# Enhance Your Fall Protection Program with Technology

Our modern world largely revolves around data and technology.

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It is easy to forget how much life has quickly changed due to advances in technology. From the most mundane examples (remember paper maps?) to the most amazing medical advances, modern technology has transformed everyday life. So, why are most safety professionals still trying to solve critical fall protection program challenges in disjointed and outdated ways? Considering that fall fatalities continue to rise, it's clear that the "old ways" aren't working.

Organizations can take advantage of a variety of different technologies to address all aspects of a managed fall protection program—from updated methods to identify and control fall hazards to digital map-based tools that allow us to manage and maintain an enterprise-wide program.

## The Value of Data & Technology

Data can often feel like a double-edged sword—too little and there's not enough information to help make intelligent decisions, while too much can be overwhelming—leading to confusion or inaction.

For the same reasons so many aspects of everyday life have moved to apps and web-based tools, similar benefits apply to technology solutions for fall protection program management. With the use of technology, you can leverage automated, organized and intuitive data, simplify information access and collaboration with all stakeholders, reduce time spent on tracking actions and improve decision making with simple, actionable data. In addition, modern technology solutions can provide accurate, real-time monitoring of needs, progress and next steps and can even accommodate map-based data to easily locate information.

Specifically for fall protection programs, technology tools deliver the same benefits listed above, as well as reducing the need to put personnel at height for data collection, minimizing business disruptions by ensuring usable, compliant fall protection systems, simplying management of required compliance, inspection and record documentation as well as extending the lifespan of equipment and system investments.

Leveraging technology to reduce risk is not an all-or-nothing situation. Some technology solutions may not work well for your organization's culture, staff, infrastructure or processes. Still, it is likely that any organization can gain efficiencies, improve accuracy and simplify management by using a subset of the available technology solutions.

## Fall Hazard Identification: A Better, Safer Way

The "old way" of identifying fall hazards—which is still the only way for many—relies on someone laying eyes on the issue, taking pictures, writing down notes on a clipboard and too often filing those notes never to be seen again. Even when more robust tools, such as spreadsheets and electronic data entry forms are used, the sheer volume of data can sometimes lead to inaction, with safety professionals or facility managers not knowing where to begin. Often, many of those hazards have similarities that would benefit from a unified approach, but when the data is not organized or easily accessible, the ability to make informed decisions is lost.

And, in an ironic twist, relying on personnel to be physically present to identify fall hazards could expose them to the very fall hazards that need to be addressed.

Two advances in technology can solve both problems—virtual facility models and drone technology. Today's data collection technology has reached a point where an hour-long drone flight can gather enough data to create a fully interactive, three-dimensional model of a building, with the ability to measure items to within a fraction of an inch accuracy. While practically any drone can be equipped with cameras that capture static images or video, not every drone or pilot can leverage the robust capabilities that a three-dimensional model provides. It is critical to utilize experienced personnel that know how to collect and process the data that the drone gathers.

While drones are more commonly used to capture exterior data, organizations can also gain an interactive three-dimensional model of an existing facility using terrestrial scanners that apply technology such as LIDAR. Again, experts who know the best practices of scanner set-up and data processing can generate a virtual model of the facility in a short time. These types of virtual models also solve half the data collection problem, since their use eliminates, or at last drastically minimizes, the need for personnel to be exposed to fall hazards during data collection.

Having the technology to create these intricate virtual models of existing facilities is truly remarkable, but what about facilities that haven't yet been built? In those cases, safety professionals need to seek out the architects and engineers who are responsible for the design of the facility. Designers typically create a virtual model of the space as it will be—including all the yet-to-be-identified fall hazards. The safety professional can seek out those architects and virtually explore the three-dimensional model to identify and truly eliminate fall hazards before they are ever introduced into the real world during construction.

## Evaluate & Implement Fall Hazard Controls

As powerful as scanning and modeling have become, data collection is not the only opportunity to employ these technologies to minimize fall risk. After all, the point of identifying fall hazards is to proactively take steps to improve safety and reduce risk.

Using a virtual model also allows organizations to create "what-if" scenarios for hazard abatement. Trying out different configurations of platforms, guardrails, fall arrest systems and more in the virtual environment allows all stakeholders to visualize how different solutions would work—without making any significant investments in design or materials.

The virtual review gives insight into how safety systems might interact with facility operations without learning the hard way. And the ability to test different options encourages organizations to consider more passive or engineering control solutions. Given the myriad shortcomings of an active fall protection

system—potential for equipment misuse or failure, injury due to suspension trauma and the need for rescue planning—it is always best to strive for a solution higher on the hierarchy of controls. With the virtual model as a tool, it's easier to visualize what those solutions could be.

## Case Studies: Technology in the Real World

**Municipal.** After a municipal worker suffered a tragic accident, the community renewed its focus on fall protection and engaged a safety consultant to evaluate its water infrastructure assets, including water towers, vaults, lift stations and more.

Because of the extreme height and inherent risk concerns, imagery and survey data were collected using drones. The information was downloaded into 3D modeling software to allow for data evaluation and measurements to support the work in the initial hazard identification and assessment phase.

Using this digital solution provided the following benefits to the organization:

- Safer data collection
- Digital documentation minimized site visits and encouraged collaboration
- Highly accurate imagery and measurements for evaluating solutions
- Modern imagery and modeling improved communication vs. traditional engineering drawings

**Government Facility Renovation.** When planning was underway for the renovation of a significant government building, the organization wanted to ensure that the fall hazards present in the existing building could be reduced or eliminated as part of the renovation. Since the design team was using 3D modeling as the foundation for their design documents, it was an obvious decision to use the same models to virtually identify potential fall hazards and prevent their inclusion in the renovated building.

Just as the expertise of architects is required to ensure the facility met the functional needs of the organization, safety experts were engaged to help address the fall protection issues. The results of this effort were:

- A completed facility that is much safer to maintain
- No significant additional time or money to correct safety problems in a functioning environment

Our modern world largely revolves around data and technology and the ability to leverage related tools to benefit various aspects of our lives. It is time for safety professionals to bring these tools and their inherent benefits into the workplace to help reduce risk and improve safety. OHS

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