



Operate

Integrity Elements

A more agile integrity and inspection management application that is always evolving.

Experience counts

At Aize we have built on over 30 years of inspection and integrity software knowledge, across 30+ customers and over 1600 assets, to integrate some of the leading technologies, competencies, expertise and applications into a completely scalable, interconnected and future ready solution.

This is Aize Integrity Elements

With Aize Integrity Elements we have redesigned and transformed the industry standard in integrity support solutions through the development of configurable applications or “elements” for individual integrity, inspection and corrosion management requirements.

Our modular system redefines program execution in today’s industrial world, by letting you expand and add functionality as your business requires at an adoption pace that matches this need - intelligently executing on all fronts, safe in the knowledge the application is future ready for the next challenge.

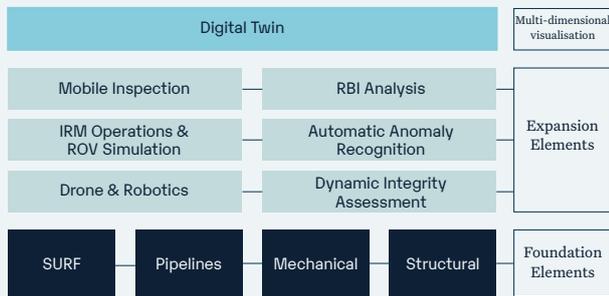
Deploying the solution will measurably change the way in which inspection programmes are executed and the overall integrity of assets are managed today. It is easily scalable and will enable you to improve planning and inspection efforts, maximise opportunities for optimisation and reduce operational cost. All this whilst securing the safety of your people and the integrity of all your assets - subsea, topside and onshore.

Building on a solid foundation

At the very heart of Integrity Elements lie our **Foundation Elements**. The Foundation Elements represent the four main modules for inspection, integrity and corrosion management.

- SURF** Covers Subsea Production System (SPS), Umbilicals, Risers and Flowlines. Includes:
 - ROV DVR integration
 - Video overlay
 - Live reporting
 - Offline mode
- Pipelines** Covers both subsea and land-based pipelines. Handles and correlates:
 - ILI data
 - External inspection data
 - Bathymetric data
 - Multi-channel video feeds
- Mechanical** Covers topside and onshore pressure and process systems, and related equipment:
 - Vessels
 - Valves
 - Piping
 - Fittings and associated hardware
 - Structures and supports
- Structural** Covers fixed and floating load bearing structures and hulls as well as topsides modules and related structures. Possible to link with structural models to identify hotspots and optimize inspection programs.

These individual foundation elements are able to be utilised individually or combined with potential to replace all other systems with only one to enable an End-to-End, Asset Integrity Management (AIM) solution.



Beyond the basics

Then our **Expansion Elements** are designed to further enhance the planning, execution and reporting of inspections while improving overall analysis capabilities:

Mobile Inspection

Integrity Elements cloud-based architecture enables access on any computer and handheld device, enabling operators in the field to quickly find equipment, information and data as well as access instant support when needed. The Mobile Inspection module includes functionality such as:

- Access to all relevant documentation and history in the field
- Work packages and inspection tasks
- Smart ISO's and inspection points
- Real time and automatic data collection
- Add notes; speech and digital marking on drawings, photo and video
- Connection to handheld inspection equipment for immediate data capture
- 3D models to help inspectors find the inspection location more efficiently and report results more accurately



RBI Analysis

The RBI Analysis module provides functionality for development of RBI programs for offshore and onshore facilities based on qualitative and quantitative methodologies within DNVGL-RP-G101 and API 580 as well as company specific procedures and requirements. The following topics are covered:

- Damage mechanism assignment
- Probability of failure

- Consequence of failure and risk calculations
- Interpretation of assessment results
- Formulation of inspections plans
- Integration with Dynamic Integrity Assessment or FFS models to accurately identify hotspots and optimize new and existing RBI programs combining inspection results and current process conditions

IRM Operations & ROV Simulation

Optimising your ROV inspections and associated IRM (Inspection Repair and Maintenance) activities is of prime importance when we consider the significant OPEX cost and overall infrastructure required for these campaigns.

Our dedicated expansion module for Integrity Elements lets you quickly and effectively simulate all IRM operations including the ROV inspection routes to optimise the inspection of your subsea assets. We do this all within the Aize Twin Explorer expansion.

The result is better scope generation, faster execution of inspections and in turn immediate and measurable cost savings against existing programmes.

Drone & Robotics

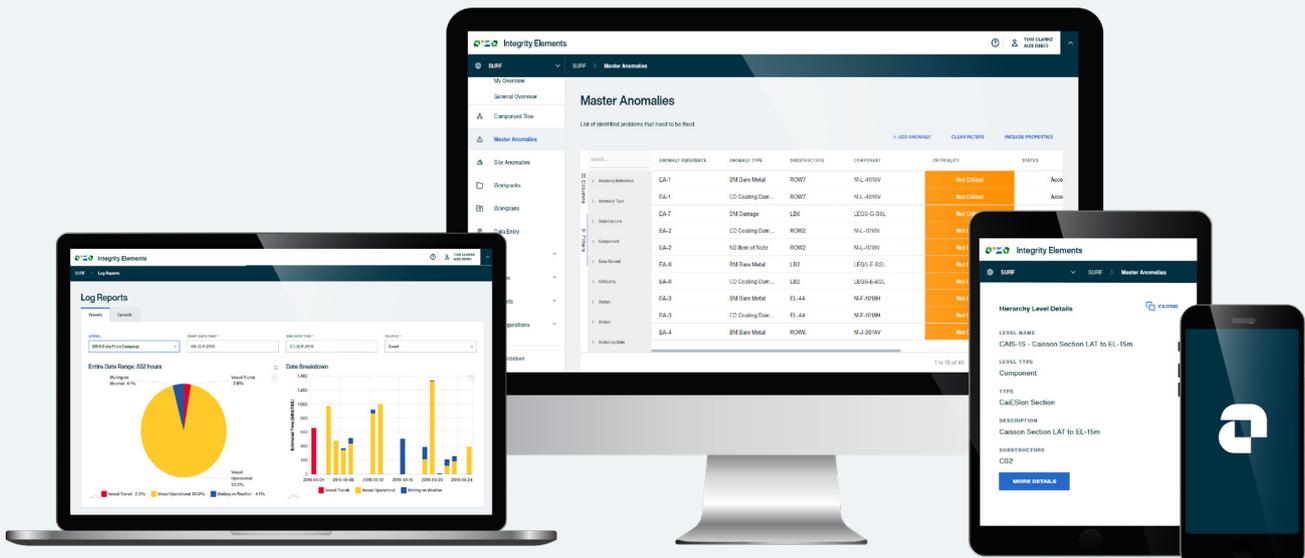
The Drones & Robotics module contains inspection functionality for planning and managing inspections with drones, crawlers and robots as well as maintaining data and simplifying reporting:

- Logging of drone flights in accordance with regulations
- Planning of inspection routes and transfer of route to the unit for support to the operator and future autonomous operation
- Displayed of inspection tasks on the operator's / inspector's screen
- Reporting and tagging of video and photos directly on the screen
- Integration with AI based automatic defect recognition to mention a few of the features

Dynamic Integrity Assessment

The Dynamic Integrity Assessment module connects directly to process data and inspection data to enable advanced FEM analysis for quantification of condition and provide "live" or "dynamic" assessment of process, system or individual component condition.

The module can be used to manage and explore the Integrity Operating Window (IOW) and calculate Rest Life (RL) and Fitness for Service (Ffs) based on current and future operating conditions. This enables a much more focused and optimised inspection program



Automatic Anomaly Recognition

The Automatic Anomaly Recognition module uses artificial intelligence (AI) and Machine Learning to automatically recognise, classify and report on a variety of damage mechanisms such as:

- Coating damage and corrosion
- Surface cracks,
- Object recognition
- Identify missing objects or misplaced objects
- Marine growth

Build things your way

When it comes to inspecting your assets, you deserve a digital toolbox that is easy-to-use and gives you increased access to intelligent insights – particularly in the areas of enhanced anomaly and barrier management.

Aize Integrity Elements is modular, meaning that we're able to tailor it to each customer and build it like you would build a masterpiece from pieces of Lego. You can start off by digitalising one area and see an immediate return on investment, and then expand further. If you want to add more computing power, integrate new systems, or throw some machine learning into the mix down the line, Aize Integrity Elements will let you benefit straight away and build as you go. Bottom line – you only pay for what you want and need. We realise that no two operations are identical and that you need this agility and flexibility to make the most of your existing investments.

Delivering actionable insights

Better data means better analysis, better analysis means more opportunity for optimisation and efficiency gains – ensuring you have a complete overview, particularly of critical anomalies. Our goal has been to embed improved functionality throughout our solution, driving down the

volume of unnecessary data, the requirement to move between applications and in turn the effort required at each stage of the integrity cycle.

- Reduction in required system interfaces and data transfer
- Reduction in reporting and integrity review; integrated analytics and visualisation becomes the standard
- Overall improved cycle time; ability to influence future strategies and programs quickly and more effectively
- Reduction in inspection requirements; results are trusted, quickly confirmed and processed/actioned
- Data liberation and associated analytics improve the speed, quality and accuracy of current practices
- Control, management and action on critical results – automated and informed

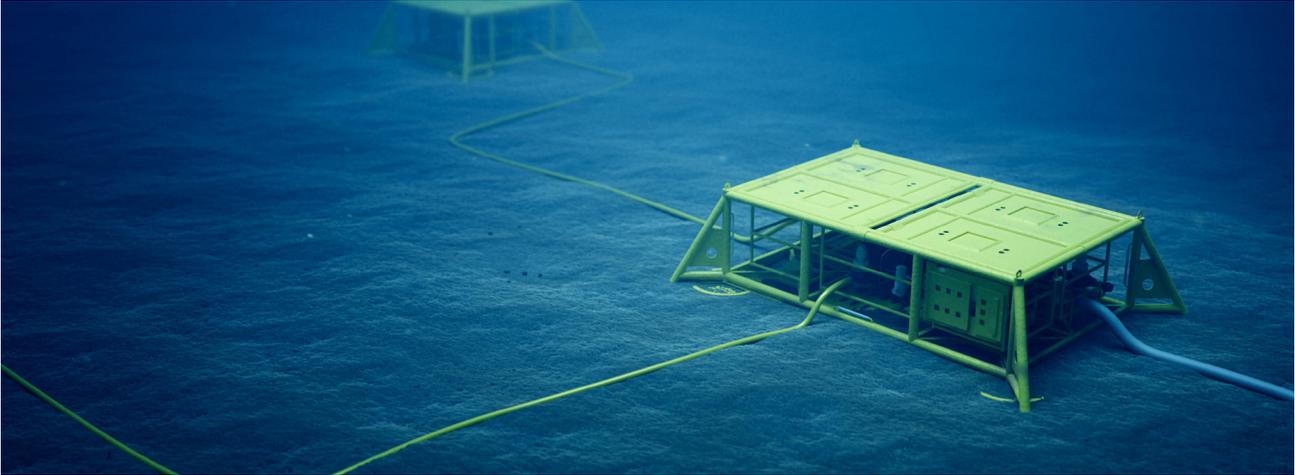
Aize Integrity Elements can be used by both experts and generalists alike, so that everyone can utilise the application to work on their day-to-day responsibilities. By streamlining the collaboration and making teamwork across borders or time-zones hassle-free, every team member can use their skills, competencies, and know-how by working hands-on with the software themselves.

Ease into your Digital Twin

With Aize Integrity Elements we can create and start your journey into the digital twin through the integrity domain. Connecting the inspection, integrity and related data directly into an existing or new 3D model while also linking seamlessly to any data platform that you may have in place.

We can quickly build or connect to the 3D model or move between visualisation tools such as Laser Scans, Photogrammetry models or other methods.

Our strength lies in not just being able to navigate the asset digitally, moving seamlessly between various visualisation tools, but to also link directly to all available inspection and



integrity data and information associated with individual systems, equipment and components through the Aize Integrity Elements application.

- **Step change in efficiency** better data, better results, less work
- **Fewer resources** remove unnecessary effort by automating the complete programme
- **Less searching** confidence in the available data and supporting information through a single visual interface
- **Improved workflow** faster execution and analysis
- **Closer collaboration** bringing data and teams together

Generating value

Reduce OPEX

By deploying in the cloud we're easily able to connect you to the latest hardware – be it subsea cameras, drones, or autonomous vehicles. All information is accessible at your fingertips, allowing for communication and collaboration from anywhere in the world. This, combined with the power of cloud computing, drives up the efficiency by tying all the elements together.

- Cloud first and web first solution improves data handling, storage, functionality and access, removing on-premise and data hosting costs
- See areas of most spend/effort/resources quickly
- Ability to support budgets and decisions with trusted, fact-based data
- Reduction in inspection requirements and in turn costly resource e.g. reduction in ROVSV requirements, removal of unnecessary annual campaign work on process systems
- Productivity boost and in turn reduced cost; removing unnecessary tasks and transfers of data both on and offshore
- Reduction in required system interfaces and data transfer; transition to a dynamic solution

Increase productivity and efficiency

With Aize Integrity Elements we're able to deliver an out-of-the-box solution where everything is configurable and can be fully adjusted to the way you business works. You immediately get your hands on the software and can explore the solution from anywhere. The result? Complete control and trust that you have all information to make quicker, more trusted decisions/

- Improved user experience without need for expert training to navigate and utilise
- Can link to and integrate seamlessly with other existing applications and systems e.g. SAP, Maximo
- Interpret multiple data sources from a one place
- Access to trusted, current data within a central location
- Centralised, digitally enabled integrity/functional teams formed in support of multiple facilities and fields
- Automate planning, workpack generation and data gathering
- Improve own and workforce productivity; solutions are completely mobile, particularly important offshore for quick, accurate data entry
- Quick, dynamic discussions with management team; no paper reports
- Compress workload, allowing value adding activity
- Quickly view performance dashboards and overall reporting

Integration and scalability

The days where systems don't connect and data is transferred manually are over. With Aize Integrity Elements, we let the data do the heavy lifting for you. You'll be given more opportunities for optimisation and will experience efficiency gains from the start.

- You only pay for the functionality you need to suit your technical and business requirements
- You can easily add functionality and features to keep pace with your own digitalisation and modernisation programmes
- We can connect to existing systems and applications to exploit your existing investments
- Modern technology stack allows us to connect to any hardware or device