REMOTE INSPECTIONS

A SOLUTION FOR THE PRESENT, AN OPPORTUNITY FOR THE FUTURE

BUREAU VERITAS

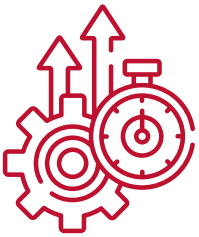
ACCELERATING CHANGE
TO MEET CHALLENGING TIMES

In these turbulent times, organizations worldwide are rethinking the way they do business following the rapid acceleration of digitalization trends and uptake of remote working. This has created both challenges and opportunities across sectors, driving a shift toward remote inspections that have revealed multiple advantages. This is even more relevant for organizations relying on complex supply chains for which continuity and resilience must be and remain at the highest level.

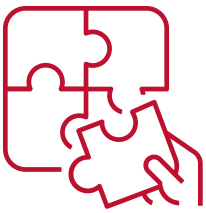
Crucially, remote inspections ensure business continuity by maintaining inspections when travel is impossible for inspectors, auditors and surveyors. They improve efficiency, optimize costs and help companies meet regulatory, health, safety, quality and environmental needs. Remote-enabled services also provide faster decision-making and shorter response times.

Asset and product owners can now access the suite of technologies that make remote surveys, audits and inspections possible. The result? Businesses across an array of industries are reaping the benefits of remote inspections[1].

11
Remote inspection **platforms**



70%
Gain in **productivity***
** Measured in hours saved by technicians*



20%
Faster issue **resolution times**

Contents

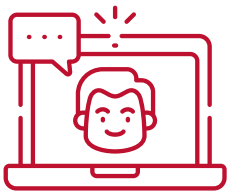
[1] While remote inspections are a growing phenomenon, they are neither obligatory nor suited to all work scopes and applications. Remote inspections may be performed upon client request solely if the work required meets certain prerequisite conditions, including party acceptance, assurance of scope, and compliance with regulatory frameworks. This white paper explores those remote inspections that can be conducted within these parameters.

WHAT IS A REMOTE INSPECTION?

A remote inspection uses technology to enable qualified auditors, inspectors or surveyors to perform an inspection without being onsite. Typically, an intermediary moves around the site, guiding the remote inspector via technology such as smartphones and tablets through areas undergoing assessment.

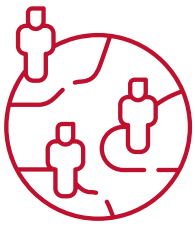
Remote inspections are commonly performed when risks to health and safety, or questions of time or cost, make in-person inspection inadvisable or impossible. With remote inspections, asset owners can ensure business continuity, while maintaining both safety and the compliance of their assets and products. Additionally, sites undergoing remote inspection can limit resource expenditure and ensure the availability of production resources, and minimize carbon emissions.

The 3 types of remote inspection



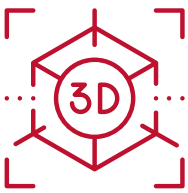
FULLY REMOTE INSPECTIONS

are performed when a supplier, vendor or end customer is onsite and can communicate with remote inspectors, surveyors and auditors via technology (e.g., laptops, smartphones, sensors).



HYBRID INSPECTIONS

take place when inspectors and surveyors are onsite and can stream a live feed to experts located elsewhere for additional support.

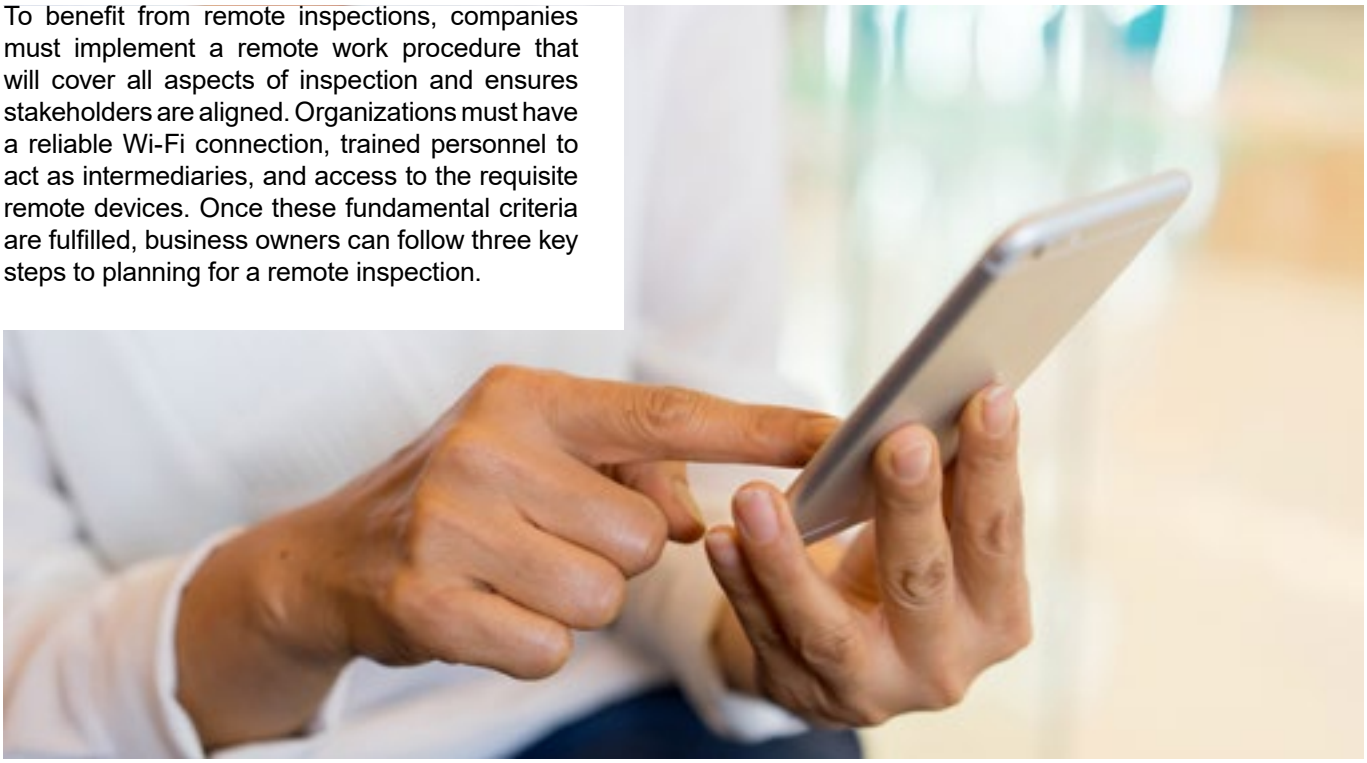


AUGMENTED INSPECTIONS

involve onsite inspectors and technicians using 3D model overlays, digital measurements and augmented reality tools to perform audits, surveys or inspections.

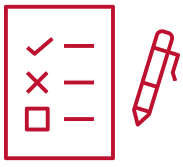
PREPARING FOR A REMOTE INSPECTION

To benefit from remote inspections, companies must implement a remote work procedure that will cover all aspects of inspection and ensures stakeholders are aligned. Organizations must have a reliable Wi-Fi connection, trained personnel to act as intermediaries, and access to the requisite remote devices. Once these fundamental criteria are fulfilled, business owners can follow three key steps to planning for a remote inspection.



ASSESSING SCOPE

The first step in preparing for a remote inspection is to assess its scope. The client must determine what areas, machinery or products need to be evaluated, inspected or audited for them to continue to meet regulatory requirements.



DETERMINING READINESS

An organization's contractual obligations and willingness to undergo remote inspection are the first things to consider when determining a company's readiness for remote inspection. Onsite Internet connectivity must then be taken into account, as well as environmental factors and industry-specific constraints, risks and regulations.

CHOOSING THE RIGHT TECHNOLOGY

Organizations must evaluate approved technical solutions – such as drones, sensors, robots and live streaming – and choose the device(s) best suited to their remote inspection needs.
An experienced partner with the right technical expertise can help guide businesses toward the right solutions and their proper use.

[2] *Remote solutions are only considered if the relevant regulatory framework allows for them.*

REMOTE INSPECTIONS IN ACTION

Remote inspections come in many forms, but their benefits are universal: reduced risk, limited carbon emissions, optimized costs, regulatory compliance and business continuity.

Our in-depth look at six sectors – Buildings & Infrastructure, Industrial Product Certification, Marine, Power & Utilities, Onshore Oil & Gas, and Offshore Oil & Gas – explores how remote inspections deliver key advantages.

ENSURING BUSINESS CONTINUITY FOR ASSET OWNERS

Meeting requirements for Buildings & Infrastructure

The stakes are high in the building and infrastructure industry, where the safety of assets and equipment is paramount. Inspections for onsite construction, facility management and infrastructure such as roads, ports, tunnels, bridges and railways must meet the highest levels of safety requirements.

Remote inspections help achieve this by offering owners a comprehensive understanding of what is happening onsite and in facilities where people work. By using digital platforms and sensors for remote inspection and data collection, owners can get an exact picture of how assets are functioning. This is complemented by live streaming technology, which gives an up-to-the-moment view of construction sites. Owners with digital twins of their assets can further apply augmented reality techniques to remotely perform accurate, comprehensive inspections, including for hidden or hard-to-reach areas

Remote inspections can be conducted using onsite cameras, enabling inspectors to remotely check on work progress and supervise construction sites. This improves overall safety by minimizing human work in dangerous conditions, optimizes costs by limiting travel, and boosts project efficiency by increasing onsite digitalization.

Prioritizing conformity for Industrial Product Certification

Lives depend on industrial equipment working properly and safely. This is why the industry is subject to some of the world's highest safety and reliability regulations and standards. Every component or piece of equipment, from machinery and complex industrial installations, to elevators and containers, must meet strict requirements.

To ensure conformity is achieved during remote inspections, auditors or inspectors must perform a risk analysis on the manufacturing site and verify compliance with certification schemes and accreditation bodies. Once approved, remote techniques can be used throughout the manufacturing process, going beyond already remotely performed design approval to include construction, prototype approval and the inspection of finished products. Remote inspectors can perform analysis, inspections, tests and test verification digitally.

Inspectors leverage remote inspections primarily to conduct conformity assessment tasks. Business owners can benefit from a faster response time from auditors and inspectors, and gain easy access to a variety of industry experts. This ensures inspections are being conducted to the most rigorous specifications, while optimizing costs and adhering to health and safety regulations.

"Remote techniques can be used throughout the manufacturing process, going beyond already remotely performed design approval to include construction, prototype approval and the inspection of finished products."

Achieving compliance for the Marine industry

Ships of all kinds must undergo regular surveys to comply with local, national and international regulations, such as those of the International Maritime Organization. However, worldwide quarantines have restricted surveyors from going onboard to conduct necessary inspections, forcing ship owners to delay required surveys.

As a result, many ship owners and operators are opting for remote surveys to ensure they remain compliant at all times. Ship managers and operators can work with marine surveyors who provide full, partial or offline remote inspections. Without ever setting foot onboard, marine surveyors can conduct remote inspections and certify ship compliance, using remotely controlled drones and robots, live streaming solutions and augmented reality.

The same techniques can also be applied to ships under construction, when assessing ship integrity and compliance requires the input of multiple experts located in different areas.

Beyond verifying compliance, remote surveys help ship owners minimize costs, improve safety and boost efficiency. Surveyors can avoid onboard risks such as inspecting confined spaces or hazardous areas, eliminate travel and the associated carbon emissions, and easily consult with experts around the world.

50,000+

Ships in the global merchant fleet

100%

Large classification societies offering remote inspections

10+

Approved digital platforms for performing remote inspections

SPOTLIGHTING THE ENERGY INDUSTRY

Improving safety for Power & Utilities

The proper functioning of nuclear power plants, offshore wind turbines, power lines and more is critical to providing energy worldwide. But onsite personnel can face serious risks. For companies working with technologies for power generation, transmission and distribution, improving safety and minimizing risk are top priorities.

Remote inspections thus play a crucial role, eliminating the need for inspectors to be physically present in hazardous environments, or work under dangerous conditions. This enables business owners and operators to minimize risk, while complying with technical and safety regulations for in-service assets and equipment manufacturing.

Additionally, the technologies available for conducting remote inspections – including sensors, drones, robotics and augmented reality solutions – help boost the accuracy of information collected from assets. This gives an accurate picture of asset condition, further supporting safety for those handling asset maintenance going forward.

"Remote inspections enable business owners and operators to minimize risk, eliminating the need for inspectors to be physically present in hazardous environments, or work under dangerous conditions."

Optimizing costs for Onshore Oil & Gas assets

Onshore oil and gas assets are required to operate with equipment that complies with regulations set by manufacturers, construction advisors and regional authorities. Regular inspections are necessary, but can prove expensive when involving travel and accommodation costs at peak times, or when several inspectors are required.

Remote inspections using drones, endoscopes or live streaming can reduce the cost of preparation by removing the ancillary structures needed to access the spot or eliminate the costs of sending inspectors to manufacturing plants or onshore assets. They are ideal for short-term spot inspections, which otherwise necessitate expensive and non-sustainable air travel for a stay of just 24 hours.

For longer-term inspections, an intelligent mix of hybrid and onsite inspections can help owners adjust costs without compromising the quality and rigor of the inspection process. An experienced inspection body can help companies find the right mix for their particular needs, balancing cost reduction with optimal inspection results.

Achieving business continuity for Offshore Oil & Gas

Recent world events have created some major challenges for the offshore oil and gas industry. Despite this, offshore operators have had to maintain business continuity, keeping assets running safely and complying with regulations in the face of mass remote working and operational slowdowns.

To overcome these challenges, offshore asset operators around the world have switched from onsite to remote inspection in unprecedented numbers. Remote inspections use a variety of technologies – from sensors and cameras to live streaming and digital twins – so assets can undergo inspection from a distance without any disruption to operations. This helps verify asset safety and compliance, enabling asset owners and operators to achieve business continuity, while maintaining productivity and profitability.

THE FUTURE
OF REMOTE INSPECTIONS

While in-person inspections will never be obsolete, the benefits of remote inspection are so significant that the practice is only gaining traction. It has been instrumental in helping companies maintain business continuity and remain compliant throughout a crisis, and will continue to be a solution of choice moving forward.

For the moment, the future of remote inspections will likely be as part of a hybrid model that combines in-person inspections with remote technologies. Fully remote inspections will remain a strong option when in-person inspection is not possible or advisable.

The potential for remote inspections is truly vast. As technology continues to evolve, more and different types of remote inspections will become available. Each industry will develop at a different pace, and regulations for each sector will change to accommodate new methods of working. It will be key for businesses and inspectors to work closely with regulatory and accreditation bodies to develop safe, efficient remote inspections.

Moreover, uptake is likely to be exponential, as more organizations become aware of the benefits in terms of cost, time, safety and quality. And as the planetary push toward more environmentally friendly working methods continues, remote inspections will become an obvious choice for organizations looking to reduce their carbon footprint.

INCREASE EFFICIENCY

IMPROVE SAFETY

OPTIMIZE COSTS

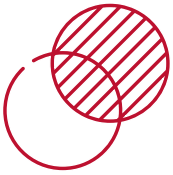
ACHIEVE COMPLIANCE

UNDERGOING
REMOTE INSPECTION WITH BUREAU VERITAS

Part of our larger Remote Intelligence Platform, Bureau Veritas' remote inspection capabilities are available across industries. We offer remote and augmented inspections to enhance traditional inspection methods, as well as to support the fast-changing digital infrastructure of our clients' current inspection models. Bureau Veritas can also provide cyber risk evaluations to secure the connection between our experts and on-site auditors.

80%

of inspections performed remotely during quarantine*

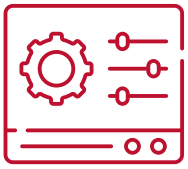


TRANSPARENCY

Bureau Veritas' remote inspections are designed to offer complete transparency, ensuring clients receive high-quality, efficient, minimum-risk inspections that meet both their expectations and regulatory requirements.
Our remote solutions are as trustworthy as traditional inspections, enabling customers to confidently choose the remote or mixed solution that suits their needs. Our innovative test witnessing and inspection services are designed to carry our clients through every challenge, meeting evolving regulatory needs and setting clients up for success.

EXPERTISE

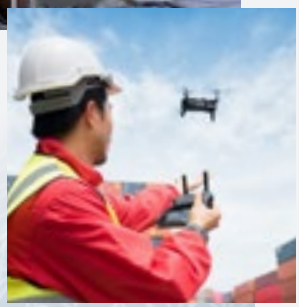
Leveraging the experience and know-how of our teams across all industries, Bureau Veritas has built our remote inspection offer based on extensive research.
Our working groups have brought together experts from across the company and the world to explore the best ways to deliver remote inspections for each industry.
Our offer accounts for multiple different approaches, regulations, available technologies, risks and limitations, and integrates invaluable client feedback.



ADAPTABILITY

Bureau Veritas remote inspections are designed to adapt to each client's needs. We have partnered with multiple technology leaders to incorporate flexibility into our service offering, so we can provide the tailored solutions that remote inspections demand. Our remote inspections are bespoke services that take into account each client's sector constraints, technological maturity, connectivity capacity and regulatory obligations.

** Maximum percentage for some BV customers*



ABOUT BUREAU VERITAS

Bureau Veritas is a Business to Business to Society company, contributing to transforming the world we live in. A world leader in testing, inspection and certification, we help clients across all industries address challenges in quality, health & safety, environmental protection and social responsibility.

For more information, contact Bureau Veritas:

Le Triangle de l'Arche
8 cours du Triangle
CS 90096
92937 Paris La Défense Cedex
FRANCE

www.bureauveritas.com

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