



E-BOOK

What's Happening Under Your Roof?

How video intelligence provides unprecedented insight into every corner of your manufacturing facilities

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The Transformative Power of Video Intelligence

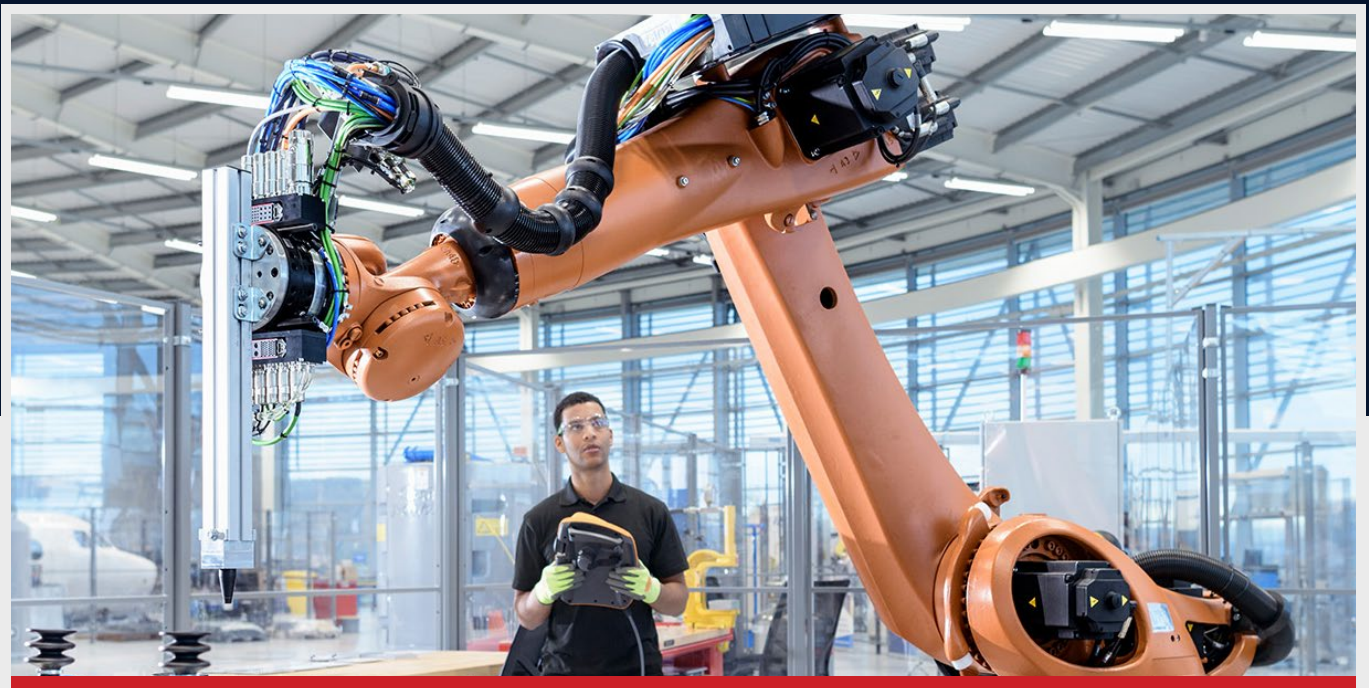


Manufacturers have always been challenged by the impossibility of seeing into every corner of their facility around the clock. Without full visibility, it's difficult to maintain peak productivity, eliminate waste, and protect machinery and workers from harm. Even the best 24-hour security team can't be everywhere at once — but technology can.

Video is the most ubiquitous IoT sensor in the world. Computer vision technologies developed by Hitachi offer an unprecedented level of visibility and insight into a wide variety of industrial facilities. With Hitachi Smart Spaces and Video Insights solutions, managers of manufacturing and industrial spaces can use video intelligence consisting of 3D lidar sensors, smart cameras, AI-based video analytics and graphical dashboards to unify data and workflows to gain visibility into all those corners and beyond — on a single pane of glass. With insights driven by video analytics, these managers can significantly reduce workplace accidents, improve operational efficiency, reduce maintenance costs and more.

The transformative power of video intelligence is revolutionizing the manufacturing landscape — and it can transform the future of your business. Explore this e-book to find out how.

Keeping Pace in a Smarter World



The emergence of technologies such as IoT, AI and machine learning, video analytics, data visualization and lidar are leading the way for a smart spaces revolution in industrial settings. This white paper from MIT Technology Review Insights provides a compelling picture of how smart spaces technology and a host of new video capabilities from Hitachi and others are making factories and facilities safer and more operationally efficient and effective.

The benefits of smart spaces go far beyond security—
they drive more efficient operations; reduce environmental
impact; and provide a seamless, responsive experience.

Keeping pace in a smarter world





It is an exciting time as the “factory of the future” emerges at a certain Japanese chemical company. The benefits are becoming clear: factory workers are better at their jobs, productivity is on the rise, equipment is better maintained, people are safer, and product quality continues to improve. With a new view of its business, this company can now identify and seize opportunities for improvement beyond the factory floor and bring a new level of confidence to decision-making.

These types of sweeping changes are being ushered in to virtually every industry by a suite of complementary technologies, including video intelligence, Internet of Things (IoT) sensors, artificial intelligence (AI), and powerful analytics software, that combine to allow organizations to gather, blend, analyze, and visualize data like never before. Similar solutions are being used to improve everything from airports and retail stores to entire cities and states that touch the lives of millions of people.

“Taking data from multiple sources and bringing that to a single pane of glass to apply analytics and AI to make communities and entities safer and more efficient, that is what we mean by smart spaces,” says Mark Jules, global vice president, Smart Spaces and Hitachi Video Insights for Hitachi Digital Services. “We look at three outcomes: enhanced safety and security, operations, and business.”

The safety and security outcomes can include environmental factors like reducing pollution or the health risks it causes. Smart spaces are environments that are equipped with intelligent video and other sensors that gather and process data with advanced technologies to enhance operations. When video data is transformed into intelligence through a combination of computer vision and machine learning (ML) and blended with other data streams, insights are revealed that help all types of spaces – whether an entire city, an industrial site, a college

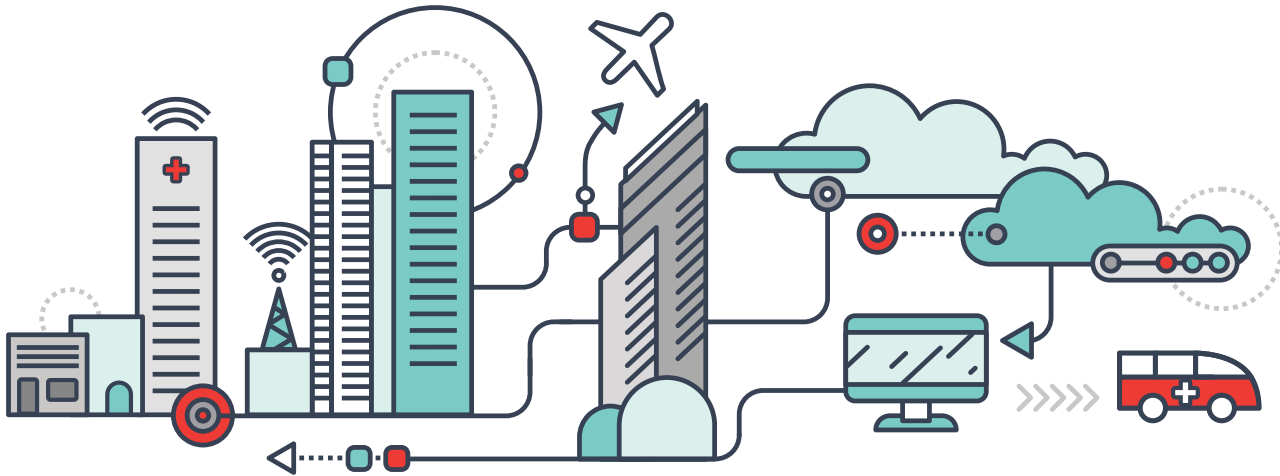
Key takeaways

- Smart spaces take data from multiple sources and apply AI and predictive analytics, to improve communities and entities.
- The benefits of smart spaces are safer, more efficient operations, reduced environmental impact, and responsive human experiences.
- Technologies like video and lidar, IoT, AI, and ML are converging to enable smart spaces.

“The future will be characterized by smart devices delivering increasingly insightful digital services everywhere.”

David Cearley, Vice President and Distinguished Analyst, Gartner

campus, an office building, or a manufacturing plant – adapt in real time and improve future planning and operations management. For example, data-driven approaches based on video analytics can help improve traffic flow in cities, increase a building's operating efficiency, or help airlines improve on-time performance.



“Retailers, manufacturing and industrial organizations, college campuses, and hospitals are all looking for the same outcomes of safety and security, while operating more efficiently and effectively.”

Justin Bean, Director of Smart Spaces Marketing, Hitachi Digital Services

“Smart spaces are uniquely responsive to the people inhabiting them,” says Praveen Subramani, director of product management at car-sharing company Turo, a platform infused with AI and other advanced technologies.

And, smart spaces are a growing trend. Gartner lists smart spaces as one of the [Top 10 Key Strategic Technology Trends for 2019](#). The smart spaces concept is being driven by advancements in video intelligence and IoT and the manner in which that data can be analyzed by AI and ML, and then combined with enterprise business data to deliver holistic insights.

Market researcher MarketsandMarkets estimates the global smart space market will grow from [\\$8.5 billion in 2019 to \\$19.9 billion by 2024](#). Other factors driving that growth include the cost-effectiveness of the sensors and solutions, increased capacity of network and edge computing, advancements in ML, the pervasiveness of video data, and the ability to protect the privacy of this data.

Connected intelligent environments, like smart buildings, can link their data with other intelligent environments and operate in concert. “Cities are complex ecosystems,” says Justin Bean, director of Smart Spaces marketing for

Hitachi Digital Services. “Retailers, manufacturing and industrial organizations, college campuses, and hospitals are all looking for the same outcomes of safety and security, while operating more efficiently and effectively. At the same time, whether someone is a citizen, passenger, or customer, they want to have a great experience.”

Improving efficiency of infrastructure, service delivery, business operations, and the physical environment can have significant impact on the human experience and sustainability of our societies. “When deconstructing modern life and analyzing where time is spent, you realize we are spending a lot of time on tasks that could be done autonomously if we lived and worked in a smart space/smart city,” says futurist Thornton May.

“The future will be characterized by smart devices delivering increasingly insightful digital services everywhere,” says David Cearley, a Gartner analyst, speaking at the [Gartner 2018 Symposium/ITxpo](#) in Orlando, Florida. “We call this the intelligent digital mesh.” Gartner sees emerging advanced technologies such as IoT and AI bringing together an intelligent and connected “digital mesh” of people, services, products, and devices. The architecture of this digital mesh will be built on connectivity, security, and participation of those involved.

Enabling technologies

A convergence of several technologies is enabling smart spaces, primarily video and lidar (similar to sonar, but using lasers) signals, the IoT and all connected sensors, AI, ML, and advanced data analytics. Video data is emerging as the most significant source of insights, thanks to advancements in the ability of computer vision and AI to transform it into intelligence, the growth of available data, and the ability to combine it with other data types. “I do see video as the ultimate IoT sensor data. There’s so much data you can capture – size, direction, speed, manufacturing defects,” says Jules. And multiple outcomes can often be driven by the same data. “Airlines, for example, could detect left-behind bags, and also measure the volume of bags to predict when overhead bins will overflow to help make the boarding process more efficient.” Right now, video data is being added to the overall data stream at a rate of 2.5 exabytes per day

(according to IHS Markit), and in 2015, computer vision surpassed human vision in terms of accuracy (according to the [AI Index Report](#)). However, as much as 98 percent of video data is currently underutilized.

Smart spaces solutions are increasingly capable of processing data at or near the network edge, which provides several key benefits. Moving analytics processing to the edge reduces the need to store or transmit high volumes of data or private information. “Systems are constantly analyzing in real time and then dumping data. Video analytics can analyze a city street to gain traffic or parking insights without exposing or storing images of people,” says Bean.

“You can create models of human behavior to generate much greater efficiency. Using the example of a smart city where you control the stoplight, you don’t want any traffic

The IoT connection

The global installed base of internet of things devices is colossal and growing – the sum is projected to increase from 27 billion in 2017 to 73 billion in 2025.



Source: IHS Markit’s “8 in 2018: The top transformative technologies to watch this year”

congestion, so you can determine optimal amount of time to spend at a stoplight,” says Larry Ponemon, chairman and founder of data privacy think tank the Ponemon Institute.

And it is possible to measure the value of the multiple outcomes coming from that data. According to a recent white paper, organizations deploying smart spaces at any scale can actually create a collaborative framework to determine the true economic value of the data and analytic assets involved. There are three critical theories to consider when applying value to data streams:

- data as a corporate asset
- data as the modern currency
- data as an asset that can be monetized

Privacy and other challenges

The massive amount of video and other data gathered by cameras and sensors raises important privacy concerns. Governance processes associated with smart space operations need to address those concerns and there are ways to manage privacy challenges.

When gathering video data from public spaces, for example, solutions are available that can mask or pixelate people in the frames automatically, keeping individuals from being identified. 3D lidar data provides granular, real-time alerts and operational insights based on laser measurements without capturing any personally identifiable information, making it ideal for General Data Protection Regulation-protected spaces or other privacy-sensitive environments, such as hospitals or schools.

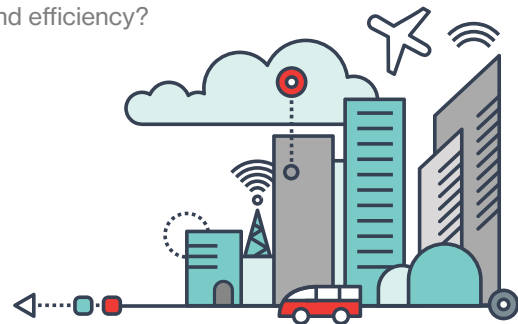
In terms of analytics, aggregated data can sometimes be more anonymous, which improves privacy. “Most data analytics don’t care about the individual. They care about the aggregated view,” says Ponemon. “But even when data is aggregated at a level higher than the ability to identify an individual person, you can still have privacy issues.”

The combination of the right tools in the right places can help provide insights without risking privacy. “You can have rich insights without capturing or exposing personal information,” says Bean. “That’s great for hospitals and schools, because these insights can save lives, even in places where privacy is very important.” In a hospital, for example, lidar systems can detect a fall, or the onset of a seizure, without needing a video camera in the patient’s room.

Smart ROI

When data is analyzed and visualized to produce actionable insights, possible performance indicators begin to emerge from smart spaces everywhere:

- In airports, for every additional minute that passengers spend in a security line, how many fewer dollars do they spend in the terminal retailers?
- In cities, how do traffic, bike lane, and parking policy or infrastructure changes impact usage and improve safety?
- In retail, how do changes in store arrangement or displays affect sales conversions in the store?
- In manufacturing environments, what impact do assembly line changes and working times have on quality, safety and efficiency?



“When deconstructing modern life and analyzing where time is spent, you realize we are spending a lot of time on tasks that could be done autonomously if we lived and worked in a smart space/smart city.”

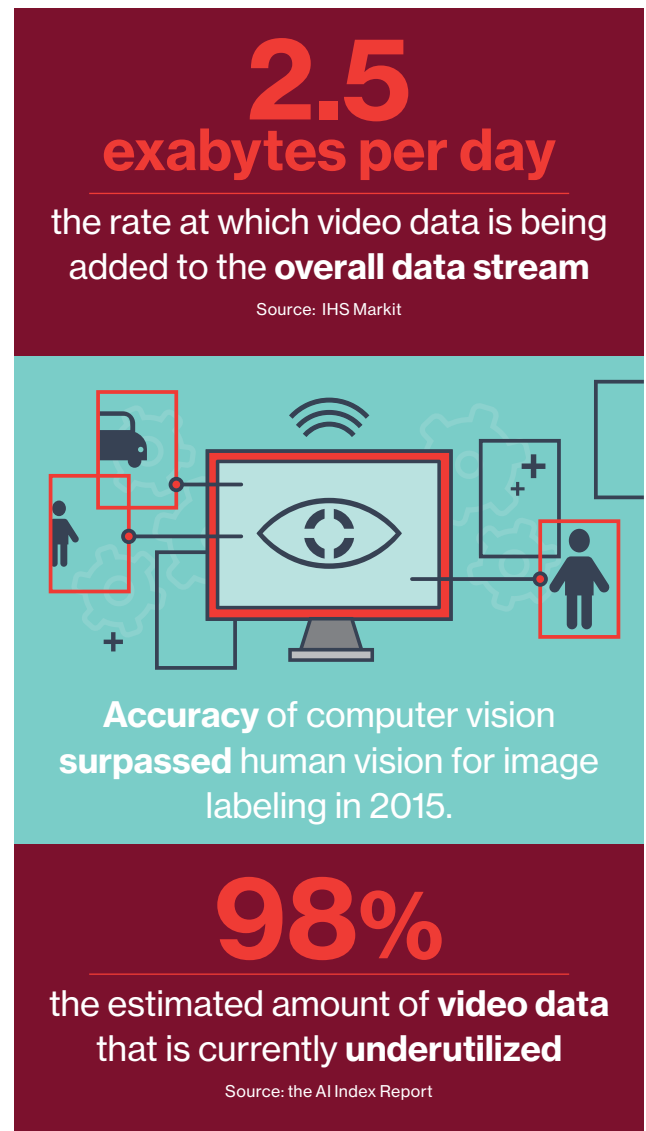
Thornton May, Futurist

The technological challenges of creating smart spaces include managing and integrating myriad data sources, sharing and processing that data, storing and managing large video files, and establishing a “single pane of glass” view to best inform operational decisions. “Being able to visualize all your smart spaces data in one place is a big challenge,” says Bean. “You want to get views of all data together to compare apples to apples and reveal insights.”

Getting smarter

The emergence of smart-spaces technology has led to a wide range of deployment types all over the world. As the convergence of technologies increases, so will the rate and complexity of deployments. Examples include:

- **Smart city:** The city of Las Vegas uses smart spaces technology to look at the streets as an ecosystem – monitoring intersections for safety and managing and monitoring the traffic of vehicles, bikes, and pedestrians, as well as parking and public transportation.
- **Smart government:** In India, a state government uses smart spaces data to create real-time governance – bringing together data from 30-plus departments to deliver a wide range of services, such as providing severe weather alerts improving ration services and pension programs, tracking and measuring rainwater and cyclones, and using agricultural data to ensure consistent food production.
- **Smart campus:** Curtin University in Western Australia is using data from a network of cameras and facial recognition technology to understand study patterns, course attendance, and campus activity to develop a greater understanding of how students learn, respond to different learning styles, and improve the overall student success and experience.
- **Smart manufacturing:** A Japanese chemical and manufacturing company Daicel has developed an image analysis system to measure worker activity in order to improve product quality, work efficiency, and safety while reducing operational errors.
- **Smart transportation:** In Indonesia, an airport services company uses video analytics to improve operational management, increase awareness, and provide an excellent customer experience for over 100 million passengers annually.



As smart space ecosystems share each other’s data, the insights and benefits increase dramatically. For example, if video and sensors in a stadium show how many people are flowing into the nearby transit system, the transit system can adjust frequency and capacity to accommodate peak flow and taper when flow ebbs. This makes transit operations more efficient and delivers a better experience for event attendees.

The potential of smart spaces is truly realized in these instances – when different systems share data and analytics are applied, the insights can have profound impacts across industries and will lead to smarter, safer, more efficient and enjoyable environments in all areas of cities and society.

Keeping pace in a smarter world is an executive briefing paper by MIT Technology Review Insights. It is based on research and interviews conducted in April and May 2019. We would like to thank all participants as well as the sponsor, Hitachi Digital Services. MIT Technology Review Insights has collected and reported on all findings contained in this paper independently, regardless of participation or sponsorship.

About MIT Technology Review Insights

MIT Technology Review Insights is the custom publishing division of *MIT Technology Review*, the world's longest-running technology magazine, backed by the world's foremost technology institution – producing live events and research on the leading technology and business challenges of the day. Insights conducts qualitative and quantitative research and analysis in the US and abroad and publishes a wide variety of content, including articles, reports, infographics, videos, and podcasts. And through its growing MIT Technology Review Global Panel, Insights has unparalleled access to senior-level executives, innovators, and thought leaders worldwide for surveys and in-depth interviews.

From the sponsor

Hitachi Digital Services, a wholly owned subsidiary of Hitachi, Ltd., helps data-driven leaders find and use the value in their data to innovate intelligently and reach outcomes that matter for business and society – what we call a double bottom line. Hitachi is a global leader in delivering smart spaces, enabled by Hitachi Video Insights, an end-to-end portfolio of products, and Hitachi Smart Spaces that includes compute capabilities from Intel® to provide rich insights that help to improve safety, operations, and experience for organizations across the globe.

Only Hitachi Digital Services combines over 100 years of experience in operational technology (OT) and more than 60 years in IT to unlock the power of data from your business, your people, and your machines. We help enterprises store, enrich, activate, and monetize their data to improve their customers' experiences, develop new revenue streams, and lower their business costs. Over 80% of the Fortune 100 trust Hitachi Digital Services for data solutions. Visit us at www.hitachids.com.

Hitachi Digital Services is a member of Intel® IoT Solutions Alliance, a global ecosystem of industry leaders to help OEMs, ISVs, and service providers accelerate deployment of best-in-class solutions. Hitachi Digital Services and Intel® have partnered to develop video, IoT, and analytics solutions that provide situational awareness and real-time alerts for smarter cities, operations, public safety, and security.



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Hitachi Video Insights Enables Safer and More Efficient Manufacturing



The manufacturing industry has a high rate of workplace accidents and injury, resulting in significant business impact and immeasurable human cost. In this solution profile, we detail how Hitachi's innovations in video intelligence are meeting that challenge across manufacturing and industrial facilities.

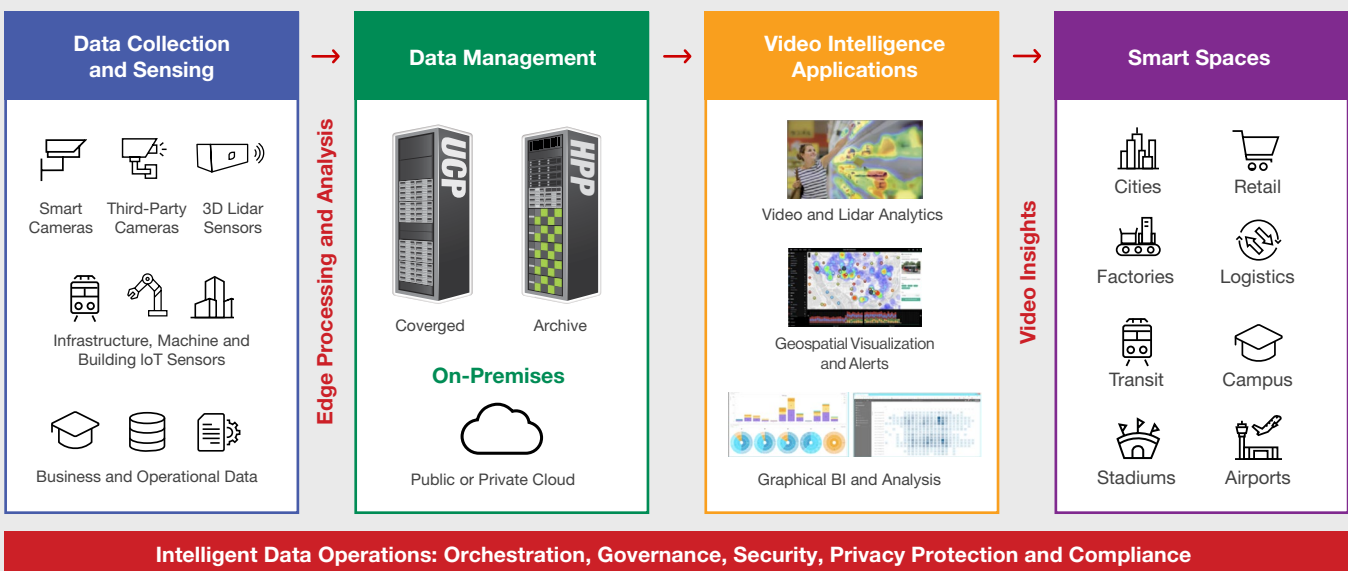
New Insights Help Manufacturers Utilize Smart Spaces.

Manufacturing remains one of the most important and prolific industries globally. But manufacturers today are facing increasing cost pressures, competitive landscape, technological disruption and higher expectations than ever around waste reduction, supply chain sustainability, regulations, worker safety and training. Those manufacturers who stay ahead of the curve and see technology as an opportunity to improve operations, safety and resource efficiency will thrive in this new world. Hitachi is one of the largest manufacturers in the world, and we face the same challenges as our customers. Through innovation we create solutions to these challenges.

Process, Waste and Worker Safety Problems Still Plague Manufacturing.

The manufacturing and associated warehousing industries have some of the highest rates of workplace injury across all leading sectors, with over 20,000 serious injuries from forklifts per year in the United States alone.¹ The human costs of this are immeasurable, and the business costs are high, with an average direct expense of \$35,000, and average indirect costs of \$150,000 per injury.

Process improvements and waste reduction are also ripe for optimization, with labor costs representing 50% of operating costs, and potential improvement estimates of 11-30% possible through technology, work measurement, and continuous improvement programs.²



Hitachi Smart Spaces solutions using Hitachi Video Insights provide rich intelligence and timely alerts to help manufacturers improve safety, operations and workforce management.

Hitachi Smart Spaces Measure What Was Previously Unmeasurable

Smart Spaces use innovations in the internet of things (IoT), artificial intelligence (AI) and sophisticated analytics to deliver valuable insights that help manufacturers improve their operations and worker safety. Hitachi Video Insights, a portfolio of video analytics, 3D lidar and applications that leverage computer vision and machine learning, is a key enabler of Smart Spaces. Smart Spaces transforms data into insights and timely alerts that empower organizations to do more with the resources they have.

Hitachi Video Insights helps manufacturers gain insights on assembly and process improvements, safety alerts and analysis. These insights help prevent or minimize injuries, and automatically detect waste accumulation to reduce scrap or optimize resource efficiency, and improve facility safety and operations. Integrate this data with existing machine or enterprise resource planning (ERP) data for holistic insights.

¹ <https://www.cdc.gov/niosh/docs/2001-109/>

² <http://cerasis.com/2016/07/12/warehouse-cost-savings/>

Learn More About Smart Spaces →

Optimize Processes, While Improving Safety and Compliance.

Improve Worker Safety

Detect intrusions into dangerous areas, alert for slip and falls, prevent forklift and robot collisions, identify processes points that are likely to be dangerous, and ensure facility security. average direct expense of \$35,000, and average indirect costs of \$150,000 per injury.

Improve worker health, safety and compliance, while reducing injury claim costs.

Enhance Human and Machine Operations

The motions in repetitive processes performed by people or machines can be learned by AI models that use 3D lidar or Hitachi Video Analytics data. They can identify opportunities for improvements in process or quality that ultimately improve business efficiency and productivity.

Improve quality and process efficiency through AI analysis.

Reduce Waste and Scrap

Scrap that isn't converted into material wastes money and energy, and is environmentally unsustainable. Correctly sizing, counting and measuring inventory and waste can help manufacturers more accurately utilize materials and parts, to improve production processes and resource efficiency.

Save material costs and improve productivity of resources.

Enhance Training and Worker Knowledge Transfer

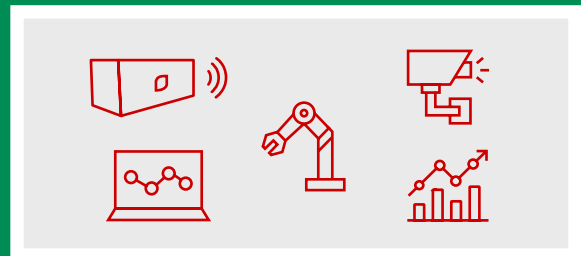
As experienced workers retire from the workforce, passing along their expertise can be challenging. With new tools, driven by AI and analytics, the learning curve of new workers can be shortened, and efficiency recommendations can help drive continuous improvement over time.

Continuous improvement from day one on the job.

Maximize Facility Security

Keeping your facilities secure keeps employees safe, reduces liabilities and prevents loss or shrinkage. Hitachi provides unified video and IoT security solutions that leverage your existing investment.

Protect people and assets with a holistic security solution.



- Advanced video analytics and 3D lidar deliver rich insights and timely alerts.
- Single pane of glass presents facility insights, live video and alerts, and statistical analysis.
- Custom-trained machine learning models deliver 4M insights.
- End-to-end solution for data capture, integration, management and analysis.

Hitachi: We're a Manufacturer, Too.

Hitachi operates nearly 200 manufacturing facilities, employing over 140,000 people around the world. We experience the same challenges as our manufacturing customers, and have deployed solutions to address these issues, which we are now sharing with the market to help our customers see the same benefits as our operations. We like to call this sharing process "drinking our own champagne." We do this because it just makes good business sense and we see real benefits from it.

In fact, [Hitachi's Omika Works factory](#) in Japan was recognized as an "Advanced Fourth Industrial Revolution Lighthouse" by the World Economic Forum in 2020. We invite our peers and customers to employ these same solutions to similarly improve their operations, training and safety, much as we do in our own facilities.

Next Steps

Learn more about how you can transform your operations to improve efficiency, worker safety and compliance with Hitachi Smart Spaces and Hitachi Video Insights, as well as digital solutions that can enhance maintenance and machine operations.

Gain visibility and insights across your manufacturing process and facilities with [Hitachi Video Insights](#).

Create [Smart Spaces](#) that help to improve safety, operations and experience of workers.

Transform your operations with [Hitachi Manufacturing Insights](#) from Hitachi Digital Services.

Learn how data-driven operations can [support your digital transformation](#) by providing AI-enabled industrial analytics.



Admittedly, we didn't know how to go about changing our business with digital tools. We're not experts in digital technologies. We had to start developing a culture and mindset for digital transformation. But since partnering with Hitachi Digital Services, it's been a wonderful journey...

... Previously, we were very data rich, but were probably not even using 5% of that data. With Hitachi Digital Services, we now know what's possible... It is exciting to have all our machines integrated in one place and be able to extract value from our data.

Vijay Kamineni,
Business Transformation Leader at Logan Aluminum

Learn more about how Hitachi Smart Spaces and Hitachi Video Insights can measure what was previously unmeasurable and provide rich intelligence to improve your manufacturing operations and safety.

[Learn More](#) →

Danger and Restricted Area Entry Alerts



Time is of the essence when an unauthorized person enters a restricted zone, especially when heavy machinery or equipment is nearby. See how Smart Spaces and Video Insights leverages Hitachi Smart Cameras and 3D lidar sensors to provide real-time alerts about active threats while also cataloging the incident for future action.

SAFETY AND SECURITY

Warehouse | Distribution | Manufacturing | Airports | Ports



Objective

Increase safety and gain greater insight into incidents.

Challenge and Market

Monitoring all restricted zones at your facility can be a daunting and time-consuming task. When unauthorized personnel enter these zones, immediate notifications of entry are necessary to capture all pertinent details around the entry. Unfortunately, this is sometimes impossible to do if the right resources are not in place. And sometimes these nonemployee entrants to a restricted zone can be injured amid the operation of heavy machinery or equipment.

How It's Done Today

A potential solution to this challenge is to contract with a third-party security guard company. However, this approach can be costly, and you may encounter other challenges around skills, knowledge, or overall staffing. Another approach is to install cameras that record 24/7 with a central command center that requires an individual to monitor all entry points simultaneously. Unfortunately, standardized security cameras struggle with analytics and proper filtering, real-time alerting, and cataloging, as well as the future-proofing of your deployment with the element of automation.

How Technology Will Address the Challenge

With Hitachi Smart Spaces and Hitachi Video Insights technologies, via Hitachi Smart Cameras and a robust video management platform, you can monitor all spaces at your facility. This solution provides real-time alerts to active threats, while automating the recording and cataloging or tagging of the incident to review later.

Solution

Hitachi Video Analytics, Hitachi Visualization Suite, Hitachi Smart Cameras, Customer's Existing Camera Infrastructure, Hitachi 3D LiDAR Sensor.

Smart Spaces and Hitachi Video Insights

Benefits



• Increase safety and security of staff.



• Improve response times to potential threats.



• Improve safety protocols.



• Proactively address weak points in security.

Smart Spaces are emerging all around us, becoming safer, more sustainable, and improving our experience, while driving efficiency.

[Learn More](#) →

PPE Adherence



Personal protection equipment (PPE) such as masks, gloves, vests and hardhats go a long way toward keeping workers safe on the job. But they only protect personnel if they're being worn — and worn correctly. Learn how video software overlays of video feeds orchestrated by Smart Spaces and Video Insights can spot missing or misused PPE in real time and provide instant alerts to ensure compliance and increase overall employee safety.

SAFETY AND SECURITY

Warehouse | Distribution | Manufacturing



Objective

Enhance employee safety.

Challenge and Market

Workers suffer from a range of injuries yearly, from mild scrapes to amputations and even fatalities. It is paramount that organizations ensure that personal protection equipment (PPE), such as masks, eye protection, gloves, and hardhats, is being worn. Unfortunately, injuries still occur as a high level of noncompliance with PPE protocols has become an alarming trend that poses a serious threat to worker health and safety.

How It's Done Today

Today, this process is completed by a supervisor or security officer, who performs manual adherence checks to the PPE protocols. Additionally, buddy system protocols are in place for fellow coworkers to help report violations or hold their peers accountable. Although these systems are good, safety and security issues still exist, as it is unrealistic to have a physical resource in place at every station, for every moment of the day. This approach is costly and unnecessary.

How Technology Will Address the Challenge

Hitachi Smart Spaces and Hitachi Video Insights technology provides video software overlays of video feeds, which allow organizations to observe objects such as masks and gloves, identifying when PPE items are missing. With our single-pane-of-glass customizable dashboard, these PPE analytics can be displayed in a single view, and you can enable real-time alerts and notifications to the proper staff when PPE is not being worn. To further inform your safety and security efforts, combine these technologies with CCTV and/or Hitachi 3D LiDAR Sensor.

Solution

Hitachi Video Analytics, Hitachi Visualization Suite, Hitachi Smart Cameras, Customer Existing Camera Infrastructure, Hitachi 3D LiDAR Sensor.

Smart Spaces and Hitachi Video Insights

Benefits



• Increase workplace safety compliance.



• Increase efficiency by automating PPE detection.



• Decrease overall emergencies.



• Decrease system downtime due to available operators.



• Increase employee safety satisfaction rate.



• Increase operational quality.

Smart Spaces are emerging all around us, becoming safer, more sustainable, and improving our experience, while driving efficiency.

[Learn More](#) →

Spills and Blocked-Path Detection



Spills and impediments to foot traffic and equipment traffic can be difficult if not impossible to predict — and prompt action is crucial for preventing the accidents and injuries that can result. This use case details how Hitachi Video Analytics and Hitachi Smart Cameras detect areas of concern and notify the proper parties in real time, along with proactively identifying areas of future risk.

SAFETY AND SECURITY

Warehouse | Distribution | Manufacturing



Objective

Identify potential hazards and traffic impediments before an accident occurs.

Challenge and Market

Potentially hazardous areas don't get reported until an injury has already occurred and video evidence is often difficult to find. The U.S. Department of Labor's Bureau of Labor Statistics reports 247,120 nonfatal cases involve falls, slips, and trips. This accounts for a substantial loss in production quality, increases in insurance cost, the need for continuous retraining, and other medical, legal, and travel expenses for the injured parties.

How It's Done Today

Today this challenge is mainly addressed by primitive methods — such as employee training — to create awareness and identify areas of risk, determine how to mitigate potential areas of threat, and/or enable employee observation and action. Additionally, standards and policies have been introduced to potentially mitigate the opportunity for some, but not all situations. Unfortunately, these methods are not always effective, as most of the time it is too late before discovering the slip, trip, or fall hazard.

How Technology Will Address the Challenge

With Hitachi Video Analytics and Hitachi Smart Cameras you can detect areas of risk in real time, which will prompt immediate notification for review as well as instant alerts of the hazardous situation and/or object sent to appropriate staff. With Hitachi's video software overlay over your existing video feed, we can identify a potential area of risk, such as a blocked path or spill hazard, before an injury occurs. All video footage is stored in digital archive, and with our case management system it will help track all evidence needed for review of the situation.

Solution

Hitachi Video Analytics, Hitachi Visualization Suite, Hitachi Smart Cameras, Customer Existing Camera Infrastructure, Hitachi 3D LiDAR Sensor.

Smart Spaces and Hitachi Video Insights

Benefits



• Manage liability with data and video.



• Implement safety improvements to ensure worker safety.



• Mitigate slip, trip, or fall hazards before they create an issue.



• Reduce number of slips and falls.

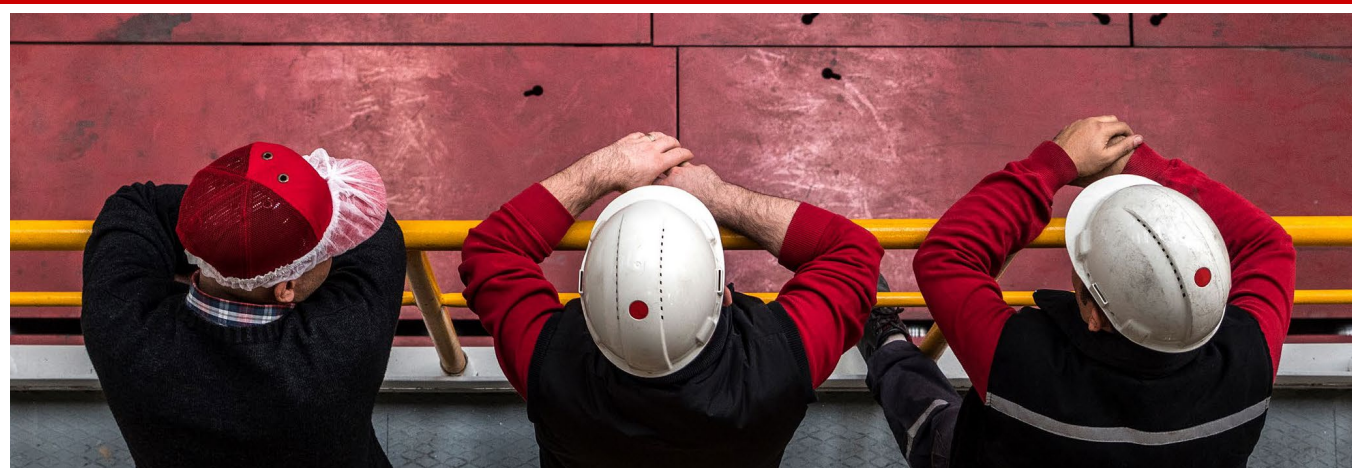


• Proactively identify areas of future risk.

Smart Spaces are emerging all around us, becoming safer, more sustainable, and improving our experience, while driving efficiency.

[Learn More](#) →

Slip and Fall Detection



Falls, slips and trips are common hazards in manufacturing facilities, and their danger is exacerbated in “lone worker” situations where it may be hours before the injured worker is found. See how Hitachi’s video intelligence solutions detect these events in real time across the factory, enabling organizations to get help to employees faster and preserve video footage for review and case management after the incident.

SAFETY AND SECURITY

Warehouse | Distribution | Manufacturing



Objective

Determine areas of risk, track and send alerts of incidents, and, when incidents happen, send alerts to prompt review.

Challenge and Market

The U.S. Department of Labor's Bureau of Labor Statistics reports 247,120 non-fatal cases involved falls, slips, and trips. Hazardous and unsafe areas do not always have fellow employees nearby to monitor them consistently, which would offer the opportunity to come to the aid of somebody who has fallen. Many industrial, warehouse and distribution facilities rely on "lone workers" to operate areas of their facility or the full facility. Unfortunately, it may be minutes to hours before an injured person has been noticed and proper staff are alerted.

How It's Done Today

Today, this challenge is mainly addressed by a variety of foundational methods, from employee training to creating awareness, as well as employee observations of a person who has slipped, tripped, or fallen on-site. CCTV cameras may also be in use, but, unfortunately, these methods are not always effective, as constant monitoring of the CCTV camera is required to observe a person who has slipped, tripped or fallen.

How Technology Will Address the Challenge

With Hitachi Video Analytics and Hitachi Smart Cameras, you can detect falls and injuries in real time, receive instant alerts of the injured individual, and immediately tag the incident for review. In some situations, with Hitachi software overlaying your existing video feed, we can identify a potential area of risk before an injury occurs, such as a blocked path or spills hazard. All video footage is stored in a digital archive, and with our case management system it will help track all the evidence needed for review of the situation.

Solution

Hitachi Video Analytics, Hitachi Visualization Suite, Hitachi Smart Cameras, Customer's Existing Camera Infrastructure, Hitachi 3D LiDAR Sensor.

Smart Spaces and Hitachi Video Insights

Benefits



Improve reaction time to fallen or injured employees.



Provide full-time safety monitoring of all employees in specific area.



Reduce number of understaffed teams and loss of production quality.



Immediately notify proper staff of fallen employees.

Smart Spaces are emerging all around us, becoming safer, more sustainable, and improving our experience, while driving efficiency.

[Learn More](#) →

See it. Understand it. Fix it.

If you want to see what's really happening under your manufacturing or industrial facility roof, we can help. Contact us at hitachids.com/service/smart-spaces and we'll explore how you can:

Enhance your operational efficiency and safety.

Discover how video intelligence can transform your manufacturing operations by providing real-time insights and analytics. Learn how proactive anomaly detection and fast incident response can improve safety, streamline your processes and reduce your operational downtime.

Dive into the power of data-driven decision-making.

Make that switch from reactive to proactive with video intelligence solutions that harness advanced analytics to turn raw video data into actionable insights. Uncover how to make informed choices, optimize your resource allocation, and boost your efficiency and effectiveness.

Unveil smart manufacturing's potential.

Future-proof your manufacturing operations and facilities with Smart Spaces and Video Insights. Get inspired by our wide range of real-world use cases that demonstrate the transformative impact of smart manufacturing on safety, productivity and bottom-line results.



About Hitachi Digital Services

Hitachi Digital Services, a wholly owned subsidiary of Hitachi Ltd., is an edge-to-core digital consultancy and technology services provider helping organizations realize the full potential of AI-driven digital transformation. Through a technology-unified operating model for cloud, data, and IoT, Hitachi Digital Services' end-to-end value creation for clients is established through innovation in digital engineering, implementation services, products, and solutions. Built on Hitachi Group's more than 110 years of innovation across industries, Hitachi Digital Services helps to improve people's lives today and build a sustainable world tomorrow. To learn more, Visit www.hitachids.com.

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