



Rebounding From the Covid-19 Crisis: IoT & Automation Solutions

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COVID-19 – Challenges for Industries



Human Capital

Workforce Management
Productivity/Safety/
Efficiency



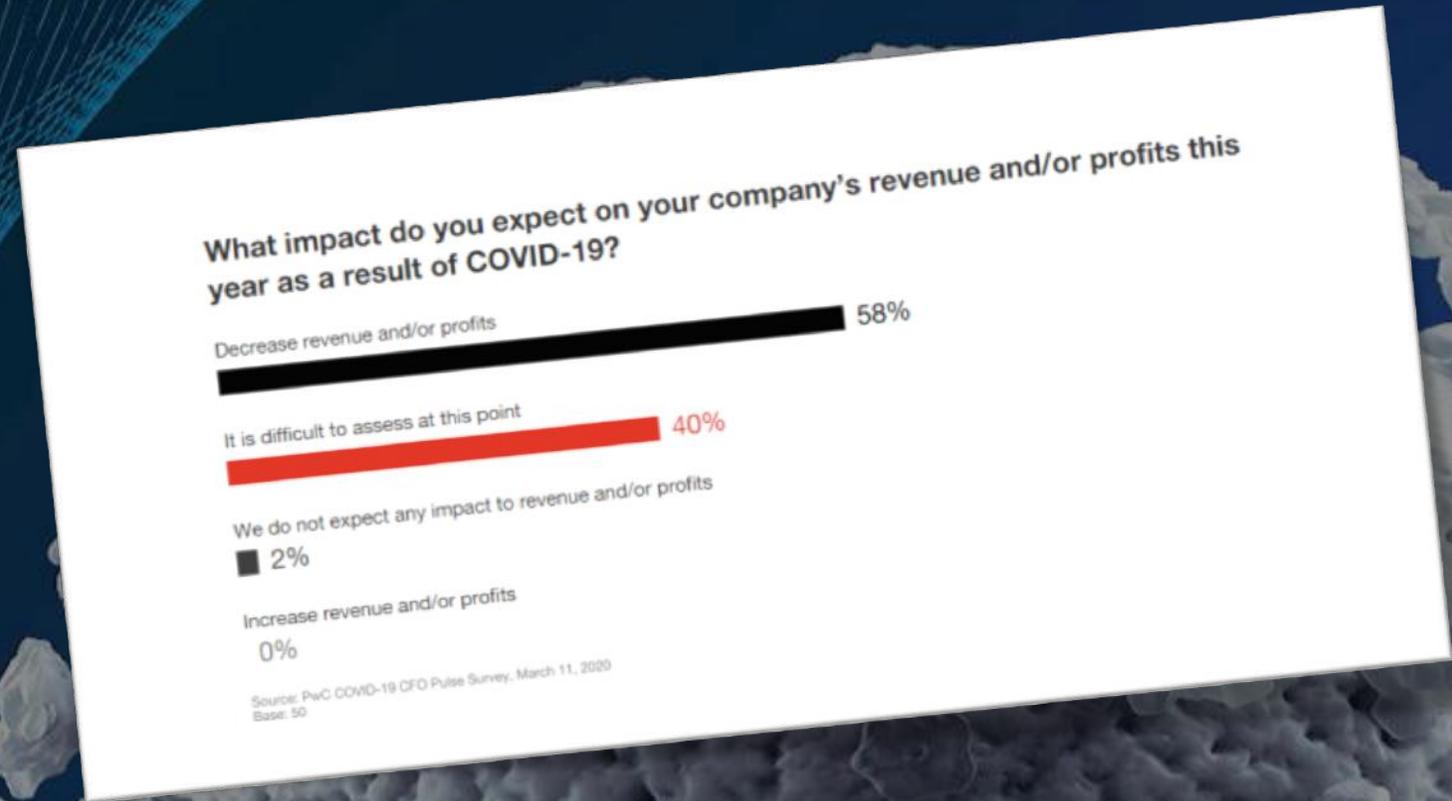
Enterprise risk

Business Continuity
Financial Impact
Security



Asset & Operations Availability

Downtime Exposure
Difficulties with Support
Lack of Contingency Plan



Industries Should Prepare for Safety, Uncertainty and Changes

Manufacturers can follow three guiding principles to keep their workers safe while preparing for increased uncertainty and long-lasting changes to the work environment.



Protect the workforce

Standardize operating procedures and tools that keep staff safe. Build workforce confidence through effective, two-way communication that responds to employees' concerns.



Manage risks to ensure continuity

Anticipate potential changes and model the way the plant should react well ahead of the fluctuations to enable rapid, fact-based actions.



Drive productivity at a distance

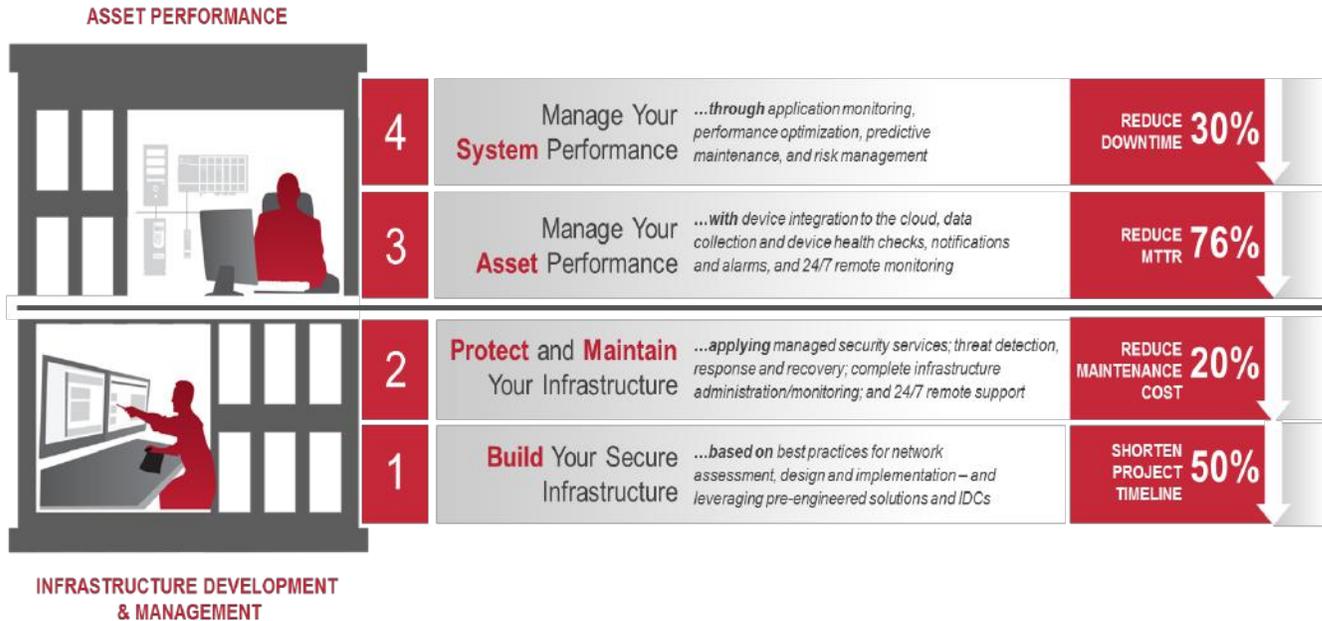
Continue to effectively manage performance at the plant while physical distancing and remote working policies remain in place.

*Source: McKinsey

<https://www.mckinsey.com/business-functions/operations/our-insights/managing-a-manufacturing-plant-through-the-coronavirus-crisis>

OT Infrastructure best practices

Digitally transformed businesses are best positioned to deal with current pandemic



OT Managed Services

Digital Install Base (Lifecycle Management)

Industrial Cybersecurity

Virtualized computing (Industrial Data Center)

iDMZ (Industrial Demilitarized Zone)

CPwE (Converged Plantwide Ethernet)

A robust and secure OT Network infrastructure is critical

Best in class technology

- Industry leading AR technology from PTC
- 3D environment mapping allows annotations to “stick” to objects in the physical world
- Live, “over-the-shoulder” collaboration on mobile, tablet and desktop devices
- Combines live video, audio and annotations of a shared view
- iOS & Android compatibility
- Enterprise-grade security
- Centralized user management and workgroup analytics
- Federated Authentication/SSO
- PTC Gold Support
- 90-day customer success package

AR unlocks opportunities across the Value Chain

Service

- Remote service & customer self-service via AR& IOT decreases truck rolls
- Technician productivity, safety, and effectiveness increases via IOT & AR
- Breakthrough digital product experiences via IOT and AR

Sales & Marketing

- Configured products demonstrated with 3D holograms via PLM & AR
- Differentiated product/brand experiences via IOT & AR



Engineering

- Virtual team collaboration via AR and VR

Manufacturing

- Optimized production using digital process twins enabled by IOT/AI & AR
- Increased worker productivity, quality, and safety through IOT/AI & AR
- Less unplanned downtime via IOT/AI & AR



Supporting Flexible Manufacturing

This pandemic is restricting the movement of employees leading to an increase in workforce separation from factories. Factory support functions require remote tools to protect the factories and mitigate risk from afar; this lessens the need for excessive travel and physical presence.

Unplanned downtime is a major risk to all operations.

Goal:

- Maximize Throughput
- Optimize Asset Utilization
- Decrease Expenses

By **minimizing asset and infrastructure risks**

Prevent Failure

Enable Remote and Flexible Operations

Security Threats



Thank you



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