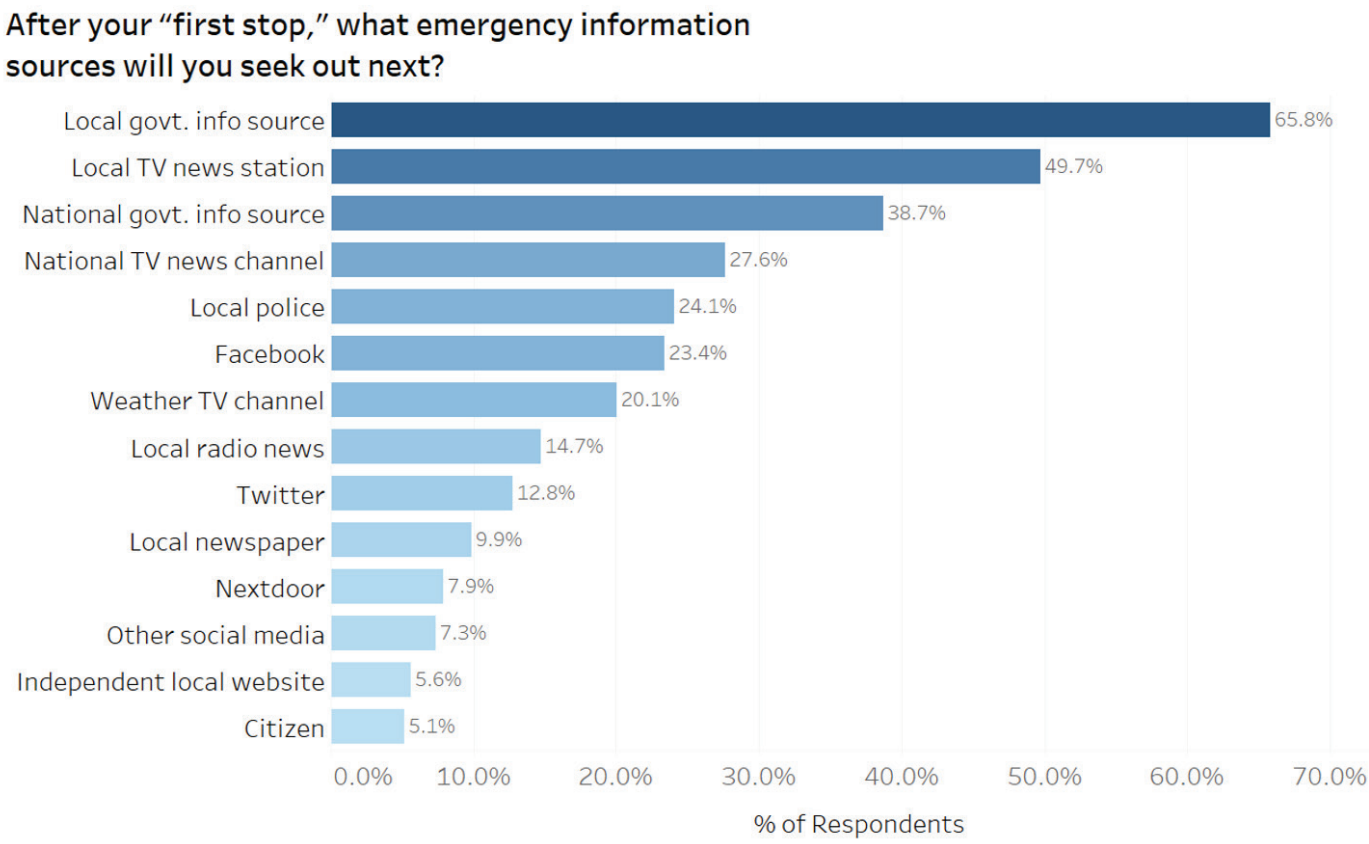
Mobile phones and TV news are the most frequent "first stops" for American consumers as they begin searching for emergency information after hearing about a credible local threat

The bar chart above (on the previous page) points to an opportunity for broadcasters embracing ATSC 3.0. Local broadcasters are losing younger viewers, who are more mobile-phone-centric. One of the benefits of ATSC 3.0 is that it can add interactivity to broadcast apps in the mobile environment, making them more appealing to younger audiences. This bar chart will look more favorable for broadcasters when their mobile apps offer the interactive features younger viewers expect.

Ed Czarnecki concludes, "In an urgent situation such as a disaster, communication is critical, both for emergency response and increasing public awareness and knowledge. Effective emergency information dissemination can save lives in a disaster by enhancing the quality of decisions made by the public. ATSC 3.0 can provide a critical new element in the rapid and targeted delivery of informative emergency information to the public."

Finding #4

Local government agencies and local TV news stations are the most frequently visited information sources during a local emergency



When American consumers look for emergency information during a local threat, they first turn to local government emergency sources (65.8%) and local TV news stations (49.7%). The relationship between these two information sources is critical during a local emergency.

Pete Sockett believes there is a natural affinity between broadcasters and local government emergency managers. As the director of Engineering and Operations at a broadcast station group and chairperson of the North Carolina State Emergency Communications Committee, he knows both groups well. Says Sockett, "My experience working with local emergency managers is they just want to get accurate information out and also prevent rumors. Emergency managers love working with organizations that can help them do those two things. Local TV news reporters know to check their facts before sharing information."

Finding #4 continued

Local government agencies and local TV news stations are the most frequently visited information sources during a local emergency

Jim DeChant adds, “Broadcasters provide a useful service by having reporters check the accuracy of information from social media before sharing it, and through their local news anchors and reporters add a familiar human face to the information that government sources provide.”

John Lawson predicts that broadcasters who convert to ATSC 3.0 could become more closely integrated with local emergency managers because both will have systems that are Internet-centric. Says Lawson, “If broadcasters want to work more closely with emergency managers, they will need to find a way to integrate ATSC 3.0 with the emergency communication systems that emergency managers now use. Broadcasters might be surprised at how sophisticated these highly integrated IP cloud-based emergency communication systems have become. On one screen a local emergency manager can now deploy text, email, and a wide variety of social media to consumers and to specific emergency responders. What emergency managers want from broadcasters is interoperability, so they don’t have to learn a whole separate system to issue an alert. Because ATSC 3.0 is IP based, along with newsroom management software, the opportunity for integration is there.”

Ed Czarnecki concludes, “In an urgent situation such as a disaster, communication is critical, both for emergency response and increasing public awareness and knowledge. Effective emergency information dissemination can save lives in a disaster by enhancing the quality of decisions made by the public. ATSC 3.0 can provide a critical new element in the rapid and targeted delivery of informative emergency information to the public.”

Finding #5

The "first stop" an American consumer goes to in search of emergency information can determine which information source he or she will visit next

The chart below tracks the paths consumers take toward subsequent information sources after their first stop. The six "first stops" are listed across the top of this table. Down the left side is a list of the 13 emergency information sources. The column under each "first stop" shows what percentage of consumers who chose that as their first stop say they would seek out each of the other emergency information sources next. The three most frequently used emergency information sources are listed in color: First choice in green, second choice in red, and third choice in blue.

After your "first stop," which emergency information sources will you seek out?

First Stops

■ First Choice ■ Second Choice ■ Third Choice

Emergency info sources	Website	Mobile phone	TV News	Radio	Google	Social Media
Local govt. info source	22.2%	21.6%	22.2%	23.1%	19.9%	19.0%
Local TV news station	14.8%	14.1%	22.1%	13.6%	14.0%	13.3%
National govt. info source	13.0%	13.6%	11.5%	12.8%	14.7%	10.1%
National TV news channel	8.6%	7.8%	10.7%	5.8%	12.0%	8.9%
Local police	7.0%	8.6%	7.1%	9.2%	8.7%	6.9%
Facebook	7.4%	7.9%	5.9%	3.6%	6.8%	16.0%
Weather TV channel	5.4%	7.2%	7.4%	6.1%	5.0%	4.9%
Local radio news	4.0%	4.3%	5.3%	13.6%	2.7%	3.2%
Twitter	5.1%	4.6%	1.5%	2.5%	5.0%	9.6%
Local newspaper	4.1%	3.3%	2.5%	2.8%	3.8%	3.7%
Nextdoor	3.2%	2.9%	1.8%	3.6%	2.5%	2.4%
Independent local website	3.0%	2.0%	1.2%	1.1%	2.8%	1.2%
Citizen	2.2%	2.2%	0.7%	2.2%	2.1%	1.0%
Grand Total	100%	100%	100%	100%	100%	100%

Cross-tabulating consumers' "first stops" with the emergency information sources they visit can help predict which emergency information sources they will visit next. The most frequently visited information source, regardless of which first stop they begin with, is a local government agency. This category includes state, regional, county, city, and town local emergency managers. The second most frequently chosen information source is a local TV news station, although there were two exceptions: For those respondents whose "first stops" are social media and Facebook, local TV news stations finished third. According to Pete Sockett, "This reinforces the importance of the relationship between broadcasters and the emergency management community. During an emergency, people go to emergency management websites and broadcast news sites. This shows just how interconnected we are.

Finding #5 continued

The "first stop" an American consumer goes to in search of emergency information can determine which information source he or she will visit next

When an emergency arises, local communities depend primarily on local government sources and local TV news as their top information sources. Below is list of the six "first stops" with the top three information sources that American consumers will go to after visiting each one. While local TV finishes second in most of the listings below, keep in mind TV news has already had major exposure in this process as a "first stop" as well.

"First stops" with the three most frequently visited emergency information sources by their users:

- If their first stop is a mobile phone (35.1% of all first stops)

1. Local government information source
2. Local TV news
3. National government information source

- If their first stop is Google (10.2% of all first stops)

1. Local government information source
2. National government information source
3. Local TV news

- If their first stop is TV news (27.9% of all first stops)

1. Local government information source
2. Local TV news
3. National government information source

- If their first stop is social media (9.2% of all first stops)

1. Local government information source,
2. Facebook
3. Local TV news

- If their first stop is a website (10.6% of all first stops)

1. Local government information source
2. Local TV news
3. National government information source

- If their first stop is radio (5.5% of all first stops)

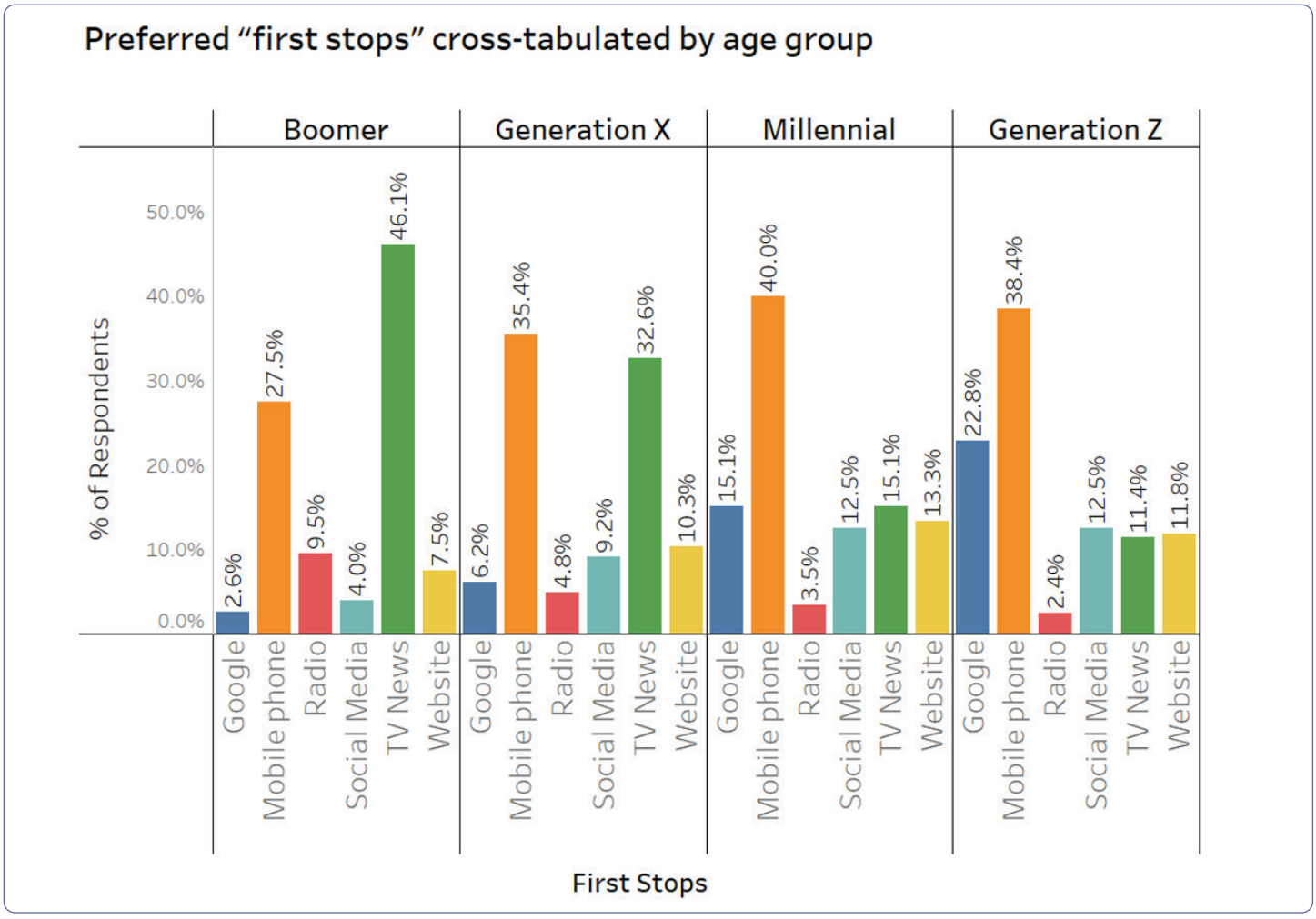
1. Local government information source
2. Tie between local TV news and radio
3. Tie between local TV news and radio

Concludes Ed Czarnecki, "This finding confirms and reinforces what many broadcasters and emergency management professionals have assumed. Media -- particularly TV news -- represents a continual presence in our lives and plays a critical role in informing the public during any crisis or disaster. To put it plainly, disasters are major media events, and the public relies on TV news as one of its primary stops to seek reliable information."

Finding #6

The age group of American consumers influences which "first stop" they begin with

The following bar chart is a demographic breakdown of the six "first stops" American consumers use, broken out by the age groups that comprise the adult American TV-viewing audience.



Results show that the age group of consumers is a significant factor in their choice of which "first stop" to go to for emergency information. Although Boomers (ages 58-76) largely choose TV news as their "first stop," the two youngest generations have moved to mobile phones, with a steady decrease in reliance on TV news. Generation X (ages 42-57) prefers mobile phones as a first stop, with TV news as a close second. With Millennials (ages 26-41), TV news has slid further behind mobile phones and is tied with Google for second place. For Generation Z adults (ages 18-25), TV news finishes behind all but radio.

Finding #6 continued

The age group of American consumers influences which "first stop" they begin with

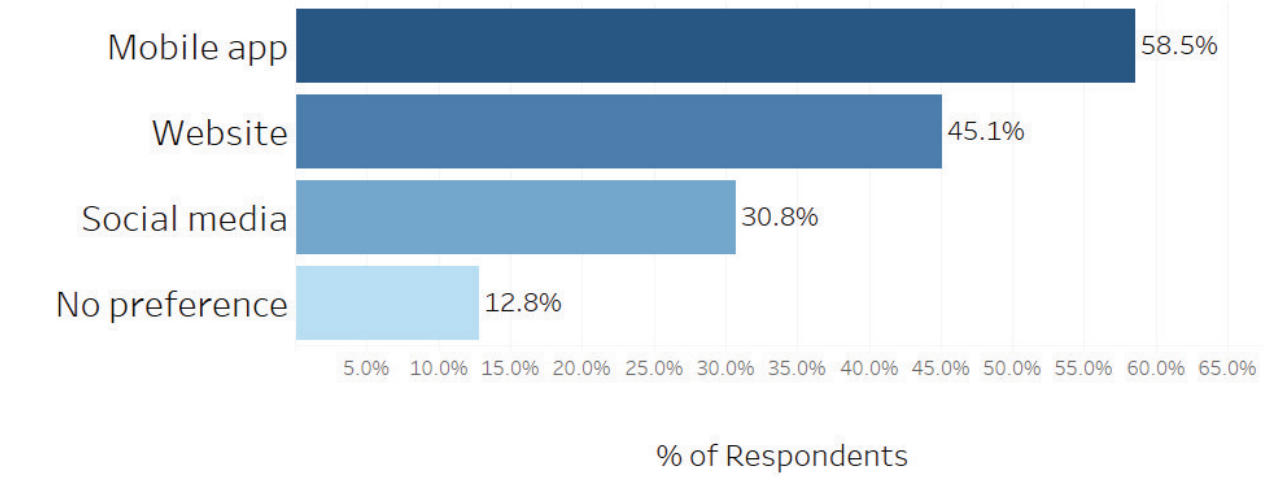
Broadcasters are still in a strong position with older generations but face a serious challenge in their weaker presence with younger generations who have moved their viewing to mobile platforms. The ATSC 3.0 standard was designed to enable broadcasters to compete for younger audiences by enabling the interactive mobile features younger consumers expect.

Fred Baumgartner, Director of Next Gen TV Implementation at ONE Media 3.0, notes that "Audiences for television network news tend to be in a somewhat older demographic, while many younger people rely on Web-based news sources. Media audiences are increasingly fragmented. No single source of information can be expected to reach everyone. Other things to bear in mind are the digital divide and cord cutting. Broadcast media still serves those Americans who cannot afford cable or broadband streaming services. Some cord cutters are 'rediscovering' broadcast television. These are important audiences for TV news that the statistics don't completely reveal."

John Lawson expanded on the consideration of senior citizens: "This age breakout measures where different age groups initially go to find critical information, but this view does not illustrate where the threats most frequently fall. Emergency managers know that the most at-risk populations are in the elderly demographics. During a flood, fire, or critical weather situation it is the older demographics that are most at risk."

Finding #7

The most preferred way American consumers want to receive emergency information during a local emergency is through a mobile app



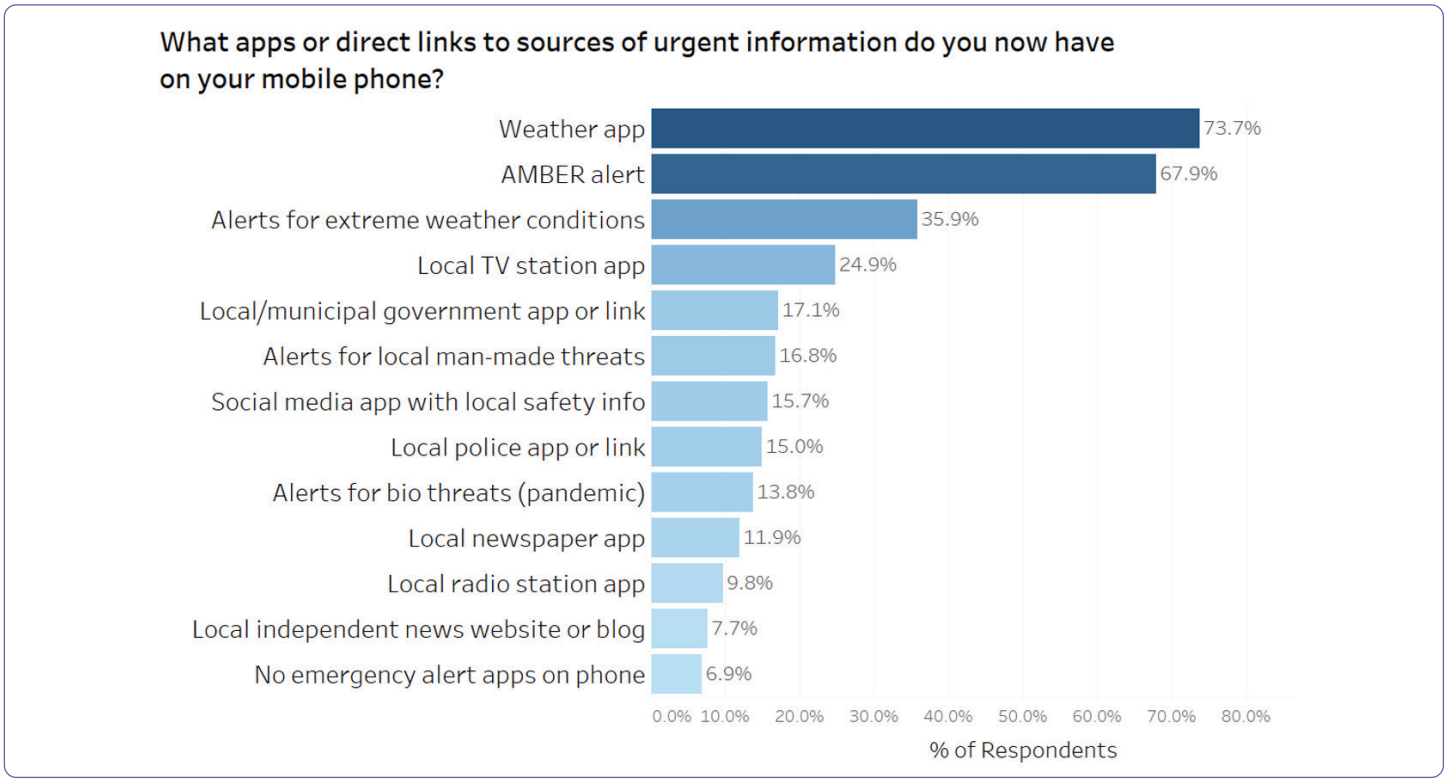
Almost 59% of respondents reported that they would like to receive urgent information during a local emergency through a mobile app, followed by websites (45.1%), and then social media (30.8%).

Pete Sockett sees all three of these options as critical: “At WRAL-TV, we consider all platforms we distribute news to as equal. During an emergency, we make sure the same information hits our transmitter, website, app, and social media at the same time. We need to be everywhere our viewers are and want to be the first place viewers see our news, no matter what platform they are on.”

Due to the expense and complexities involved, instead of building their own app, some organizations look to integrate their emergency messaging into the apps of others. According to Mark Annas, Emergency Services Administrator, City of Riverside (CA) Fire Department - Office of Emergency Management, “At the local level I don’t know if a mobile app would be the first point of contact with our emergency managers because of the opt-in nature of apps. One of the broader issues is to get other apps and other services (e.g., online gaming, streaming) to pass along emergency information that could bring people back to our official information sources.”

Finding #8

Aside from weather and AMBER alerts, most American consumers have few apps or direct links to emergency information on their mobile phones



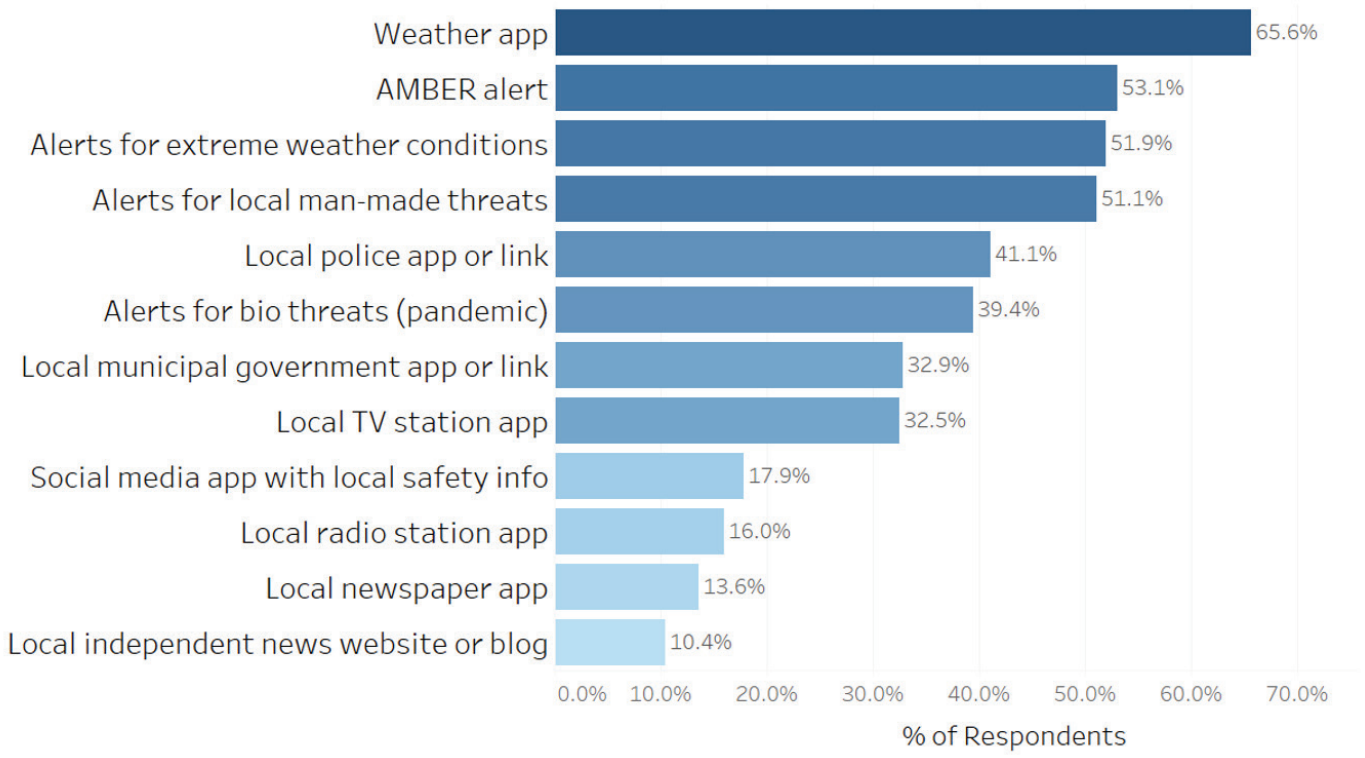
An earlier finding in this study revealed that American consumers turn first to their mobile phones after hearing of a credible local threat (and second to TV news). But when American consumers were asked which dedicated emergency information apps they have on their phones, only two apps had a majority presence: AMBER alerts (73.7%) and weather apps (67.9%), both of which come pre-installed on most mobile phones sold in the US. The AMBER alert is required by Federal law and a weather app is often installed by the device maker or carrier before purchase.

This finding indicates that the only dedicated emergency information apps that a majority of American consumers have on their mobile phones come pre-installed at the time of purchase. There are hundreds of emergency alert and communications apps available from online app stores. There is also likely an emergency management center run by a government agency in the city, town, county, or state where most consumers live. Why are so few of these apps on the mobile phones of American consumers?

Help could be on the way. Part of the ATSC 3.0 roadmap includes a convenient way for American consumers to add access to emergency information sources and manage them. Full implementation of this function could encourage more Americans to add emergency apps to their phones and stay safer.

Finding #9

American consumers would like to add specific new emergency apps to their phones if it were more convenient, including alerts for local man-made threats and police activity, bio-threats, local government, and local TV



Just because American consumers currently have few emergency information apps on their mobile phones doesn't mean they don't want them. There are many local threats that citizens are concerned about that would motivate them to add a mobile app if they had a convenient way to do it.

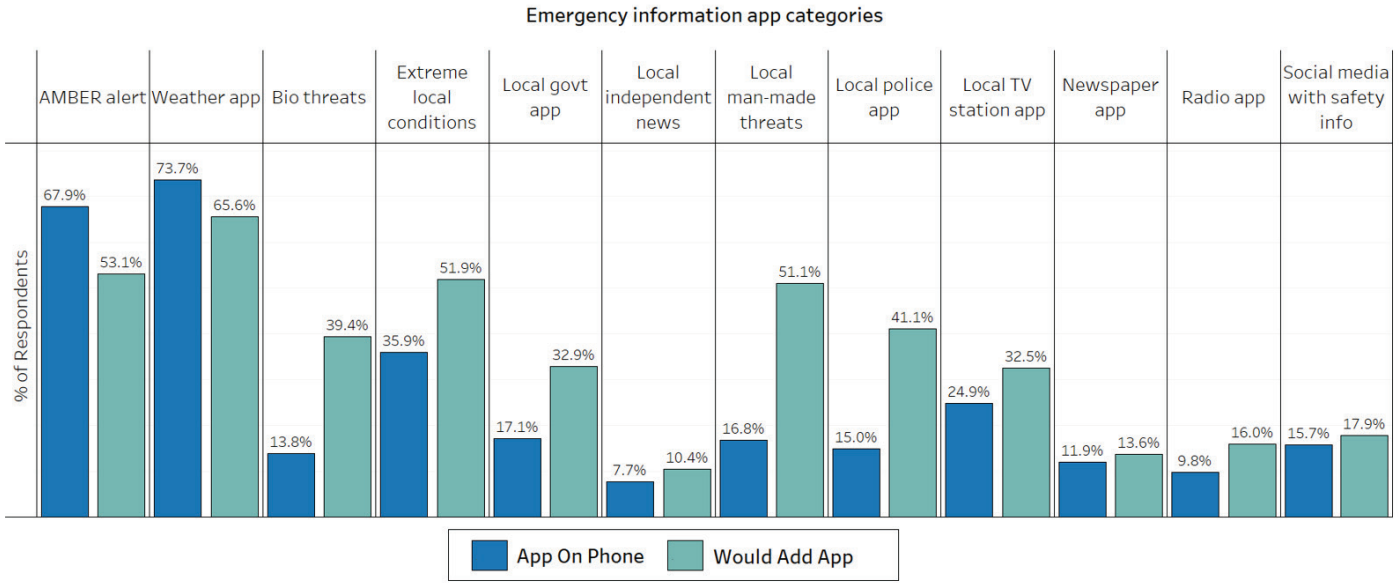
Given the same list of app options as in the previous finding, American consumers were asked which ones they would add to their phones if it were more convenient to do so. Their choices included apps for dangerous local weather conditions (tornadoes, hurricanes, floods, forest fires and extreme cold); a local police app (crime, local safety alerts), man-made threats (terrorist attack, active shooter, industrial accident), and biological threats (pandemic/Covid 19, infections, and bioterrorism), as well as apps for local media and government.

The bar chart above shows the percentage of American consumers who would add each app if it were convenient to do so. The top six apps listed could easily be enabled with ATSC 3.0 implementation.

Finding #10

A comparison between emergency apps that American consumers now have on their mobile phones and apps they would like to add shows potential for new services

Side-by-side comparison between American consumers who now have emergency information apps on their phone and consumers who would like to add those apps

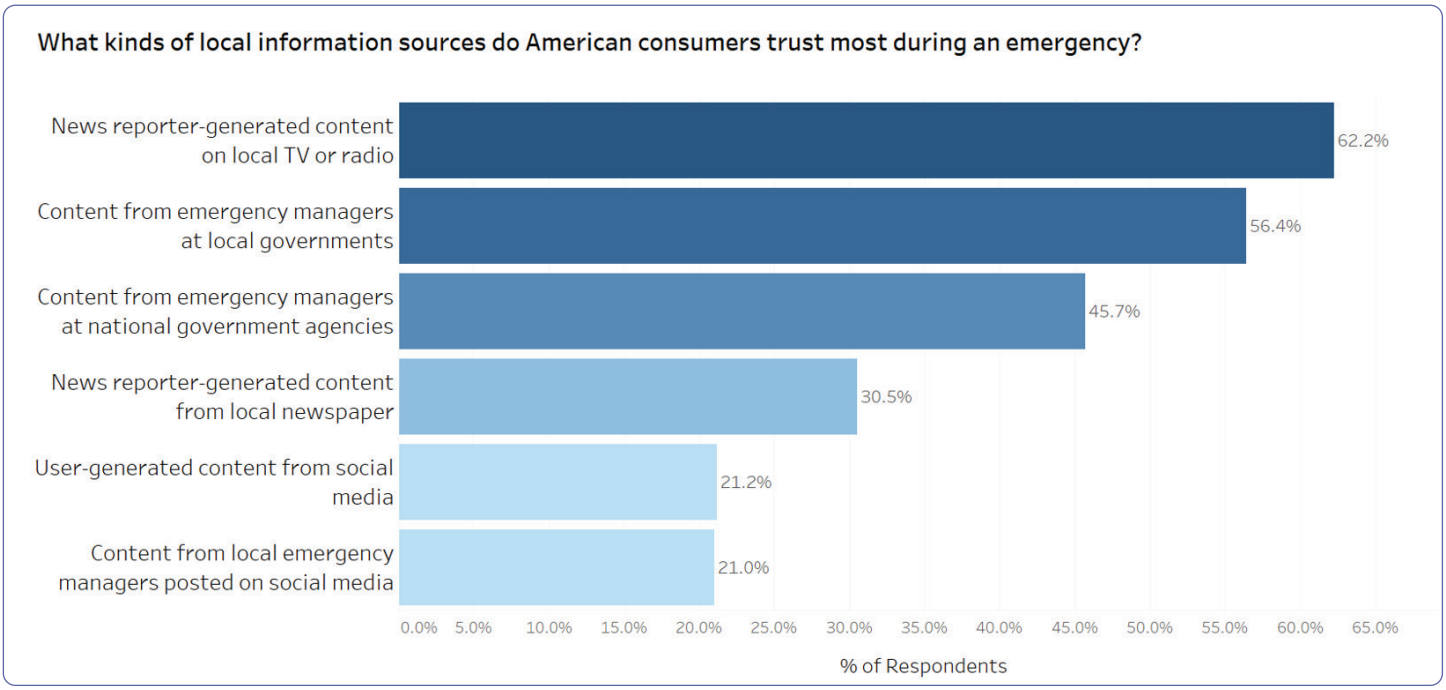


This finding emerged from a comparison of data from the previous two findings (Findings #8 and #9), comparing which apps American consumers now have on their mobile phones with which apps they would add if it were convenient to do so. New opportunities would most likely emerge in app categories in which a low percentage of consumers currently have the apps on their phones, with a high percentage of consumers wanting to add them. For example, on the following list, in the top two app categories, three times as many consumers reported wanting to add the app as those reporting they already have it:

- Local man-made threats (terrorism, active shooter, industrial accident): 16.8% already have an app; 51.1% would like to add one
- Bio threats (pandemic, bioterrorism): 13.8% already have an app; 39.4% would like to add one
- Local police app (local crime, community safety) 15.0% have an app; 41.1% would like to add one
- Extreme local weather conditions (tornado, hurricane, flood, forest fire, extreme cold): 35.9% have an app; 51.9% would like to add one
- Local municipal government app: 17.1% have an app, 32.9% would like to add one
- Local TV station app: 24.9% have an app, 32.5% would like to add one

Finding #11

American consumers say their most trusted information source during a local emergency is news reporter-generated content from local TV or radio



American consumers see local broadcast news organizations as the most trustworthy information source to turn to during a local emergency. Broadcasters have the advantage of local anchors and news reporters who communicate daily with their community, while local and national emergency managers have an elevated level of public visibility only when there is a crisis, which is hopefully infrequent.

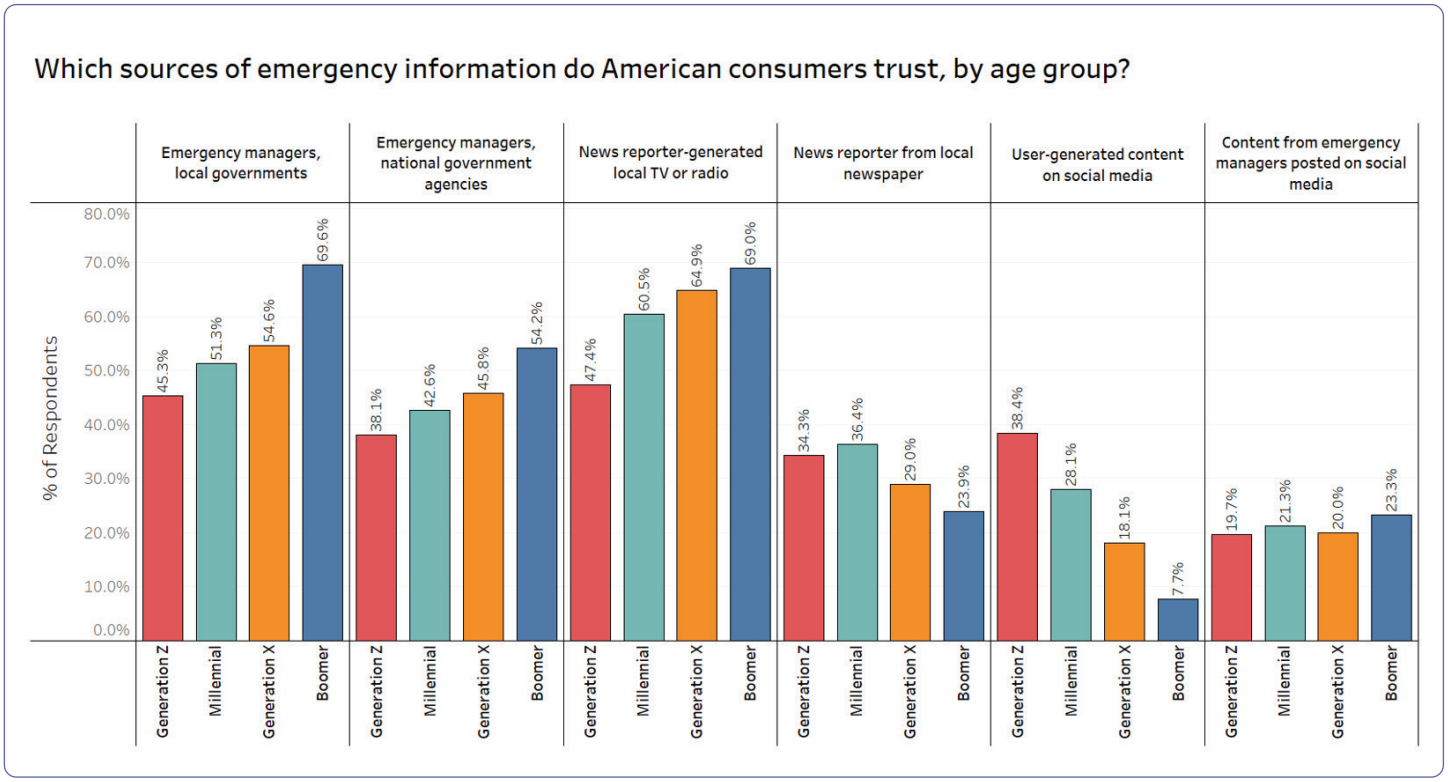
When a local emergency impacts a community, the pre-existing trust American consumers have in the information sources serving them is critical. Says John Lawson, “The research of Dennis Mileti tells us that the first time a consumer sees an alert it is important that they know where it comes from. If they do not recognize the branding of its source, they will keep milling around looking for a completely credible source. This finding shows that consumer sentiment is consistent with Mileti. Alerts that go out with branding that is clearly recognizable on the local level will have the most impact.”

One of the information sources respondents were asked to rate their trust level for was content from local emergency managers posted on social media. This was included because several social media services, including Facebook and Nextdoor, offer relationships with local emergency managers to post information directly on their platforms.

Survey results showed that the same content, when posted on a government website, carries about twice the trust level as when it is posted on social media. While 56.4% of American consumers find content from local emergency managers at government sources trustworthy, only 21.2% of content from local emergency managers posted on social media was seen as trustworthy.

Finding #12

Tabulating trust scores for emergency information sources by age group offers more perspective on the leading role local broadcasters play, and on the rising presence of social media



Two findings emerged by breaking out the data from the previous finding across the four adult age groups included in this study. The first finding is that the overall highest levels of trust again went to local broadcasters. Broadcasters earned the highest trust scores across the three younger age demographics (Gen X, Millennials, and Gen Z. Trust scores for the oldest demographic (Boomers) were a close tie between local broadcasters and local government emergency managers (local broadcasters, 69.0%, local emergency managers, 69.6%).

The second finding is that trust scores for user-generated content on social media sites are rising. While American consumers' level of trust for social media is generally still lower than for emergency managers and traditional media, social media is trending upward. On the bar chart above, moving from the oldest age group (Boomers) to the youngest age group (Generation Z), there is a slow but steady decline in trust for traditional media and local and national government sources, but also a steady rise in trust for social media. Although the 38.4% trust level that Generation Z has in social media content is still below Gen Z's level of trust for news-reporter-generated broadcast content (47.4%) and content from emergency managers at local governments (45.3%), the numbers are getting closer.

Finding #12 continued

Tabulating trust scores for emergency information sources by age group offers more perspective on the leading role local broadcasters play, and on the rising presence of social media

A comparison of trust scores between the oldest and youngest age groups highlights the contrast between generations:

- **Emergency managers at local governments: Boomers, 69.6%; Gen Z, 45.3%**
- **Emergency managers at national governments: Boomers, 54.2%; Gen Z, 38.1%**
- **News-reporter-generated local TV or radio: Boomers, 69%; Gen Z, 47.4%**
- **User-generated content on social media: Boomers, 7.7%; Gen Z, 38.4%**

With social media on the rise, both broadcasters and local emergency managers are looking for ways to use it to their advantage. Jim DeChant sees social media as an opportunity for broadcasters to expand their news coverage and engage their viewers: “When a local emergency occurs, we find social media is helpful to our news operations in the early stage. We might not arrive first on site with our news crew, but we can use the most credible social media information in our news casts until we do. On an ongoing basis, we encourage our viewers to participate with our station’s social media and reward participants by calling attention to them on air. When an emergency comes, we hope viewers remember this and post on our social media.”

Mark Annas sees an opportunity on the local emergency management level to connect with local social media participants: “For some, the social media micro influencer is a key place for younger people to get their information. For these social influencers it is not about having a million followers. Some have 2,000 followers. Emergency managers need to know if they have micro-influencers in their community and reach out to them on a steady-state day to see if they can help get information out during an emergency.”

Fred Baumgartner observes that “Local news media is better at covering issues Americans contend with in their daily life. It stands to reason that this strength translates into trust, particularly when it comes to information during local emergencies and urgent situations.”

A Market View from NVISA Chairman and Executive Director Ed Czarnecki



The marketplace has seen the attention of consumers shift from traditional media – broadcast radio, TV, and cable TV – towards mobile devices, social media, and local digital media. Likewise, with the prevalence of mobile technology and social media, consumers have been rewired in terms of how they receive emergency information, and particularly emergency alerts. Mobile devices are now becoming a common mode of receiving an initial alert, particularly in the case of an official warning from public safety authorities.

At the same time, broadcast media continues to serve as the first source of emergency information beyond the confines of official warnings such as those that come from the Emergency Alert System (EAS) for broadcast, or the Wireless Emergency Alert (WEA) system to mobile phones. Broadcast media continues to be the prevalent first source of information for a broad range of local emergencies and urgent situations that frequently are not conveyed over "official channels."

Moreover, after the first notification of an urgent situation is received, the search for additional information takes on another dynamic – the search to confirm the initial alert that was first received and obtain additional pertinent information.

The role of television broadcasters remains a strong one in this new environment. Although that role differs somewhat by age demographic, our research shows a continuing importance of television broadcasters as a "go to" information resource for American consumers. As you will see in this research, while smartphone use is frequently the "first stop" in receiving an urgent message, the consumer then turns to other media – notably television – to confirm what they have heard and get the more detailed information.

At the same time, we see clear indications that consumers want the types of rich information traditionally provided by television broadcasters, combined with the technology features of social media and mobile apps, all available on their mobile device. Consumers want the ability to personalize the types of urgent information they receive. With an understanding of these changes, the NextGen broadcast ATSC 3.0 standard incorporates features to create a new broadcast-based emergency information sharing service. Broadcasters still embrace their central role as "first informers" during all manner of local emergencies. This new "Advanced Emergency Information" service that is integrated into the NextGen broadcast platform will take advantage of the unique ATSC 3.0 wireless transmission system and combine it with local TV newsroom content placed on a consumer customizable platform.

The basic idea is to create a new urgent communication system that goes beyond just alerting, to also include newsworthy urgent information as well. Combining a new advanced wireless transmission system, with local TV news, on a modern consumer customizable platform is the core of the "Advanced Emergency Information" service - Advanced Emergency Information.

The addition of an advanced emergency messaging capability and the accompanying rich-media emergency information represents a compelling application for ATSC 3.0. The ATSC 3.0 Advanced Emergency Information service enables broadcasters to deliver timely, in-depth, emergency related information to their viewers. A major benefit of the ATSC 3.0 Advanced Emergency Information system is the ability of the broadcaster to push a wide range of relevant information and media to the receiver. This additional information can be in the form of pictures, video, documents, and web pages. It includes a "wake-up" function that allows receivers in stand-by mode to detect when an emergency message has been initiated by a station. In addition, viewer customization options are possible with the advanced emergency messages, which allow the individual viewer to control many features such as opting into categories of urgent information he or she wishes to receive, set quiet hours, select language preferences, and much more.

Embracing innovation will drive a substantial difference in the broadcast market, the services provided by broadcasters, and ultimately consumer adoption of those services. We are already seeing pioneers using ATSC 3.0 to develop new, creative experiences, and this includes important community services like Advanced Emergency Information. Broadcasters that are innovating now with applications like Advanced Emergency Information may be positioning themselves to stand out ahead of the curve in a competitive market.

Edward Czarnecki, Ph.D., Chairman, NextGen Video Information Systems Alliance
https://www.nvisa.org

Survey Methodology



This study involved two surveys: A pre-survey with 501 responses used to design the questionnaire for a second, larger survey which collected 2,089 completed responses to generate the results in this report. To assure unbiased responses, respondents were not told that a broadcaster and a broadcast association had sponsored the survey. Instead, they were informed that the survey was helping the launch of a new local public safety and emergency app that would have several unique features (which is true).

Why did we need a pre-survey? There have been so many changes, in recent years, in how emergency alerts and information are shared and received that we wanted to be sure of designing questions with answer options that American consumers would feel were most relevant to their experience. The pre-survey consisted of five open-ended questions of which American consumers could write in what they believed to be their most viable options during a local emergency.

The first open-ended question asked respondents to name the one place they turn to first for emergency information during a local threat. After analyzing all the written-in responses, six “first stops” emerged: mobile phones, television, websites, social media, radio, and Google. Some consumers use their first stop as a point of orientation (mobile phones, Google) while others go directly to an information source (website, television).

The second open-ended question in the pre-survey asked American consumers to write in the names of emergency information sources they visit. Mobile phones and Google did not make the cut in this pre-survey question and so were not included as options in the question on emergency information sources that appeared in the main survey.

Both the pre-survey and final survey were conducted in 2021, with final analysis completed in December 2021 for release in January 2022.

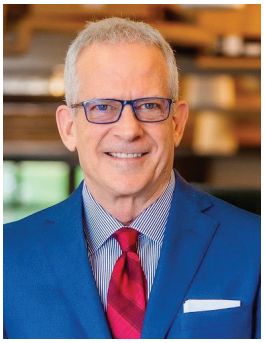
By taking a consumer-centric approach to designing the questionnaire, we were able to expand the understanding of what happens after an American consumer hears about a local threat and begins their search for emergency information.

Josh Gordon, Research Project Manager and President, Josh Gordon Group

https://www.JoshGordon.com

JOSH GORDON
GROUP

A Word From AWARN



The Case for an ATSC 3.0 Advanced Emergency Information Service is a highly important achievement in the drive to use ATSC 3.0/NEXTGEN TV to improve emergency alerting and informing in the United States and around the world. I commend Sinclair Broadcast Group/ONE Media 3.0 and NVISA for conducting this vital work. We in the AWARN Alliance were happy to be included by Josh Gordon in preparing the study and evaluating the results.

The findings in The Case for ATSC 3.0 are uniquely valuable for AWARN, which operates at the intersection of policy, technology, social science, and emergency management for the development of next generation emergency messaging. We are answering the "what" question about advanced alerting, while our tech members, such as SBG/ONE Media 3.0, are answering the "how." ATSC is also a close technical partner in this critical division of labor.

Prior social science tells us that while people usually don't panic in emergencies, they do delay in responding to alerts – delay that can be fatal. This "milling" is caused when people seek confirmation or more complete information. The powerful geo-targeting, rich-media, and mobile capabilities of NextGen TV can reduce milling and save lives. The research in The Case for ATSC 3.0 is uniquely valuable in guiding us and our alerting partners in how best to use those capabilities, the "what" of advanced alerting.

We have been pleased to share the survey widely, including distribution to the AWARN Advisory Council of the nation's largest alert originators and our partners in the AWARN roundtables in Santa Barbara and other cities. And of course, no one will make better use of the findings than our own AWARN Alliance members – the steadfast companies, organizations, and people who are making advanced emergency messaging possible.

Sincerely,

John M. Lawson, Executive Director, AWARN Alliance

AWARN™
Advanced Warning and Response Network

https://awarn.org/

AWARN, the Advanced Warning and Response Network (AWARN) Alliance is an international coalition of broadcasters, consumer electronics makers, B2B tech companies, and trade associations. AWARN operates at the intersection of policy, technology, social science, and emergency management for the development of NEXTGEN TV emergency messaging powered by ATSC 3.0

A Public Safety User Case for Advanced Emergency Information Services



While the user cases discussed in this report relate to the needs of the American consumer, America's public safety professionals (e.g., police, fire, EMS, and related disciplines) can also benefit from an ATSC 3.0 Advanced Emergency Information Service. Features offering benefits might include:

- One-to-many broadcasting capability (datacasting, e.g. multicast not unicast)
- Geotargeted alerts or warnings to those in the path of danger
- Ability to "wake up" phones, tablets, TV sets and other ATSC 3.0-enabled devices to display emergency information
- Inherent video capability
- Ability to convey rich multimedia to supplement warnings with added information (such as evacuation maps)
- Interoperable end-to-end IP-based solutions
- Potential for a terrestrial-based GPS/position navigation timing (PNT) system
- Opportunity to take advantage of the robustness and resiliency of the broadcast infrastructure

As all the above capabilities listed can be leveraged and/or initiated by an authorized public safety organization, use at the organization level could be very valuable. For example, the ability to wake a device that is off and geotarget an alert of an impending hazard is an important for public safety.

Additionally, this new emergency information service is secure. All content can be targeted to individuals or groups and not be viewed by non-authorized users. The service supports messaging, alerts, file delivery, and even live video. Inexpensive TV data receivers can be connected to existing laptops and networks to reach phones, tablets, and other devices already on those networks.

The broadcast television spectrum this system is based on is video capable, allowing the ability to convey video of a disaster scene in near real time. Broadcast television operates on licensed spectrum and has the advantage of decades of infrastructure investment built on providing broad, reliable wireless coverage to viewers. While not as well-known as other digital networks, this form of datacasting has been used successfully by public safety organizations for decades.

Broadcast delivery provides a complementary "off-network" data communications path that is increasingly relevant given the ongoing cyber-attacks on public communications infrastructure. TV broadcast infrastructure is already in place, hardened, and redundant. It integrates seamlessly with other IP networks and is very cost-effective to add to your communications strategy.

Authors: SpectraRep President Mark O'Brien (mobrien@SpectraRep.com) has been a pioneer in developing public safety uses for broadcast spectrum, working with public television since 2000. Public safety and transportation technologist John Contestabile (jcontestabile@skylinenet.net) has been a technology innovator since his time as Program Manager at Johns Hopkins University Applied Physics Laboratory where he supported DHS-S&T, and recently as Director of Public Safety Solutions at Skyline Technology Solutions.

About NVISA

The NextGen Video Information Systems Alliance is an international industry consortium committed to accelerating the development and practical implementation of innovative approaches to advanced information services - including emergency communications - in NextGen broadcast and OTT systems.

Our vision is for the industry to provide video services providers with strong value through innovation and collaboration on advanced information services, including Emergency Alert System compliance, value-added Advanced Emergency Information services, accessibility requirements embodied in the Twenty-First Century Communications and Video Accessibility Act (CVAA). and specialized services for first responders and the public.

For more information visit: https://www.nvisa.org/about

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– WKAR, Public Media from Michigan State University

For company details go to https://www.nvisa.org/members-1

About ONE Media 3.0

ONE Media 3.0 was established to build and deploy the “Next Generation Broadcast Platform,” enabling broadcasting to be competitive across all platforms. Solving the associated business, technical, and political challenges while supporting mobile video broadband services (wired & wireless) provides for the greatest business opportunity in the broadcast / communication / media industry today — providing premium video anytime, anywhere without a data cap.

Visit the ONE Media 3.0 website at https://onemediallc.com/

Visit our content archive site at https://www.atsc3advocate.com/

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What Do Younger Viewers Want From Local TV News?

Comparisons between the four age groups comprising the US local TV news audience

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The Case for an ATSC 3.0 Advanced Emergency Information Service