

A woman with long dark hair, wearing a white surgical face mask and a yellow long-sleeved shirt, is sitting at a desk. She is looking down at a laptop in front of her, with her hands on the keyboard. In the background, a blurred office environment is visible. The image is overlaid with a semi-transparent grey triangle on the left side, which contains the text.

A Successful Return
to Work Strategy:
Contact Tracing
and Beyond



When Considering Contact Tracing, Think Outside the Box

As the world begins the tenuous process of reopening economies following months of lockdowns related to the COVID-19 pandemic, contact tracing will be a critical part of the recovery process.

The purpose of contact tracing is well understood, but there are many misconceptions about how it works, who it should apply to, and how to implement it. This white paper is intended to clarify these issues and recommend additional capabilities business and government organizations should consider when selecting contact tracing solutions.

Many organizations will find reopening to be the most complex project they have ever managed. There is no blueprint for coordinating such a task on a global scale, particularly when the impact of the pandemic has been so variable. Each country is at a different stage of recovery and individual states and regions within those countries are also formulating their own guidelines and milestones.

The global nature of modern supply chains requires even localized organizations to take a big-picture view. Leaders must be conscious of rules that impact customers and employees who live elsewhere, even in the next county, in some cases. Supply chains can be affected by lockdowns and border closings half a world away. Shipments may be disrupted by employee absence or illness. And for at least the next year there will be the overarching threat that new hotspots could throw regions into full lockdown again.

This is a complex process for even a small business to manage. For organizations with locations across multiple regions, the complexity is exponentially greater. How do we return to work when everything is changing not just from place to place, but from day-to-day?

Three Critical Elements of Returning to Work

Organizations that are preparing to reopen need situational awareness, which means knowing the relevant regulations and safety provisions of the regions in which they operate. These regulations are often different and changing as different geographies enter different phases of their reopening plan. They need the testing capabilities to know which employees are infection-free and thus able to return to work. If an infection occurs, they need to be able to identify who may have been exposed so that steps can be taken to prevent additional infections. Finally, they need the capability to dynamically adjust policies if the situation changes.



How do we return to work when everything is changing not just from place to place, but from day-to-day?

Three essentials of a successful return-to-work strategy, which apply to nearly every industry and geography:

1. Ensure stakeholders have a complete and timely view of risks impacting their assets, including changing conditions from COVID-19 other threats such as civil unrest and natural disasters.
2. Protect people by giving them actionable information about developments that impact them directly. Contact tracing plays a pivotal role in this process.
3. Develop a reopening strategy that provides for forward progress while also allowing for unforeseen setbacks and new COVID-19 outbreaks.



Manually picking and choosing from news and public health sources is an error-prone approach, particularly since misinformation flourishes during a crisis.

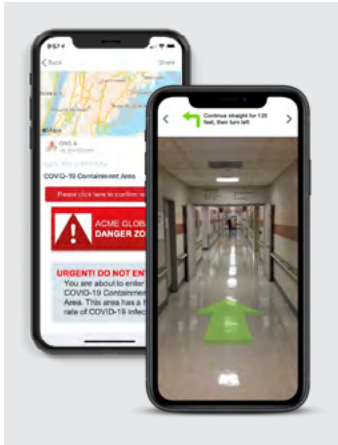
Addressing the first step requires gaining as much visibility as possible into the regions and entities that are relevant to the organization. This must include up-to-date information on the policies of local authorities and the populations they affect. Leaders should be prepared to answer such questions as the following.

- + Where are our people and what is their status? Can we contact them quickly?
- + What is the status of the regions in which we have a stake? What quarantines or curfews are in effect and what are the local schedules for reopening?
- + How are transportation lines affected for both goods and people? How do any bans or slowdowns affect the flow of goods and people that are meaningful to us?
- + Are there border or export restrictions that impact the organizations we do business with?
- + How well are supply chains functioning? What is the status of secondary and tertiary suppliers? Have any manufacturing facilities we rely upon been closed or converted to producing supplies to battle the pandemic?
- + How well are people complying with local restrictions? Is there evidence of civil unrest that could affect our operations or people?
- + How well-prepared are we to handle non-pandemic-related disruptions such as hurricanes and wildfires?

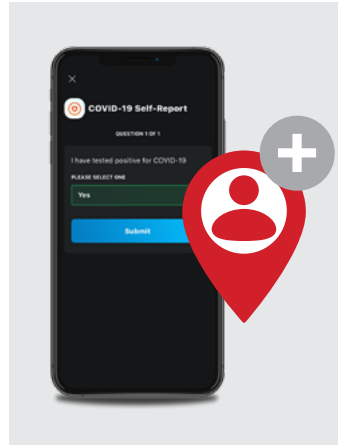
Even a small organization in a single location will be challenged to answer all these questions. Doing so on a global scale is all but impossible without automation. Manually picking and choosing from news and public health sources is an error-prone approach, particularly since misinformation flourishes during a crisis. A better strategy is to choose a single information provider that aggregates data from multiple sources into a single, de-duplicated, and categorized stream of real-time information customized to your needs.

There also needs to be a process that pairs the vital information with your response procedures that include: well-defined tasks, owners, due dates, metrics, escalation procedures, and audit logs. Structured response plans not only anchor a re-opening strategy, but also keep people safe by giving them the tools they need to return to work, diagnose, and report symptoms and take appropriate follow-on actions.

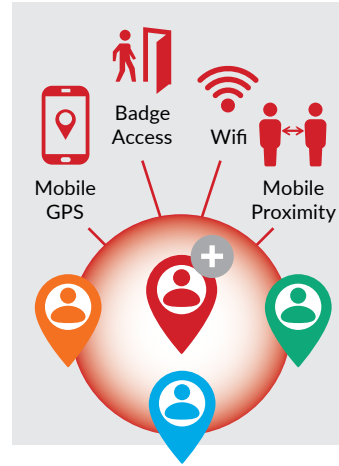
Keep People Safe



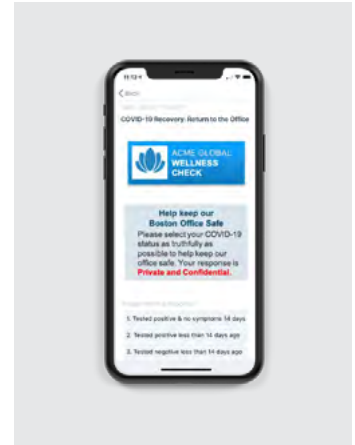
Identify Positive Case



Identify Potential Exposures



Manage Follow Up



Protecting People

Contact tracing is a set of techniques and tools that enable people and organizations to document contact between individuals in case one or more of them becomes infected at a later time. The process has limited utility during total shutdowns when nearly everyone is isolated, but it is crucial during the re-opening process when the objective shifts to isolated and selective response.



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Although identifying potential exposures and notifying affected people are the two essential capabilities of a tracing system, a more comprehensive solution includes tools to prevent new exposures as well as to guide people through the process of identifying symptoms, reporting test results, and managing follow-ups through resolution.

There are four essential steps to implementing end-to-end contact tracing:

1. **Keep people safe.** The first objective is to prevent people from getting exposed in the first place. This involves a variety of capabilities to keep people out of harm's way, ensuring they avoid areas of new outbreaks. This also requires creating a structured system of wellness checks, assessing an employee's risk profile, conducting temperature checks, testing for both infection and the presence of antibodies, and validation that tests have been performed.
2. **Identify positive cases.** People who test positive to COVID-19 should have the means to self-report their status, obtain ongoing tests, and enable employers and/or public health officials to track and audit their actions.
3. **Identify potential exposures.** A critical part of contact tracing is preventing additional exposures. Organizations need to be able to retrace the steps of people who have tested positive to determine who else might have been near them in the past.
4. **Manage follow-up.** Once people have tested positive, a mechanism needs to be in place to ensure that they are self-quarantining, have access to additional tests, and can consult with experts to guide them to any additional services they may require.



If a person tests positive, a mobile app can notify others with whom he or she has come in contact without revealing the identity of the infected person.

The two most common contact tracing techniques are manual tracing and mobile applications. In the manual approach, people call contacts of newly diagnosed patients, notify them that they are at risk, provide information about testing, and follow up to ensure that recommendations are being followed. While this approach may be practical on a small scale, it is prohibitively expensive and time-consuming for a crisis of COVID-19's magnitude.

The mobile app-based approach automatically logs a contact between two people running compatible apps. Currently, the most talked-about project is an app being jointly developed by Google and Apple that relies upon a proximity-based contact tracing framework. It's a powerful and sophisticated approach that uses Bluetooth Low Energy technology to automatically and anonymously log any occurrence in which two people pass within a specified distance of each other by placing an anonymized code on each phone and copying it to a central database. If one of those people subsequently tests positive, the app can notify others with whom he or she has come in contact without revealing the identity of the infected person.

Balancing Privacy and Health Safety

This framework was designed with a focus on individual privacy and is an excellent solution in that respect. However, its privacy protections limit the insights that public health authorities can glean from the data and the solution is not appropriate for situations in which the identity of users must be known, as may be the case in certain business scenarios. Furthermore, the solution requires users to download and run the mobile app, which, by definition, limits the universe of potential participants.

Proximity-based tracing can also be done with other frameworks that preserve privacy but provide more leeway in reporting useful additional information, such as the location and duration of an encounter. These frameworks ensure that only necessary information is stored centrally to permit public health organizations to map the pandemic's progression and identify potential hotspots before they develop.



PROXIMITY BASED TRACING



- + Leverage Google Apple Framework
- OR
- + Proprietary Framework

LOCATION BASED TRACING



Leverage many sources of location data to get most complete info

- + Mobile GPS
- + Wifi hotspots
- + Badge Access
- + Schedules
- + Calendars

AREA MONITORING



- + Prevent exposure
- + Monitor density to help maintain social distancing
- + Cellular network

Beyond Tracing for Corporations and Private Organizations

Proximity-based contact tracing is an important element of a comprehensive strategy to alert employees of potential exposures. However, it does require the employee to download the mobile app and activate Bluetooth for this purpose. There are two other approaches to contact tracing that are less talked about, but which have unique advantages depending upon the situation.

Location-based tracing uses multiple data collection points including mobile apps, GPS signals, badge swipes, Wi-Fi location tracking, meeting calendars and corporate travel data to create aggregated traffic patterns in a given area. If someone tests positive, the system can replay that person's steps and notify others who may have been nearby. Among the advantages of location-based techniques are that they don't require individuals to download a mobile app and they can be leveraged immediately using data that in many cases is already available to corporations. The more location sources that are enabled, the deeper understanding of the potential exposure landscape.

Area monitoring is a preventive approach that uses fully automated systems to monitor and enforce area density and capacity limits, ensure physical distancing, and even check for compliance with personal protective equipment requirements. These systems can also include sophisticated sensor data such as temperature, ventilation, and humidity readings that might indicate that people are clustering together or to spot individuals whose elevated temperature levels may indicate infection. These automated solutions can alert facilities and human resource departments to potential danger zones as well as activate responses such as making an announcement over a PA system or disabling access controls if a building's occupancy has reached its limit under social distancing guidelines.

Finally, a comprehensive contact tracing system helps organizations protect their people by providing rigorous follow-up for those who have potentially been exposed so that they can protect themselves with test status reporting and follow-up procedures recommended by public health organizations and their employers. Capabilities include linking to nearby testing and healthcare facilities, prompting people for follow-on wellness checks, and enabling HIPAA-compliant secure chat and case management.

No one tracing approach is 100% effective. The best solution combines elements of all appropriate techniques to deliver as holistic a picture of the potential exposure as possible.

Simply notifying people that they may be infected isn't enough, though. A comprehensive contact tracing system should also provide information people can use to get help. For example, a screening survey on a mobile app can prompt owners to describe their symptoms and provide a statistical evaluation of the likelihood that they are infected. Should people choose to seek testing or medical attention, the app can use navigation features to guide them to the closest appropriate facilities based upon their symptoms.



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Beyond Tracing for Public Safety and Healthcare

Tracing can be combined with a public warning system that uses mobile cellular networks to map people's movements and enables advisories to be issued selectively. Cell phone signal-tracking data can be used to map concentrations of people within a region and to identify their countries of origin based upon their SIM cards. If crowds form, messages can be sent to people in the area asking them to disperse. Warnings can even be customized to the native language of international visitors or to inform visitors from other countries of changes within their own borders. Safety officials can also "turn back the clock" to reach people retroactively who were in an area where an outbreak was later discovered.

GPS and indoor wayfinding can also be used to warn people if they are about to enter a hotspot. Public health officials can draw virtual geofences around areas ranging from a wing of a building to an entire county and trigger messages to the cell phones of people who are approaching or who may have recently left a danger zone.

It's important to note that all of this can be done without disclosing any personal or private information.

Mobile apps can also use indoor wayfinding, a technology that combines signals from such sources as Bluetooth beacons, Wi-Fi tracking, magnetic field detection, and lighting sensors to help people navigate through large indoor spaces like hospitals and corporate offices where GPS signals don't work. This has the collateral benefit of maintaining social distancing once inside healthcare facilities. For example, patients with COVID-19 symptoms can be directed to testing and treatment areas using routes that ensure they won't encounter others who are not infected. Such a capability can help restore confidence in elective procedures, which are an important revenue source that many hospitals have had to all but abandon due to staff shortages and patient fears about becoming infected during a hospital visit.

In the coming months, many people in business, higher education, and public safety will adopt contact tracing solutions for the first time. The organizations that support them should think outside the confines of basic record-keeping to the broader health and safety needs of the population.

Everbridge has a solution that delivers all the features described above. To learn more visit everbridge.com.

About Everbridge

Everbridge, Inc. (NASDAQ: EVBG) is a global software company that provides enterprise software applications that automate and accelerate organizations' operational response to critical events in order to keep people safe and businesses running. During public safety threats such as active shooter situations, terrorist attacks or severe weather conditions, as well as critical business events including IT outages, cyberattacks or other incidents such as product recalls or supply-chain interruptions, over 4,800 global customers rely on the company's Critical Event Management Platform to quickly and reliably aggregate and assess threat data, locate people at risk and responders able to assist, automate the execution of pre-defined communications processes through the secure delivery to over 100 different communication devices, and track progress on executing response plans. The company's platform sent over 2.8 billion messages in 2018 and offers the ability to reach over 500 million people in more than 200 countries and territories, including the entire mobile populations on a country-wide scale in Australia, Sweden, the Netherlands, Singapore, Greece, and a number of the largest states in India. The company's critical communications and enterprise safety applications include Mass Notification, Incident Management, Safety Connection™, IT Alerting, Visual Command Center®, Public Warning, Crisis Management, Community Engagement™ and Secure Messaging. Everbridge serves 9 of the 10 largest U.S. cities, 8 of the 10 largest U.S.-based investment banks, all 25 of the 25 busiest North American airports, six of the 10 largest global consulting firms, six of the 10 largest global auto makers, all four of the largest global accounting firms, four of the 10 largest U.S.-based health care providers and four of the 10 largest U.S.-based health insurers. Everbridge is based in Boston and Los Angeles with additional offices in Lansing, San Francisco, Beijing, Bangalore, Kolkata, London, Munich, Oslo, Singapore, Stockholm and Tilburg. For more information, visit www.everbridge.com, read the company blog, and follow on LinkedIn, Twitter, and Facebook.



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