

Testing Inspection Certification (TIC) Organizations:

A unique and challenging
service model



Some IFS customers rely on highly complex infrastructure and workflows to provide essential services to their customers. But no industry comes close to the complicated and unpredictable reality companies face within the Testing Inspection Certification (TIC) sector.

Charged with providing a range of assessment services for just about every industry under the sun, as a TIC organization, you must follow what is often the random progression of your work. If an inspection uncovers an anomaly, the assessor must track it down to its source, understand the root cause, and whether or not the outcome conflicts with the relevant guidelines and regulations. For this reason, it's impossible to predict the scope of the work you do, including how long—and how impactful—your service scenarios will be.

This paper delves into the unique and expansive services the TIC sector provides. We will examine the challenges you face in carrying out your work within an incredibly complex, reactive environment and how technology plays a vital role in helping you increase efficiencies while driving down costs.

The Industry

The global TIC market was valued at [338.7 billion USD in 2021](#) and is expected to expand at a compound annual growth rate (CAGR) of 4.0% from 2022 to 2030. These numbers reflect the demand across industries to standardize operations, optimize quality, ensure high productivity, and maximize efficiencies.

The provision of TIC services began in the late 19th century due to the considerable risks associated with high-pressure steam boilers—a product of the industrial revolution. In response, specialized service providers emerged across Europe to carry out regular inspections as a precautionary measure, assessing overall conditions to avoid extensive and often deadly damages.

Before this—in the 18th and 19th centuries—there were classification societies used by shipping underwriters to assess the condition of ships and equipment.

Over the years, these different services combined to form the TIC sector that we know today. The industry is supported by associations such as the [TIC Council](#), representing about 90 of the world's leading TIC organizations, and the Chinese Testing, Inspection and Certification Education Association (CTICEA), which develops qualifications standards for the Chinese TIC industry.

Today, the TIC sector employs millions of workers in 160 countries, with approximately [\\$200 billion USD](#) in sales.



**338.7 B
USD**

Value of global TIC
market in 2021

TIC Organizations

Organizations within the TIC sector provide assessment services such as testing, validation, declaration of conformity, and other activities. The work ranges from certifying good practices to proof of compliance with industry and government regulations—and everything in between.

According to the [TIC Council](#), members serve virtually all economic operations, including automotive, commodities, consumer, environment, food, life sciences, industrial, maritime, medical, oil and gas, petrochemical, leisure, education, systems, compliance, trade assurance, and many more.

The services provided are as varied as the industries served. Some work is relatively straightforward. For example, collecting readings from equipment, monitoring tolerance thresholds, performing simple tests, and other activities. An audit for one customer may be a walk around a factory, or it could involve climbing a power station and examining high-voltage transformers.

The customer relationship is also variable. Sometimes TIC organizations work on behalf of a customer. Other scenarios may require that you work on behalf of a regulatory, legal, or statutory body.

It's an astounding scope of work that must be managed even though there is no way to predict how much time is needed. Although audits and inspections follow prescribed workflows, the information uncovered during an assessment impacts the scope. Each step could result in new and additional steps.

The TIC Workforce

Most organizations rely on highly skilled experts to carry out assessments. Depending on the scenario, your workers may need specific qualifications to perform the work, including certifications and degrees.

For example, the design and construction of an office tower require hundreds of inspections and approvals by many different specialists. Safety, structural, electrical, plumbing, building code compliance, and many other areas must be approved and signed off—protocols that often require an engineer's seal or a specialist's certification number before the project can proceed.

Further layers of complexity are introduced when you consider standards imposed by different countries, industries, and other associations. Building a tower in Britain requires an entirely different team of experts and qualifications versus a project in the United States.

Given so many different scenarios and use cases, it's no surprise that many businesses in the TIC sector manage workforces in the tens of thousands. Organizing such a vast group with insight into individual skill sets and credentials is a mammoth task.



Technology-Enabled Practices

Although operating on a different scale than most, the TIC sector remains a service industry, presented with the same challenges—and opportunities—as all service industries.

You must continually examine and adjust your infrastructure and workflows to be as safe and efficient as possible. Are you optimizing your workforce? Do you have enough people with the necessary qualifications and skills? Are you basing your actions and decisions on real-time information? Is the business profitable?

Workforce Optimization

The biggest cost center within the TIC sector is the people. Like all service organizations, how you manage these valuable resources is critical to the business's success. IFS simplifies the coordination of these many moving pieces. Here's how we help:

Scheduling, planning, and routing

Most TIC organizations don't generally deal with break/fix scenarios. Instead, the focus is on planning and routing to maximize throughput. Assessments follow a cyclical, predefined schedule for a more predictable and less reactive model.

IFS utilizes powerful artificial intelligence (AI), machine learning (ML), real-time data, and automation to help drive valuable efficiencies in planning, scheduling and routing. Proprietary algorithms are executed in milliseconds to identify the optimum resource(s), the fastest routes, and other critical factors.

With a focus on long- and short-term capacity planning, TIC planners rely on the dynamic [IFS Lobbies and Dispatch Console](#) to visualize and manage their workforce.



[Bureau Veritas North America](#) is a world leader in testing, inspection, and certification services. The company relies on service management software from IFS for project and contract management to perform second-party inspections within one of its oil and gas groups. IFS enables the group to know where resources are and where they need to go, with administrative support for billing and other details.

Event



An assessment is added to the schedule.

Order



An order is generated automatically, populated with all of the associated task details.

Technician



The best specialist is assigned based on cost, qualifications, skills, experience, location, availability and other factors.

Post-Event



Actions and outcomes integrate with existing data in real-time for proof of compliance and future context.

Of particular value to TIC organizations is the ability to adjust the schedule based on real-time activities in the field. For example, if a specialist completes a job sooner than anticipated, the scheduling engine dynamically shifts the timeline, incorporating additional jobs if possible. Given the uncertain scope of assessments, this automated approach to scheduling allows your planners to focus on exceptions and thus optimize productivity in the field.

Long-term capacity planning is essential for TIC organizations. This is especially relevant when the business is bidding on a new contract and must ensure it has the resources and capacity to meet SLA and other commitments that are part of the agreement. The IFS [what-if scenario explorer \(WISE\)](#) scopes and explores different options, providing highly accurate predictions and helping to inform these important business decisions.

Integrated service models

Although we are all impacted by the [global skills shortage](#), TIC organizations face an even steeper curve. A reliance on specialist workers with specific qualifications (experience, certifications, degrees, etc.) shrinks an already tiny talent pool.

For this reason, many TIC companies depend on subcontractors and other third-party sources to help fill the gap. Although research indicates that [44% of workforce spend](#) is used to support an external workforce, it's likely much higher within this sector.

[Managing a contingent workforce](#) presents challenges in tracking subcontractor profiles, costs, and other information.

IFS simplifies the integration of an external workforce into an existing operation, providing you with a singular view of your employee base regardless of worker status. Subcontractor information (cost, experience, skills, certifications, degrees, etc.) is maintained in the IFS system to help drive the scheduling process, considering all available resources and constraints.

With permissions set by administrators, subcontractors in the field can easily access IFS via a number of methods for historical and other information they may need in the moment. Once completed, job status and other details automatically update your back-office systems in real-time.

Mobile workforces

Most assessments occur onsite. Since TIC organizations serve just about every industry, the locations and conditions range from controlled to extreme environments. Worker health and safety are paramount. The IFS platform maintains a connection with your workers regardless of location. Even in areas where coverage is intermittent, worker activities are tracked and recorded.

Another consideration is the equipment used by specialists in the field, which must support the nature of the work and the environments in which these activities occur.

Although field technicians from other sectors comfortably interact with systems using a smartphone, TIC specialists collect a high volume of data and details that often necessitate a laptop or ruggedized device with a full function keyboard and screen. The IFS platform works on iOS, Android, and Windows devices, in both online and offline mode to support every potential use case and environment.



44%

Overall spend
on external
workforces.

Data-Driven Workflows

Underpinning the entire operation is the data. TIC specialists collect, examine, record, and use data in all their work.

Historical data

IFS integrates with enterprise resource planning (ERP), customer relationship management (CRM) and other enterprise infrastructure. Specialists in the field can easily access historical information about specific systems and assets, such as work orders, failures, repairs, etc. This deeper perspective makes it easier to spot recurring incidents and trends to help inform the assessment.

Reports, forms, and other records

TIC workflows generate a large volume of forms and reports that often require a dedicated and specialized technology that falls beyond mobile workforce and field service management solutions.

The IFS document management application is dedicated to these administrative aspects of the work. The system handles documents in their native format, with approval routing, revision, and document distribution capabilities. Rather than relying on one-off attachments, the application serves as a comprehensive third-party document management system.

The application integrates seamlessly with IFS technology, storing documents with call tickets, customer accounts, and other records.

Dynamic data

As with many service organizations, it's not uncommon to find TIC companies relying on archaic data capture systems such as hardcopy notes and Excel spreadsheets. This lag becomes more pronounced as our data becomes more varied, expanding to incorporate multimedia sources such as photographs, videos, voice recordings and others.

For example, an inspector puts a fiber camera down a wire to obtain readings for calibration, density, viscosity, and moisture, recording the process on the camera. Once completed, the inspector compiles their findings, storing the written information with the video. This straightforward workflow can be very complicated if the underlying systems don't support a range of data files.

Data integration

IFS manages the data flow between the field to the back office, seamlessly integrating with critical enterprise systems such as ERP, CRM, and others. It automatically updates these systems based on activities in the field, providing real-time information for invoicing, inventory, and scheduling, with a future-forward view to maximize workforce productivity.



The Future

As TIC organizations evolve, digital technologies will become more mainstream, edging out less agile legacy infrastructure. The service model itself is also shifting, with composable models gaining acceptance.

New technologies

Remote assistance: With advances in mobile and virtual reality (VR) technologies, a qualified expert may no longer be required to attend every site visit. For example, the early adoption of merged and augmented reality tools supports a shared experience, where an expert guides a worker through the steps of an assessment remotely.

Remote assistance extends finite expert resources. Each session is recorded from start to finish, proving that testing, protocols and other requirements were followed correctly for a traceable and auditable workflow.

IFS continues to innovate in this space, working with hardware designers to develop and refine head-mounted displays so TIC assessors in the field can query external information sources and receive guidance from experts hands-free.





Remote oversight: Danger to workers in high-risk environments is eliminated using remote technologies such as cameras and drones. For example, there is no need for a TIC specialist to be physically close to a high-voltage power line if the inspection is carried out using remote technologies.

Some TIC organizations have already adopted this model to examine operations. It's faster and more efficient than belaying down an office tower or dam.

Predictive maintenance: Some TIC organizations are integrating predictive maintenance technologies to monitor the health of assets. For example, some companies are implementing IoT sensors to measure moisture in the structure of buildings. The system provides an early warning if a leak or piping issue contravenes safety and regulatory requirements.

We see similar adoption within large infrastructure projects such as bridges and tall buildings. Civil engineers install strain sensors to monitor performance and other metrics to help predict whether an inspection is required outside of the regular cycle.

Managed Services / Servitization: Some organizations are shifting to a servitization model. This could include performing an asset discovery cycle to help the customer identify all the systems and equipment in use and onsite. For example, fire safety systems, air conditioning systems, elevators, and larger assets used in production and manufacturing.

Once the scope of the operation is defined, the TIC organization manages all of the activities to test, inspect, and certify these systems and components on behalf of the customer on an ongoing basis.

SUMMARY

TIC organizations and IFS share deep domain experience across many different industries. We provide technologies and tools that support the TIC industry's extremely unique service model, helping you deliver consistently outstanding moments of service to your customers.

Visit our [website](#) or [contact us](#) for more information.

About IFS

IFS develops and delivers enterprise software for companies around the world who manufacture and distribute goods, build and maintain assets, and manage service-focused operations. Within our single platform, our industry specific products are innately connected to a single data model and use embedded digital innovation so that our customers can be their best when it really matters to their customers—at the Moment of Service™.

The industry expertise of our people and of our growing ecosystem, together with a commitment to deliver value at every single step, has made IFS a recognized leader and the most recommended supplier in our sector. Our team of 4,500 employees every day live our values of agility, trustworthiness and collaboration in how we support our 10,000+ customers.

Learn more about how our enterprise software solutions can help your business today at ifs.com.

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