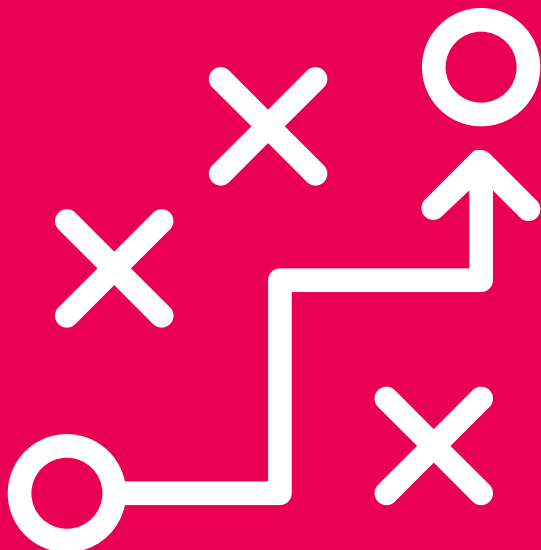
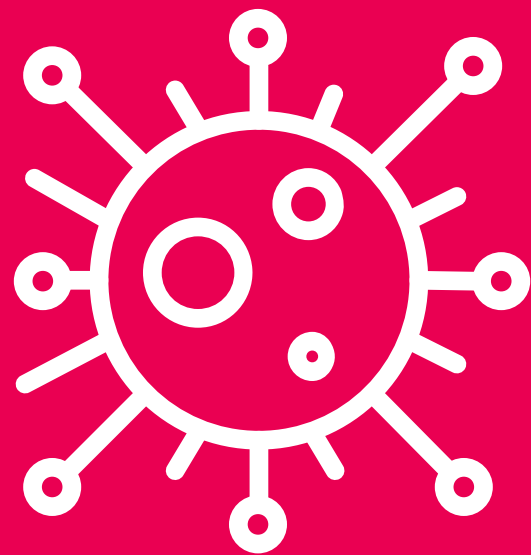


Virtual EOCs and the Pandemic: Lessons learned from COVID and strategies for improving emergency operations



How COVID changed emergency operations

Gone but not forgotten are the early days of the pandemic, especially for frontline workers.

Healthcare workers in overburdened hospitals did their best to treat patients of the then-novel coronavirus – often without the necessary protective equipment. The result was high rates of infection among healthcare workers.

Healthcare, however, wasn't the only frontline sector deeply affected by the pandemic. Public safety, emergency and disaster response were, as well.

For decades prior to the pandemic, incident command had become increasingly clustered in physical emergency operations centres (EOCs) – centralised locations where decision makers congregate to guide emergency response and recovery.

Amid a novel respiratory virus, something had to change to prevent person-to-person transmission.

Required, instead, were virtual modes of emergency operations, especially after the pandemic forced many physical EOCs to go remote, often for the first time¹.

The uneven evolution of digitalisation in emergency management

The digitalisation of emergency and incident management tools, practices, and processes, well underway before COVID, could facilitate some of that transition – but not all.

As practitioners soon learned, many of their digital deployments were limited. More specifically, the tools they had procured, so-marketed as virtual EOCs, only served to collect data from the field.

Indeed, the solutions lacked the necessary capabilities to make that collected information actionable, to create a real-time common operating picture (COP).

Agencies were also stymied when they tried to adjust their processes and procedures to meet the needs of a major incident response.

Challenges to virtual emergency operations persist

Even as some of the severe risk of COVID attenuates, the need for well-functioning virtual EOCs persists.

Meeting the needs of remote users won't be easy, though; remaining are clear challenges to EOCs operating in the virtual environment.

The challenges include:



Lack of responsive design.

Formerly, software platforms only had to deliver a mobile-friendly experience – one that works for mobile users out in the field. That's no longer the case.

Mobile-friendly, designed with desktop users in mind, is not actually optimised to mobile users.

As the public safety sector has learned, the less user-friendly any aspect of the emergency management platform is the more time, effort, and money the organisation spends on training and administrative overhead to get mobile users up to speed.



Poor usability.

Of course, responsive design only covers one aspect of the usability challenge confronting EOCs in the virtual environment.

Too many practitioners still complain that their platforms lack basic usability. They feel stiff, even painful.

Again, the research suggests that it's not a specific feature set but great user experience that drives software adoption. Conversely, poor user experience lowers adoption.

Where there is adoption, it's unwilling: use is grudging, users less willing to engage. And that's when you get users coming up with more effortful workarounds – enter Shadow IT.

Relatedly, new users are also cycling into emergency operations during incidents, many who have never been involved in an emergency response before. These users interact with the emergency management platform; and poor user experience makes training them that much harder.



Security and accessibility risks.

Poor usability and the resulting rise of shadow IT also present security risks for emergency operations that have shifted online.

State and non-state backed actors are keen to access the information stored in these platforms; nor are those actors adverse to impeding the operations themselves through nefarious actions.

Workarounds, like restricting permissions, tend to exacerbate usability and information-sharing challenges.

Digital EOCs also tend to be more dependent on public infrastructure. Without redundancy, that dependency increases accessibility risk. Even severe weather events have the potential to compromise local infrastructure for extended periods, limiting remote operations without reliable backups.



Poor configurability.

Another frustration with deploying emergency management software is the lengthy implementation cycle. It's not unheard of for cycles to take upwards of a year before users can deploy in the virtual environment – those systems already come with hefty price tags and overburden IT.

Not to mention, developers of those platforms often take a “take it or leave it” approach to their products, not allowing customers to make necessary customisations to tailor the platform to their unique needs.

Virtual EOC best practices to consider

Despite the clear challenges, models of best practice exist to improve the quality of virtual EOC deployments.

FEMAⁱⁱ, for instance, has published a set of virtual EOC best practices. They include:

- Establish activation, operation, and deactivation criteria, as well as processes and procedures with all virtual EOC partners and participants
- Define clear roles and responsibilities as part of an activated virtual EOC
- Conduct partner training and exercising in all relevant virtual EOC operations
- Ensure the requisite technology to support internet connectivity (web-based functions), voice and video conferencing, real-time status monitoring, alerts/notifications, and telecommunications, mobile/radio communications is available and operational around the clock
- Monitor, track, report, and maintain other documentation on event status, personnel tracking, staging, deployment, and tracking of resources
- Incorporate lessons learned in ongoing comprehensive virtual EOC planning and coordination

As noted, the right software is key in implementing these best practices. Most significantly, the solutions in question must be able to overcome the common challenges to digital emergency operations listed above.

To that end, we recommend looking for the following benefits:



Ensure responsive design.

Such an experience responds intuitively to the screen size of the device being used. With responsive design, the layout of the site just scales from smaller screens (on mobiles, tablets, and small laptops) to standard desktop screens, and even to the larger, widescreen monitors popular in physical EOCs.

The value of this approach is it gives organisations the flexibility and usability that ensures mobile users log all their activities, updates, and decisions in the field. Which, in turn, saves you valuable hours reconstructing events for an after-action review and increases the likelihood of government reimbursement during the recovery.

**Improve usability.**

What else improves user experience? One of the biggest drivers of improved user experience is frontend workflows that support key emergency response tasks, keeping staff focused on the response instead of the paperwork. Here, workflows should include:

- Escalating emergency warning to incidents, and tracking those incidents through their entire lifecycle
- Automatically alerting situationally appropriate stakeholders through helpful message templates
- Creating Incident Action Plans (IAPs)
- Requesting and tracking resources as well as assigning tasks
- Capturing relevant information through forms tailored to specific roles
- Mapping incidents, resources, assets, critical infrastructure, etc. to gain a bird's-eye view of a situation
- Assessing Community Lifelines to ensure stability of lifesaving public services

**Fits your needs not the other way around.**

The easy-to-use, drag-and-drop capabilities of no-code emergency management platforms enable organisations to make mid-incident configurations, quickly creating new data models for any kind of information desired, by just dragging and dropping fields into a new object.

That same “designer” feature-set allows agencies to create forms to present the new data in a friendly way for users. From there, workflow builders tie everything together – helping organisations plan out new business processes for what should happen when different trigger events occur, then using automation to accelerate the response.

Nor is the benefit, here, just agility and the ability for organisations to better adapt and respond to changes. Low and no-code development also make software development itself as much as 10 times fasterⁱⁱⁱ.

What's more, no-code platforms come with easy-to-implement APIs and connectors, to integrate with third-party tools that organisations already use.

Users, therefore, enjoy a frictionless experience through multiple touchpoints. And organisations don't suffer through time-consuming deployments.

**Secure.**

The rising number of cyberattacks on public and private-sector targets means organisations should carefully consider the data security and integrity credentials of their emergency management vendors, even if they're already doing due diligence.

Here, ISO 27001 certification and Information Security Registered Assessors Program-auditing are good markers of a secure solution.

Innovations to improve emergency operations in the new normal of COVID-19

What sort of solution, then, captures all those capabilities, enabling organisations to deploy in the virtual environment seamlessly? Only a truly digital EOC can provide organisations all the information and tools needed to manage any incident, big or small, effectively through its entire lifecycle of mitigation, preparedness, response, and recovery.

But there's more. Another lesson learned from COVID is that communities of best practice, be they intergovernmental organisations, government agencies, or non-for-profit associations, will update their best-practice guidance quickly.

Platforms must give users updated access to those best practices. For, not only is that capability important for responding to fast-moving emergencies, like the pandemic, but building disaster resilience going forward.

The technology innovation, here, are software platforms that operationalise best practices in digital form. That way practitioners logging into the EOC (physical or virtual) get a clear understanding of what's going on and what they need to do in their role, as well as have the tools in front of them to undertake their role immediately.

Such a platform will support a variety of EOC structures, whether best-practice Incident Command System (ICS) or Australasian Inter-Service Incident Management System (AIIMS), departments operating in the context of normal relationships, or customised structures that don't follow ICS or AIIMS at all.

What's more, the solution must also keep everyone involved in incident management, from managers to untrained field staff, following the same plans, communicating on the same platform, and viewing the same operating picture. Capabilities to consider include:



Manage all emergency information, communications, plans, and tasks.

The platform should run exercises or respond to incidents including hurricanes/cyclones, floods, fires, earthquakes, hazmat spills, cyberattacks, epidemics, riots, terrorism, transport accidents, and dozens more.

Need to stand up your EOCs – be they at the local, regional, state, or national level? The solution should help there, too, wrapping up multiple related local incidents into a single regional one and providing interfaces fully tailored to the role and level of the user.



Establish incident management teams and manage emergency resources.

The solution should also create flexible resource assignment structures that can be filled and activated when needed.

The platform should make it easy for staff to quickly request or confirm shifts from their mobile devices and work in a digital 'room' of your EOC, with dashboards and collaboration spaces provided for emergency teams such as command, operations, planning, and logistics.

It should also be easy to set up a dashboard with just the tools your team needs. From generators to fire engines to sandbags, you should be able to represent and track any type of asset in the system, using drag-and-drop designer tools.



Gather intelligence and maintain situational awareness in every scenario.

Need to create a common operating picture via field personnel updates, GIS feeds, data import, email, and social media? Who doesn't.

The solutions should help, there, too, displaying that COP via comprehensive dashboards and incorporating additional tools from across the internet at any time.

As an incident progresses, you should be able to track the latest Community Lifeline status or any other key metrics. Not just that: keep an eye on critical infrastructure with dedicated tools such as crowded place and impact assessments; support your mitigation activities with risk matrices and critical infrastructure protection tools; and identify at-risk areas and facilities both before and during incidents.



Visualise locations of incidents, people, and assets.

The solution should always keep track of your assets, by incorporating Esri ArcGIS, WMS, KML, GeoJSON, or other sources to view asset locations in the context of weather threats and critical infrastructure.

The solution should also help teams quickly find the closest available resources by tracking resource and incident locations. Virtually any system object should be geospatially tagged.



Command, coordinate, and collaborate with teams.

You need to communicate with staff and volunteers anywhere, whether they use a web browser or iOS and Android apps.

The solution should help. Every dashboard on desktop should automatically resize for mobile devices, making all the same tools available on the go.

That's not all. The solution should also help clarify the appropriate duties, education, training, license currency, and equipment for each role using templates, as well as activate plans with role responsibilities for different ICS positions, action plans for different roles for each stage of the planning "P", pandemic response plans, and more.

The solution should also facilitate designing your own plans.



Produce reports and briefings and communicate alerts, notifications, and updates.

Need to prepare custom sitreps, briefings, objectives, incident action plans, or use built-in Incident Command System forms? The platform should help, with automatic population of fields with default or calculated values to reduce error and save time.

The solution should also facilitate communicating incident information (or anything else) via email, SMS, voice message, push notifications to a mobile device, or within the app itself. Included should be response links like "I need help" or "Everything's ok" that workflows will follow up on.

The platform should enable you to produce better after-action reviews and disaster grant requests, ensuring that emergency response records aren't spread across a multitude of independent products.

Finally, COVID was a game changer when it came to emergency operations. Organisations had to pivot when in-person meeting wasn't possible or optimal. Digitalisation trends could facilitate some of the virtual transition but not nearly enough.

Today, too many challenges still stand in the way; and too many solutions complicate more than they enable.

Certain next-gen software solutions, however, apply lessons learned from the COVID experience to every aspect of emergency and disaster management. Designed by best practice, these easily configurable, digital EOCs give all customers the requisite critical event management functionality to keep the whole team following the same plans, communicating on the same platform, and viewing the same operating picture – from any place or device.

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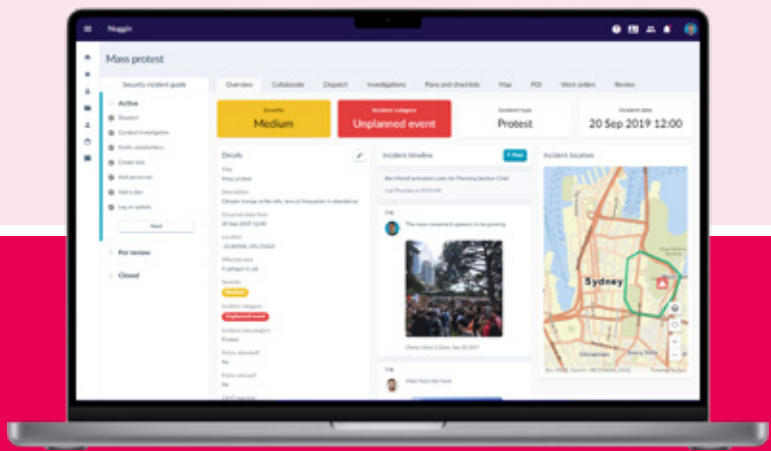
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