REOPENING DURING THE PANDEMIC

OPERATIONALIZING HEALTH & SAFETY

OnDemand Recording

Click to Watch the OnDemand Recording

Today's Panelists

Yaowen Ma

Senior Analyst

Verdantix

Sastry Malladi

CTO & Co-founder

FogHorn

Verdantix is an independent research and consulting firm with a focus on innovative technologies that optimize business operations. Our research practices include expertise in environment, health and safety (EHS), operational risk (OpRisk), and smart buildings.

Research Solutions

Consulting Capabilities

Events & Social Media

Webinars

VERDANTIX OVERVIEW

EHS Software Platforms

Mobile EHS Apps

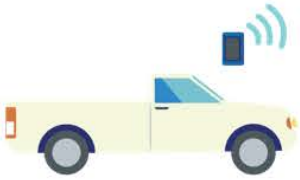
EHS Analytics & EDM Software

Wearables & Smart PPE

Unmanned Aerial Vehicles

Industrial Operations Risk Management

Hazcom Beacons & Sensors



In Vehicle Safety Monitoring

FogHorn Background

2015	Began development of industry-first IIoT edge AI/ML platform
$72M	Funding from industrial and technology leaders
100+	IIoT use cases deployed globally
50+	Partners in IIoT, SI, cloud, gateway, semiconductors and telco
30+	Awards for Industrial AI/ML, Edge Computing, IIoT

FogHorn End Market Sectors

Channels: SI / VAD/ Telco

Manufacturing

Oil & Gas

Transportation

Infrastructure

Operating Efficiencies

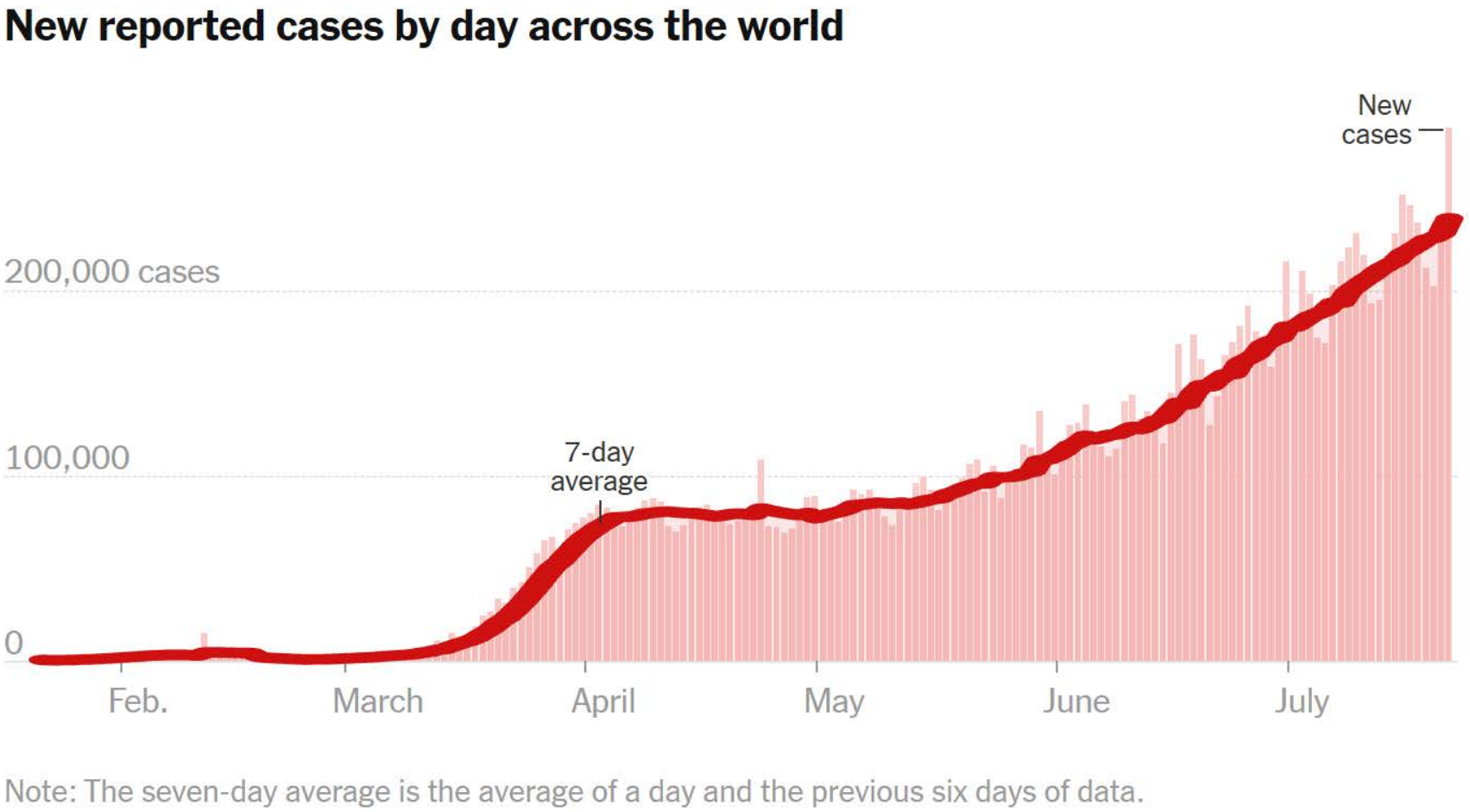
Energy Efficiencies

NEW NORMAL FOR EHS IN THE POST COVID-19 WORKPLACE

YAOWEN MA
VERDANTIX

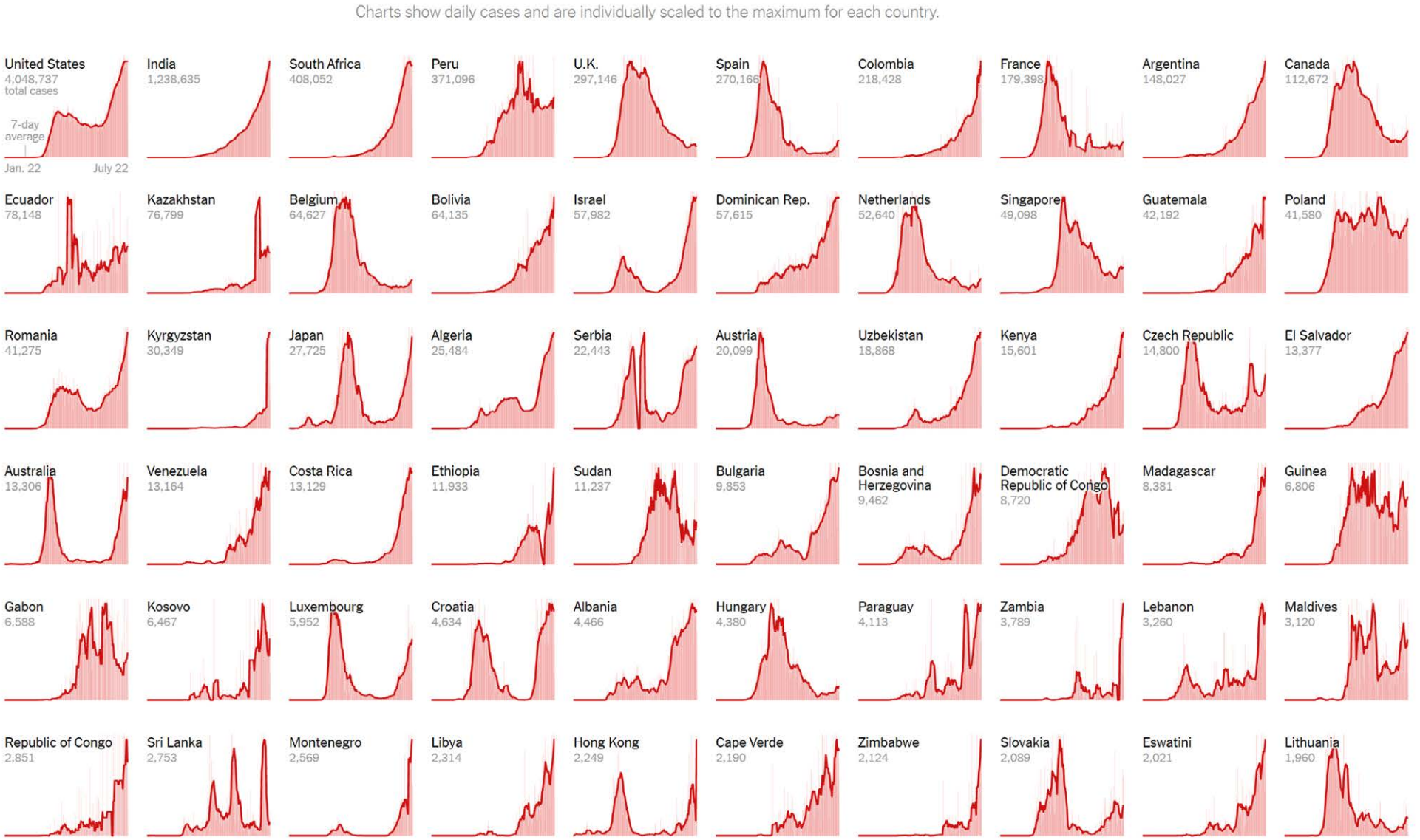
COVID-19 Resilience: Plan For A World Of Known Uncertainties

VERDANTIX



Source: New York Times

COVID-19 Resilience: Plan For A World Of Known Uncertainties

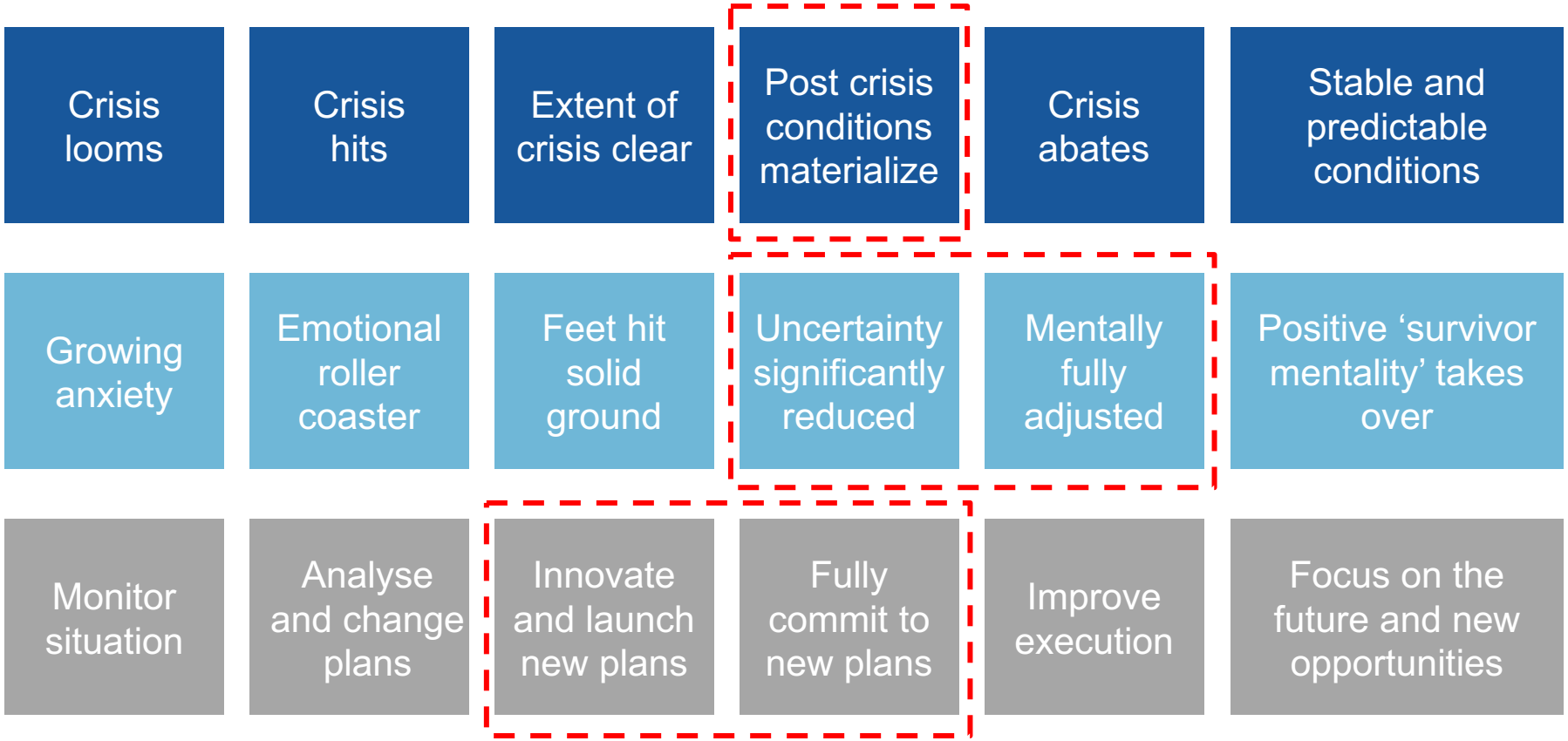


Source: New York Times

Every Business Executive Needs To Review Their Response Plan

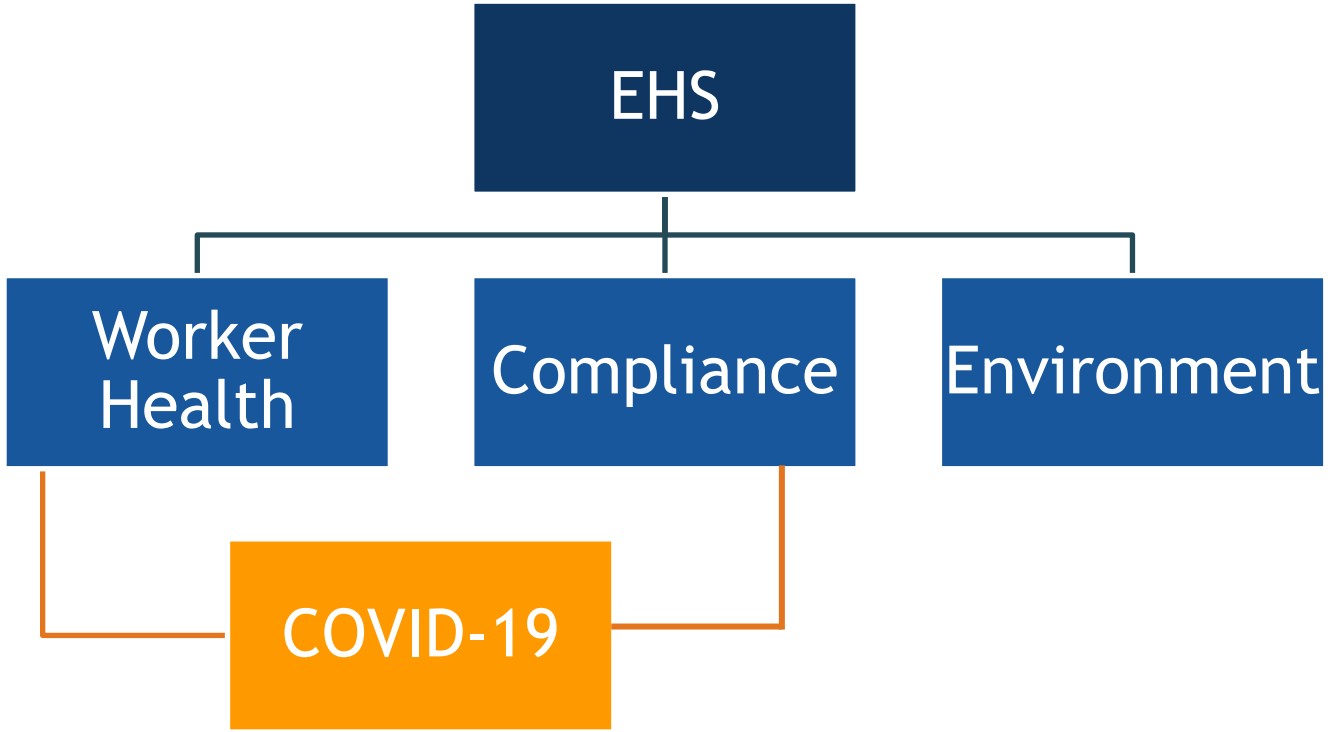
VERDANTIX

Crisis Timeline: Emotional Reactions And Business Response



Source: Larry Susskind, Crisis Management Techniques 2001, Harvard Kennedy School

EHS Executives Are Faced With A Wide Variety Of New Challenges And Responsibilities



EHS is the frontline defender and advocate for protecting workers from COVID:

- The EHS position is the vanguard for its workers safety and exposure, but many times operations is the general.
- Operations owns the business decisions, this can mean the opening, closing or shifting of activities for workers.
- EHS needs to push to protect workers, use data and information available to try to steer informed decisions.

Traditional Reactive Approaches To EHS Are Not Sufficient With COVID-19

VERDANTIX

COVID-19 doesn't let you be reactive. A reactive approaches to COVID means the infection is already out of hand:

- Cannot be handled the same way as a regular reactive incident management workflow
- Consistent testing, risk assessments and audits

Proactive Approach

Procedures implemented before COVID spread.

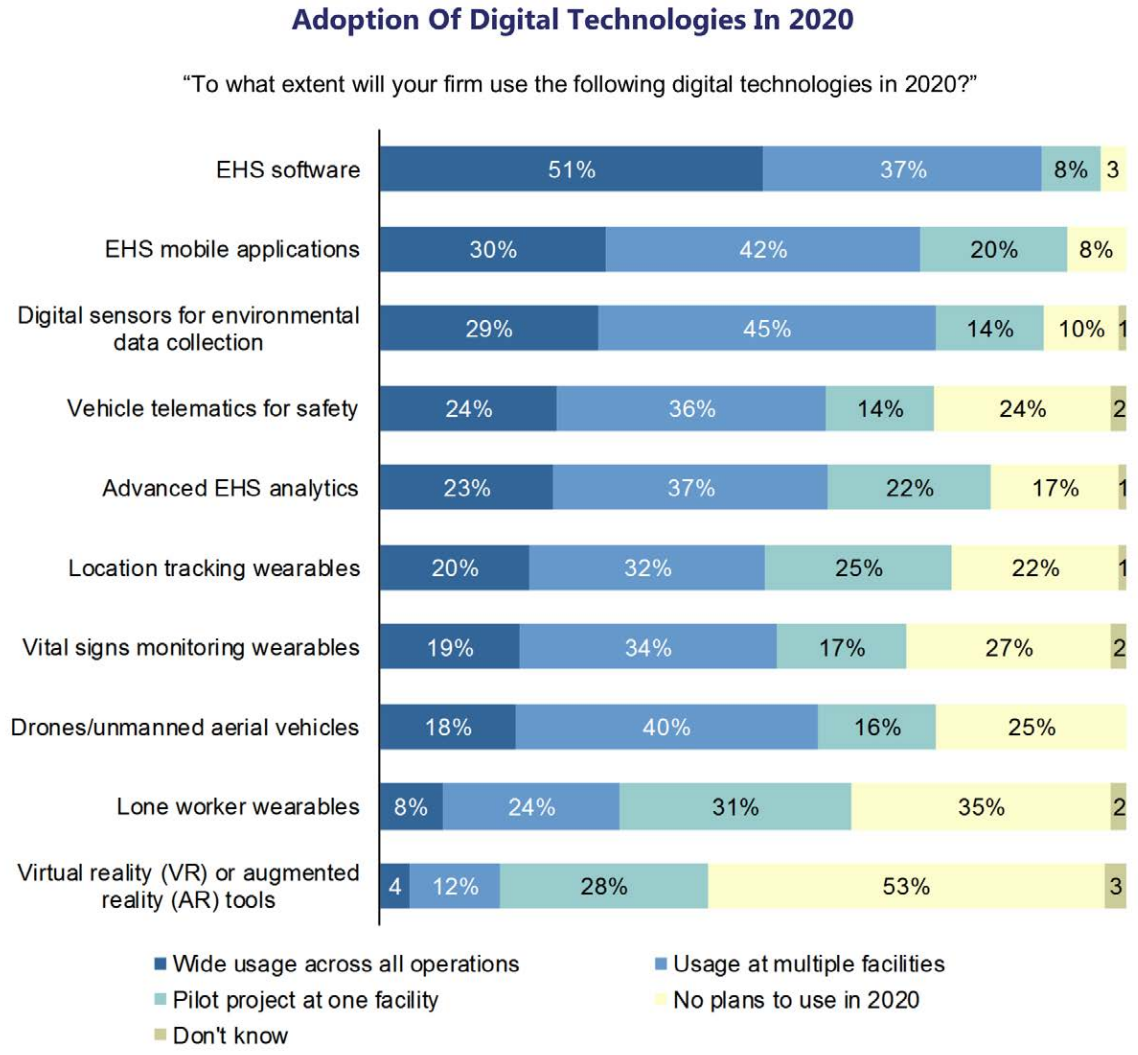
- No or limited exposure.
- Limited exposure acted upon quickly.
- Limited disruption in operations.

Reactive Approach

Procedures implemented after positive COVID case.

- wide-spread exposure.
- Contact-tracing becomes more difficult
- Major disruption in operations.

COVID-19 Can Be The Spark To Accelerate Adoption Of Digital EHS Technologies



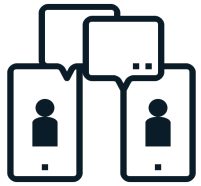
Note: Data labels are rounded to zero decimal places, percentages less than 6% have been written as numbers
Source: Verdantix

COVID-19 Can Be The Spark To Introduce New EHS Activities

VERDANTIX

New EHS Activities

Telehealth Conferencing



- **Allows remote access to an occupational health professional via an embedded video and audio capability.**

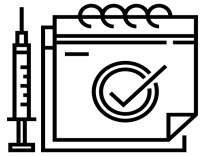
- Leverages embedded EHS. software capabilities.
- Leverages AR/VR technology.

Contact Tracing

- **Identify and support the contacts of those who have tested positive for an infectious disease such as COVID 19.**

- Testing.
- Identification.
- Notification.
- Follow up support/monitoring.

Immunization Tracking



- **Manages and tracks largescale immunization programmes**

- Stores and tracks consent forms.
- Updates employee vaccination data.
- Generates reports for authorities like the CDC.

New Processes: Key Items To Prepare Workers And Workplaces For Return To Work

VERDANTIX

Example Process For All Employees

Pre Start-Up

Screening Via:
- Mobile App
- Desktop
- Phone Call

→

Start-Up

Screening On-Site:
- Mobile App
- At Kiosk Stations
- Completed By Supervisors
- Paper Copy

→

Post Start-Up (Weekly)

Screening On-Site:
- Mobile App
- At Kiosk Stations
- Completed By Supervisors
- Paper Copy

Example Process For Facilities & Operations

Pre Start-Up

Check Inventory & Sanitize:
- Check inventory on disinfectants
- Sanitize work areas
- Establish hand sanitizer stations
- Check inventory for gloves
- Check inventory for masks
- Setup screening kiosks
- Train supervisors on screening
- Complete inspections for reconfigured workspaces to ensure 6ft distancing

→

Start-Up & Post Start-Up (Daily)

Check Sanitization & Distancing:
- Ask employees to wipe down work stations prior and after shifts
- Complete inspections to ensure 6ft distancing
- Complete inventory restocking to ensure hand sanitizer stations, disinfectants, gloves, masks, etc are filled

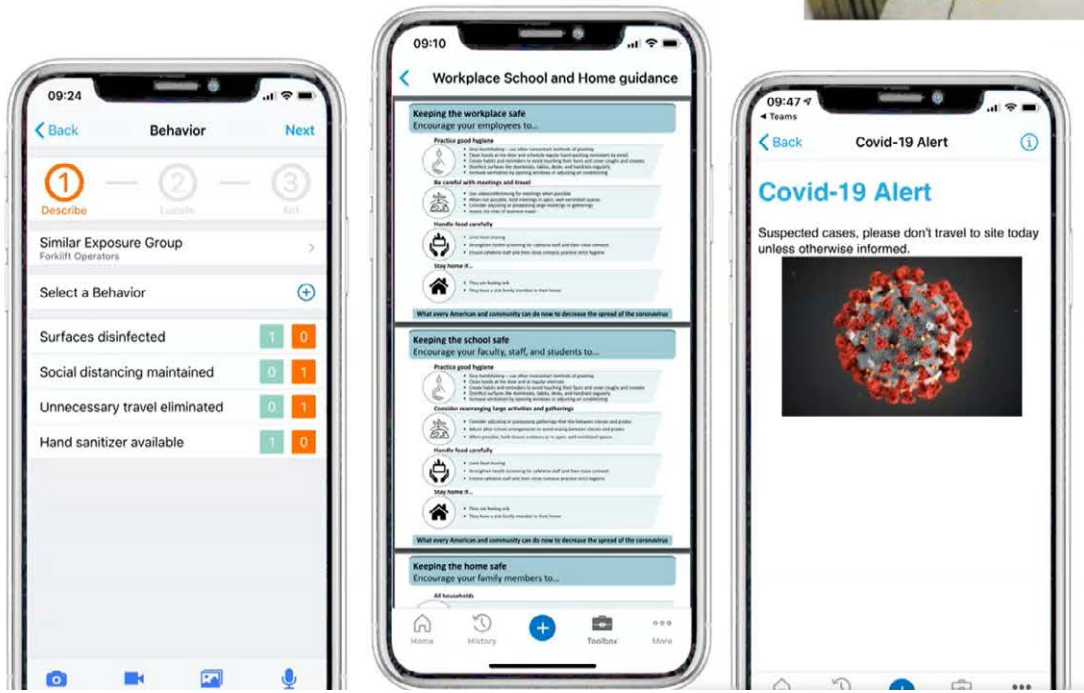
New Tools: The COVID-19 Pandemic Can Be Managed in 40+ EHS Software Apps

Responding To The Pandemic With EHS Technologies:

- Incident Management – Illness & Injury Reporting
- Observations – Employee Symptoms Tracking
- Checklists & Action Plans – Employee Wellness Checklists
- Ergonomics – Work-From-Home Resources
- Mobile Access – COVID-19 Bulletins

- Document Control (Policies, Procedures, And Work Instructions)

- Meetings Management
- Behavior Based Safety
- Chemicals SDS Access
- Occupational Health
- Travel & Contact Tracking
- Audit Management



New Tools: The Post Covid-19 Workforce Will Rely On Risk-Centric Solutions

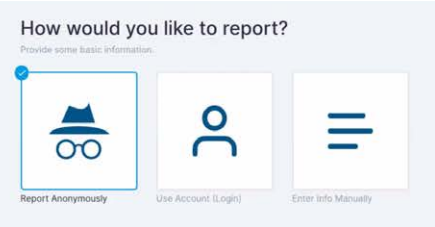
VERDANTIX

1. Ensure Facility Preparation and Readiness

- Inspections – COVID-19 site readiness
- Checklists & Action Plans – Daily sanitation checklists

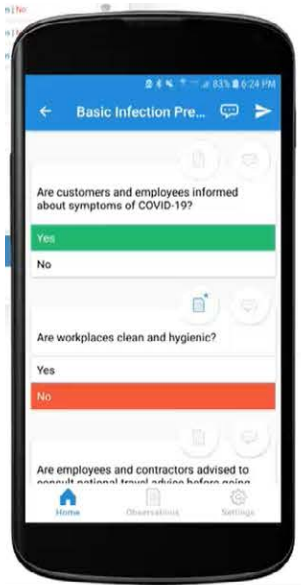
2. Facilitate Pandemic Related Training and Awareness

- Training Content & Tracking
- Document Control & Management
- Mobile Communications & Alerts



3. Proactively Manage Employee COVID-19 Illnesses and Exposure

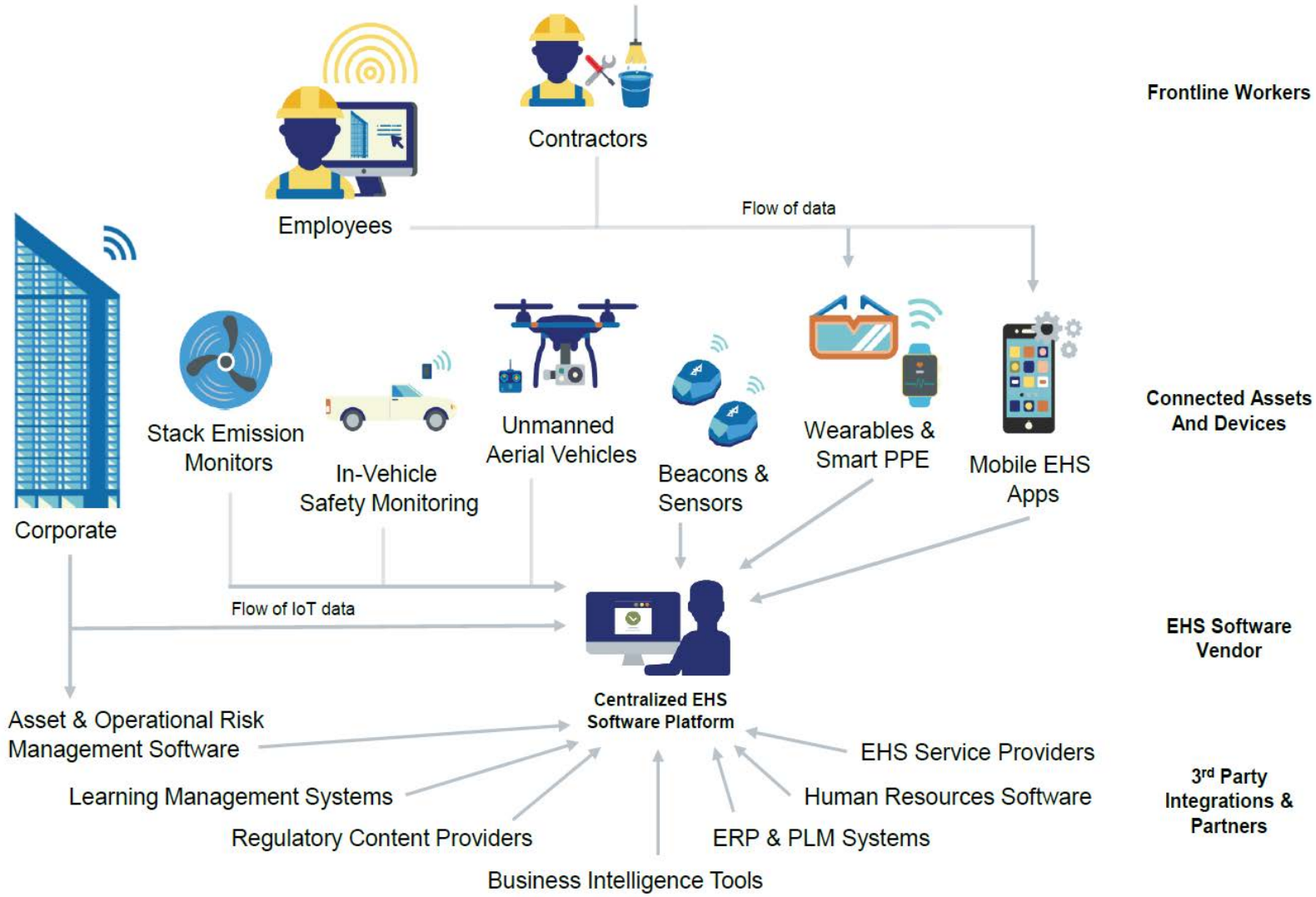
- Observations - Employee self-assessments & symptoms tracking
- Checklists & Action Plans – Employee wellness check
- IoT Devices & Wearables – Alerts when within 6ft distance



4. Managing Return To Work Operations

- Supplier & Contractor Management – Real-time go-live status update
- Business Continuity Planning – Scenario analysis and crisis recovery
- Change Management – Resource centers and industry working group

The Connected Digital Ecosystem For EHS Information Management Will Be Essential In Tackling Covid-19



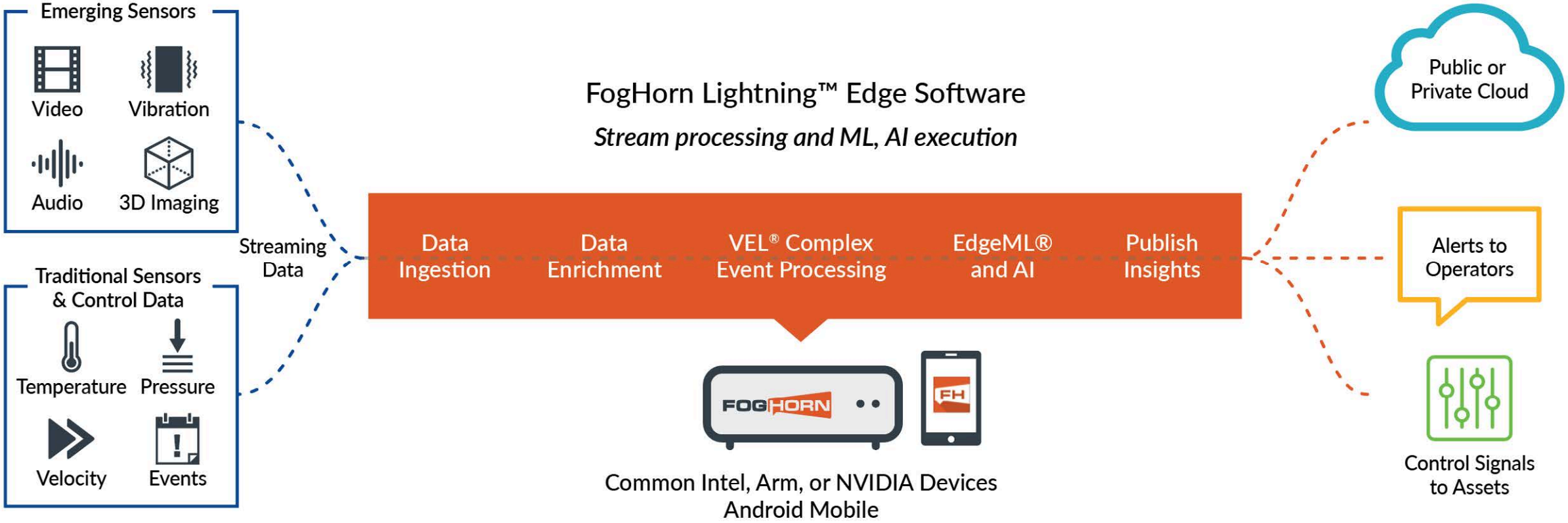
Source: Verdantix Best Practices For EHS Digital Transformation

AI & COMPUTER VISION'S ROLE IN A HEALTHY WORKPLACE

SASTRY MALLADI
FOGHORN

Turning Data into Actionable Insights

FogHorn's Edge IIoT / AI Software Platform

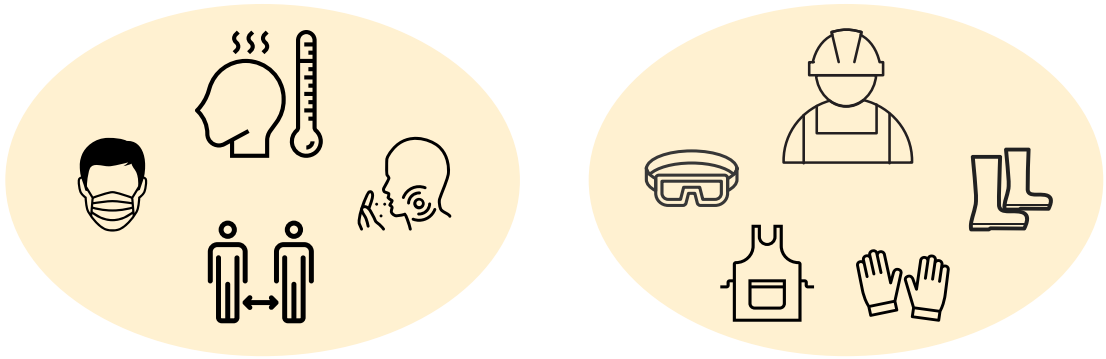


Lightning™ Health & Safety Solutions

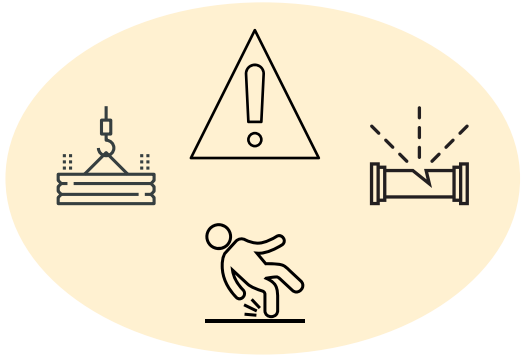
Enterprise Platform Replaces Manual Monitoring & Point Solutions

Health Monitoring Solutions

Safety Monitoring Solution



Hazard Detection Custom Solutions



FogHorn solutions combine our Edge AI platform with ready-to-use machine learning models

Features include:

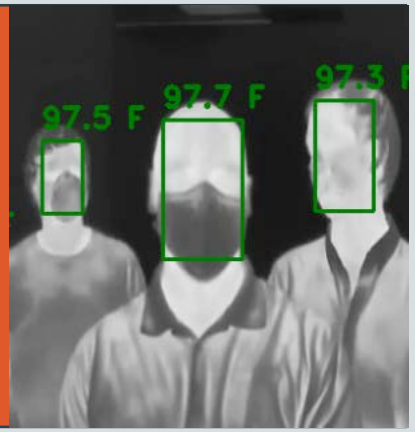
- Customized machine learning models
- KPIs & customizable dashboards
- Automated SMS & email alerts
- Insights and compliance reporting
- Enterprise editions for customizations, integrations with IT systems & access control

Health Monitoring Solutions

Help Prevent Exposure to Colds, Flu & Viruses

A suite of solutions to support health monitoring

Elevated Body Temperature (EBT)



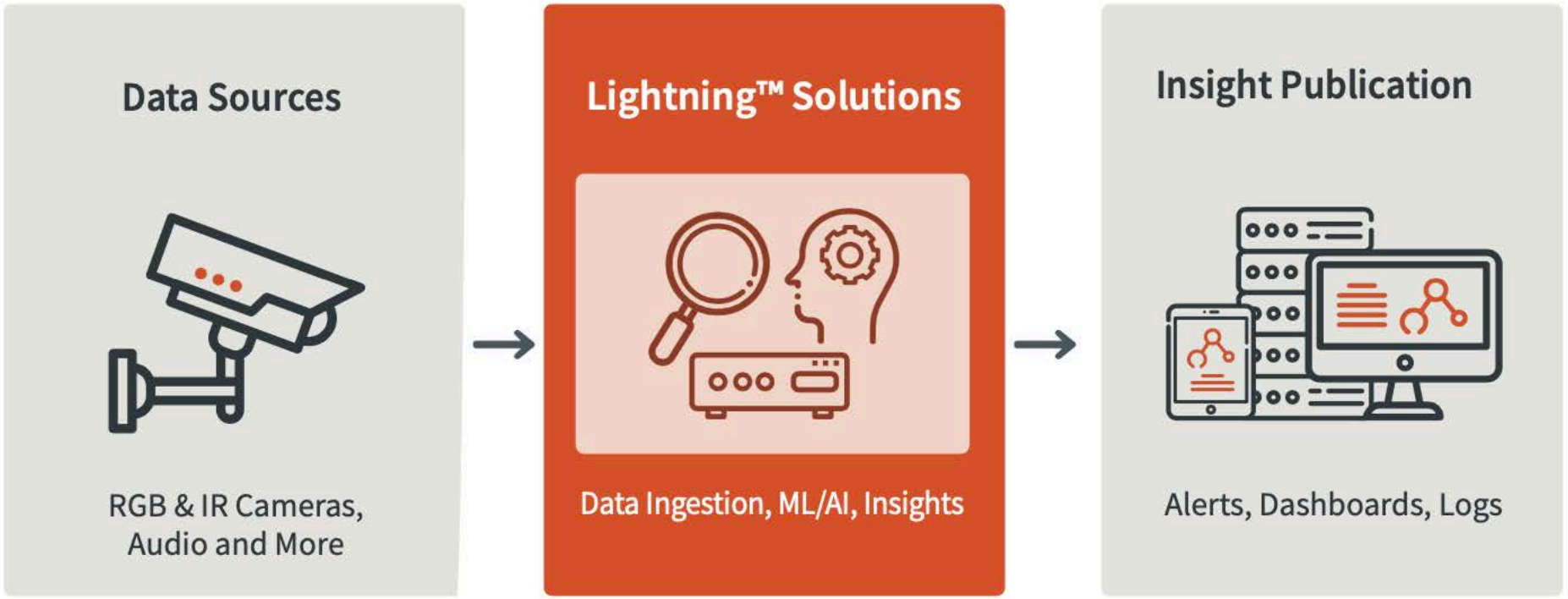
Social Distancing

Cough Detection

PPE/Mask Detection

How Lightning Solutions Work

A Simple, Out-of-the-Box Solution using Video

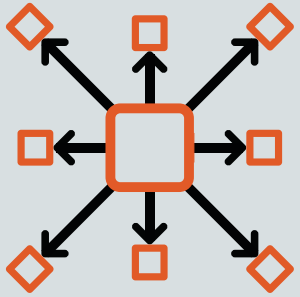


Installs on Intel, Arm, or NVIDIA Devices
Android Mobile

Delivering Immediate ROI

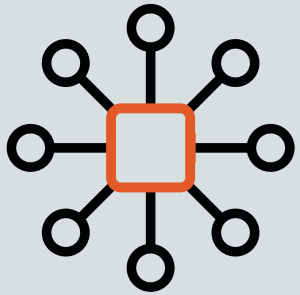
Deploy Solutions in only a Few Hours

Install



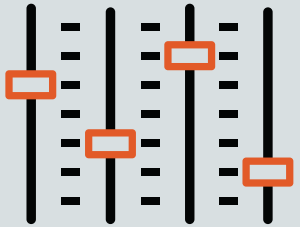
Deploy to common Intel, Arm, & Android devices

Connect



Configure the required data inputs

Calibrate

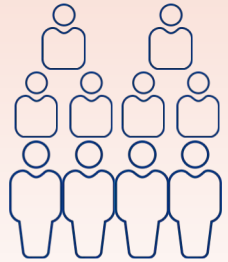


Tune the solution for your environment

Operationalize

Set-up alerts, dashboards and data publishing

FogHorn AI Drives High-Performance EBT

	Face Detection Distance	Accuracy by Location	Angle of Measurement	Number of Faces
FogHorn AI-driven Temperature Detection	Up to 30 ft	Tear duct readings, .3°C	Moving, wide-angle readings	 Up to 10 people
Comparable Camera-only Temperature Screening	Up to 10 ft	Facial avg/max readings, ~.5 - 1°C	Stationary, camera-facing readings	Up to 3 people

FogHorn metrics based on preliminary internal testing

FOGHORN VIZ

EDIT

EDIT DASHBOARD

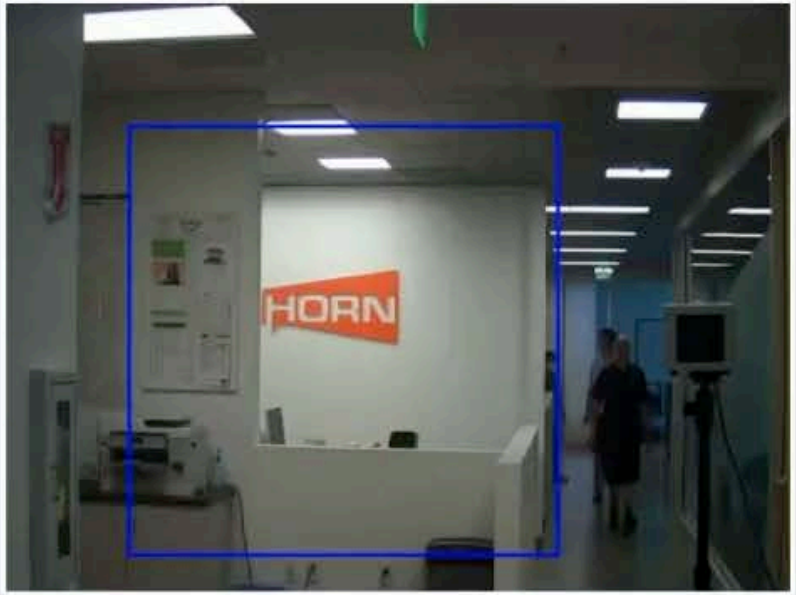
Please look at the camera for body temperature check

No face detected

Body Temperature (deg F)

0

Live camera view



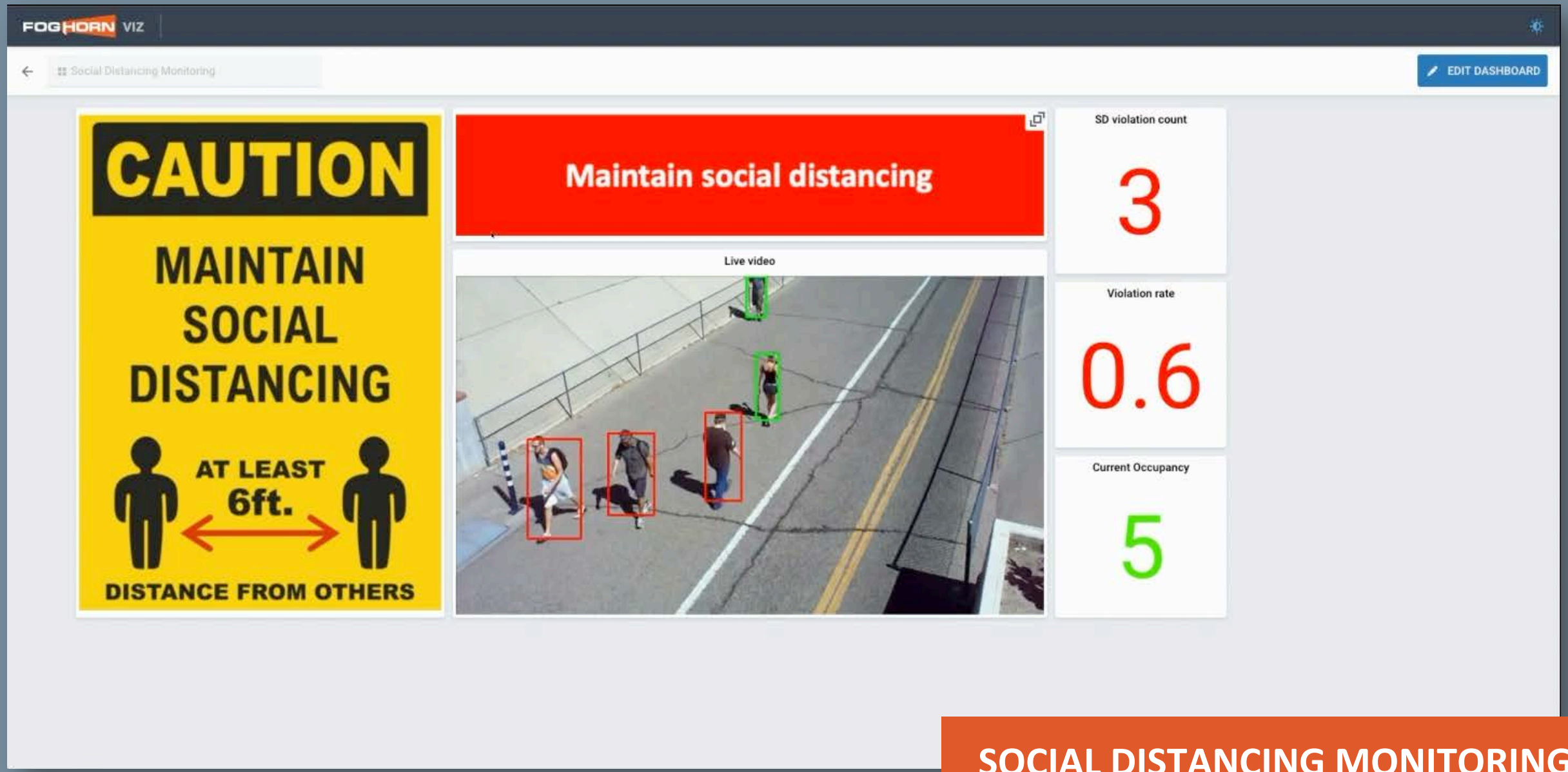
IR video

NOTICE

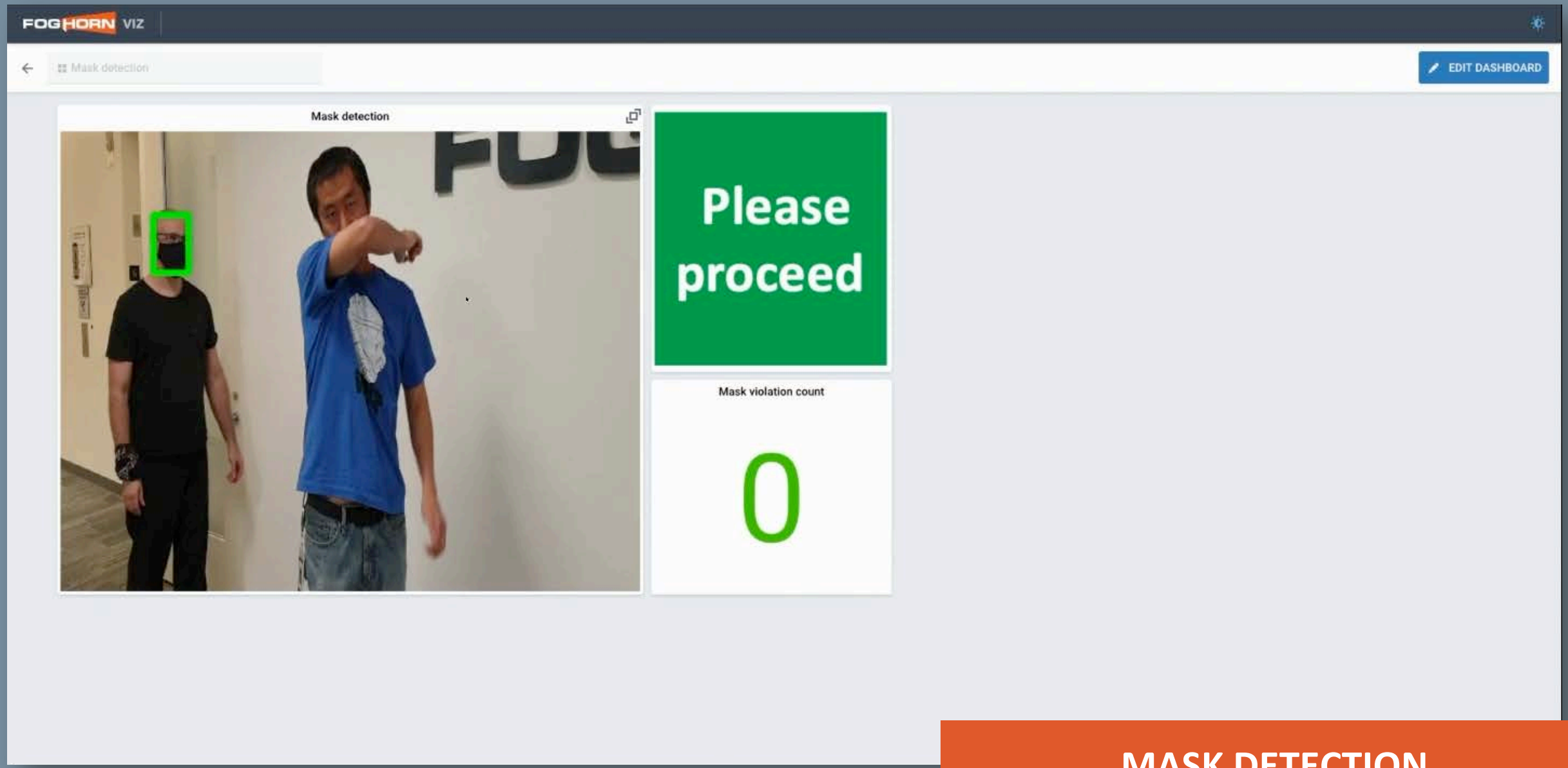
If your temperature is too high, please do the following:

1) Go to Room 101 immediately for further screening
2) Contact your manager
3) Avoid contact with others

ELEVATED BODY TEMPERATURE



SOCIAL DISTANCING MONITORING



MASK DETECTION

COUGH DETECTION

FOGHORN

Kai Wang <kai.wang@foghorn.io>

FogHorn Alert: High body temperature detected

Vilas Jangale <vilas.jangale@foghorn.io>
To: Kai Wang <kai.wang@foghorn.io>

Tue, Jul 28, 2020 at 12:21 PM

Alert Summary

Recorded Temperature: 101.5 deg F

Date: Tue, Jul 28, 2020

Time: 12:14 PM UTC

Thank you,

FogHorn Systems

EMAIL ALERTS

Basic & Enterprise Versions Available

Customize the Solution for Your Organization

Basic Edition

- All four health monitoring use cases
  - Elevated body temperature detection
  - Mask detection
  - Social distancing monitoring
  - Cough detection
- Customizable alerts (email, sms)
- Customizable dashboards

Enterprise Edition

- Includes everything from Basic
- Polyglot SDK for custom integrations
- Integrations with existing IT systems either through FogHorn services or a third party
  - Access control integration
  - Video management service integration
  - Any integration with central persistence stores / dashboarding needs

Summary: Lightning™ Health Solutions

Ensuring Health & Safety through Automated Monitoring

- **Flexible:** choose the solutions you need, add more as needed
- **Customizable:** tune machine learning models for your unique environments
- **Integrated:** built on a common AI platform for enterprise scalability
- **Actionable:** real-time insights for maximum safety

QUESTIONS?