



Streamlining surgical instrument logistics:

managing loan sets
& complex tray reassembly

(A) AnciTrak²



ACTKLOUD™



ATHMEDICAL
TRACEABILITY OF SURGICAL DEVICES



CONTEXT

Both hospitals and loan set suppliers face major challenges in managing reusable medical devices.

On the hospital side, CSSD teams struggle every day with the verification and reassembly of loan sets and surgical trays. The process is highly manual, error-prone, and extremely time-consuming. Instruments are often unmarked, documentation is incomplete or inconsistent, and the diversity of brands makes identification difficult. This results in reassembly errors, workflow delays, and increased operational risks.

On the supplier side, the situation is just as complex. Loan set suppliers must prepare, control, ship, and retrieve hundreds of kits every week, yet they often operate without a unified database or standardized tracking. This generates discrepancies between what is sent and what is returned, increases dispute rates with hospitals, and leads to significant time losses and hidden costs.

In short, the management of reusable medical devices has become a shared problem for both hospitals and suppliers. The lack of clear identification, structured data, and reliable control tools impacts efficiency, safety, and costs across the entire chain.

This is exactly the context in which we have focused on developing solutions to support CSSD teams, operating rooms, and loan set suppliers, bringing clarity, speed, and reliability to instrument management on both sides.



Difficulty in Standardization The lack of standardized procedures across different departments and between hospitals can lead to inconsistencies in how instruments are handled, increasing the risk of errors.

Manual and Error-Prone Tracking Processes Without an automated tracking system, the manual processes used for tracking instruments can be prone to human error, further complicating the traceability efforts.

Frequent Instrument Damage Repeated handling and manual checks of instruments can lead to damage, increasing costs for repair or replacement.

Increased Infection Risk Incomplete or improper sterilization due to rushed processes or errors in tray assembly can increase the risk of infection for patients.

Communication Gaps Poor communication between the CSSD, operating room staff, and vendors can lead to misunderstandings and delays, exacerbating existing challenges.

Inventory Management Issues Inefficient inventory management can result in shortages or surpluses of instruments, causing delays in surgeries or increased storage costs.

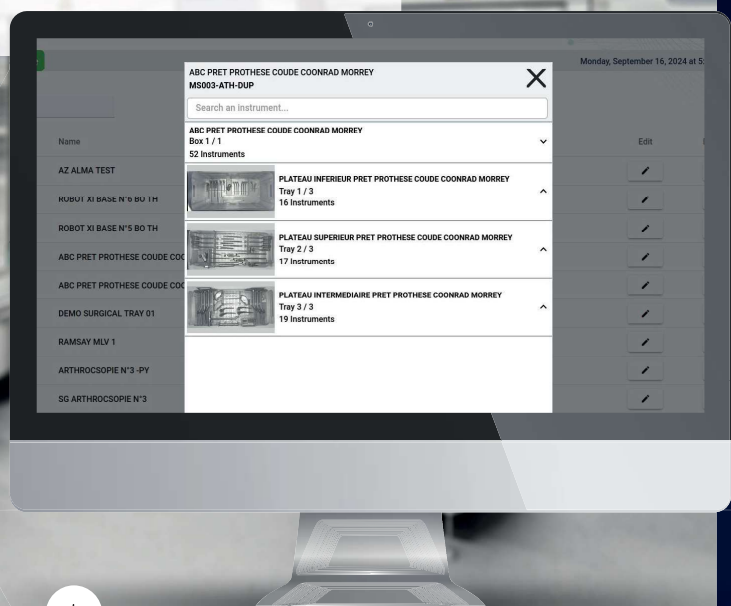
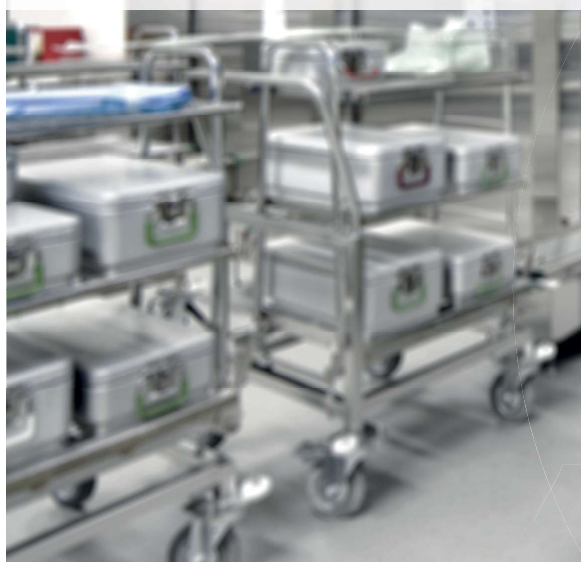
Limited Training and Continuous Education The rapid evolution of surgical instruments and technologies requires ongoing training for CSSD staff, which can be difficult to maintain, leading to knowledge gaps.

High Turnover Rates in CSSD Staff High turnover can lead to a constant need for training new staff, which can disrupt workflow and lead to inconsistent practices.



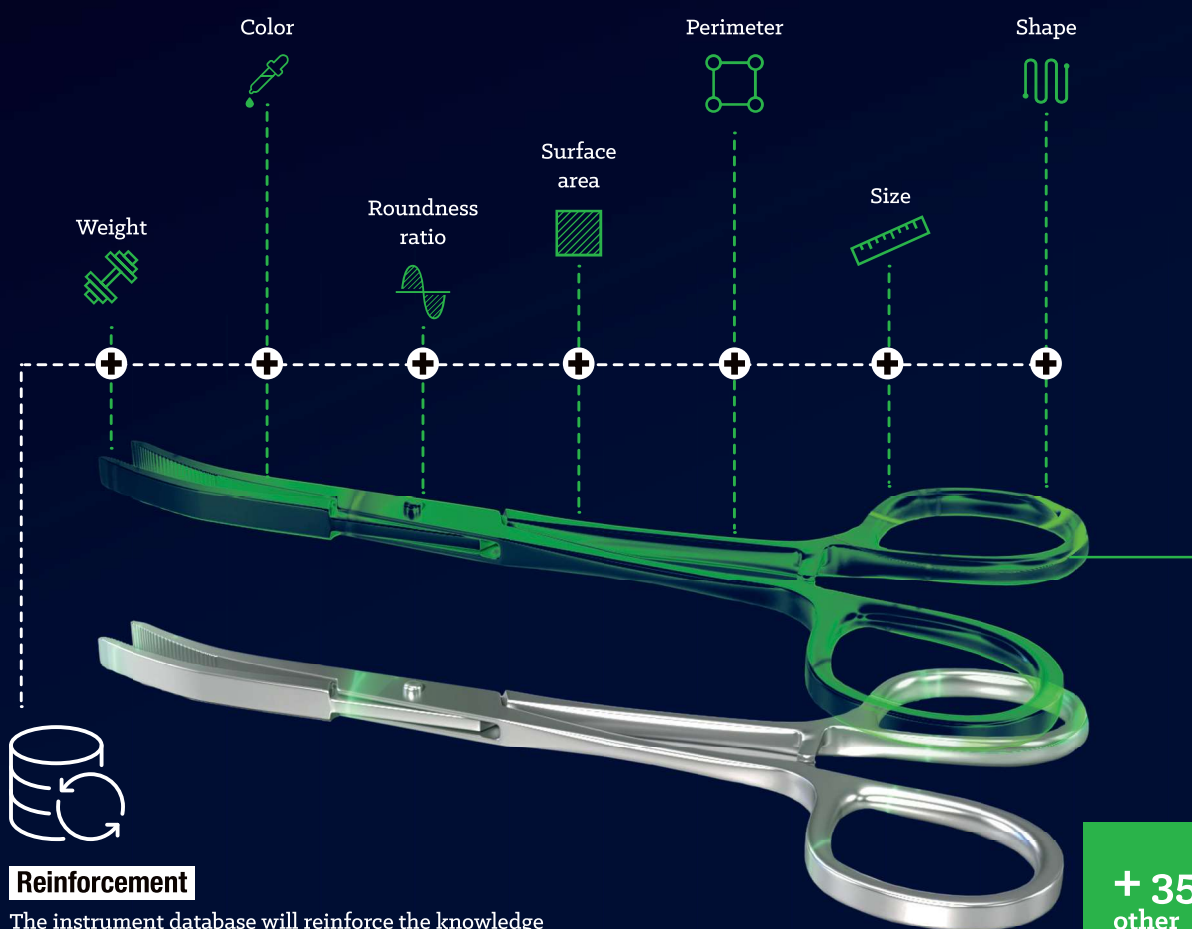
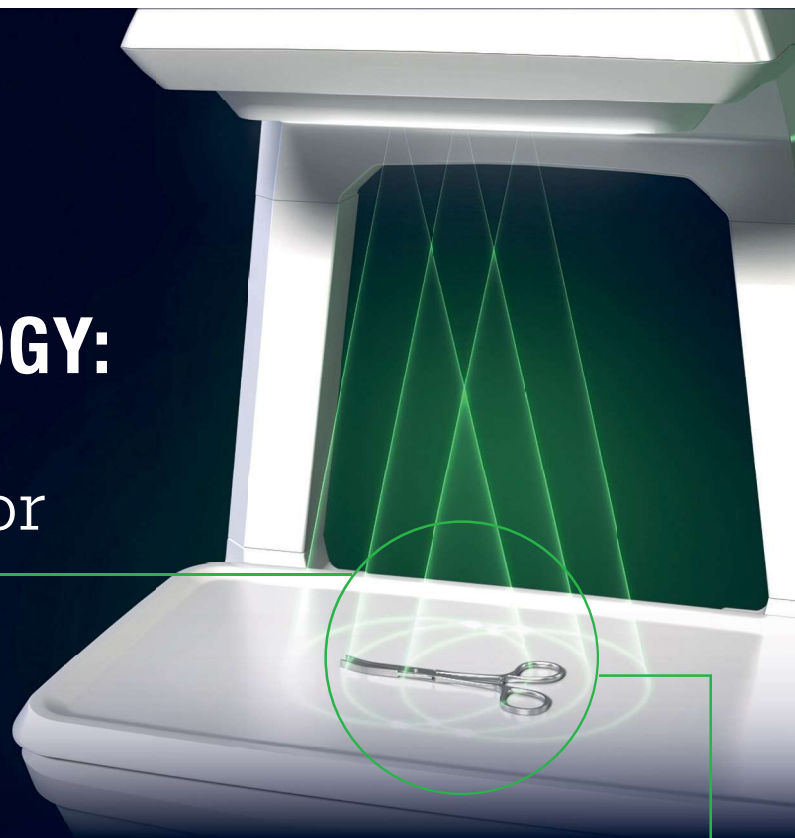
What is **ANCITRAK²**?

AnciTrak² is an intelligent workstation that centralizes, secures, and facilitates access to data on reusable surgical, orthopedic instruments and trays within the hospital. Paired with ActKloud™, a cloud-based AncyTrak² service that simplifies instrument data management, encourages sharing, and provides direct access to manufacturers' catalogs and kits, these two solutions work in synergy to enhance the control and reassembly of surgical and orthopedic instruments and trays by sterilization staff, while ensuring the security of instrument cases intended for the operating room.



THE TECHNOLOGY:

a bio-inspired
feature extractor



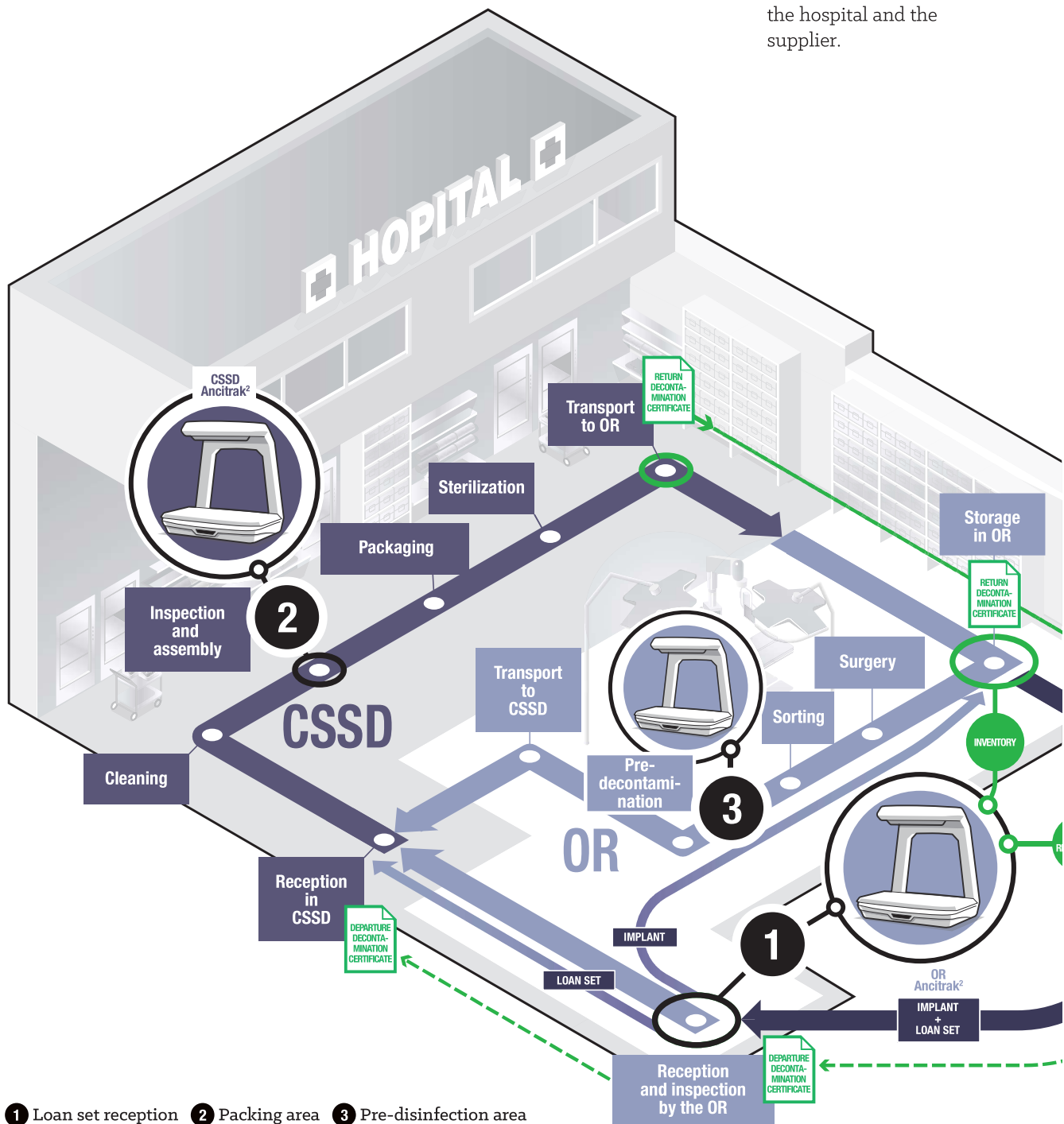
Reinforcement

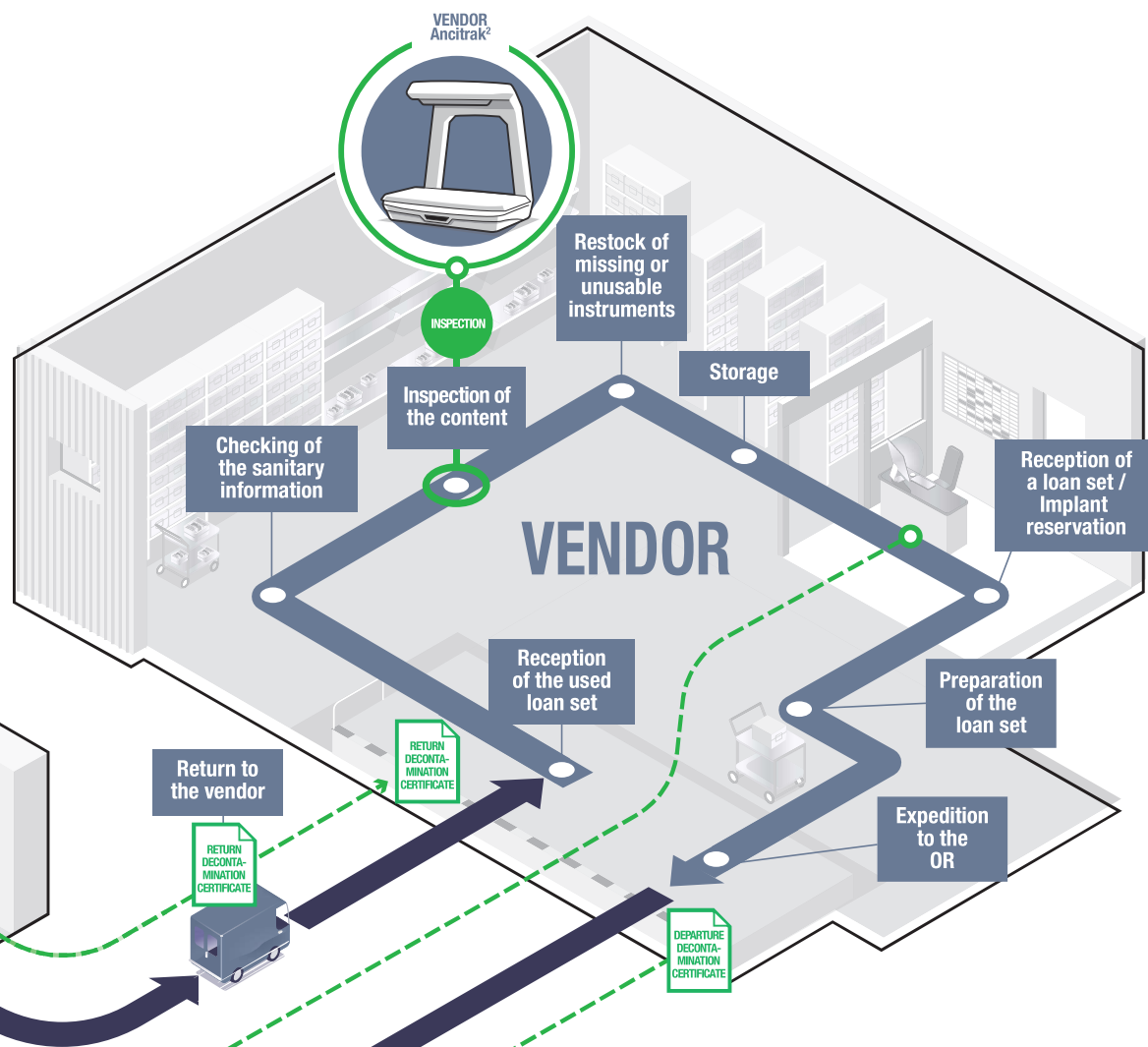
The instrument database will reinforce the knowledge and learning of the A² system each time an instrument is photographed.

+ 350
other
physical
characteristics

Where to place the ANCITRAK²® ?

Integration of the Ancitrak station into the workflow between the central sterilization unit and the operating theatre, and between the hospital and the supplier.





MATERIAL FLOW

- ◀ CENTRAL STERILE SUPPLY DEPARTMENT
- ◀ OPERATING THEATRE
- ◀ VENDOR
- ◀ HOSPITAL/VENDOR FLOW

ANCITRAK²

- INSPECTION ASSEMBLY — ANCITRAK² action-function
- RETURN DECONTAMINATION CERTIFICATE --- Documentation flow

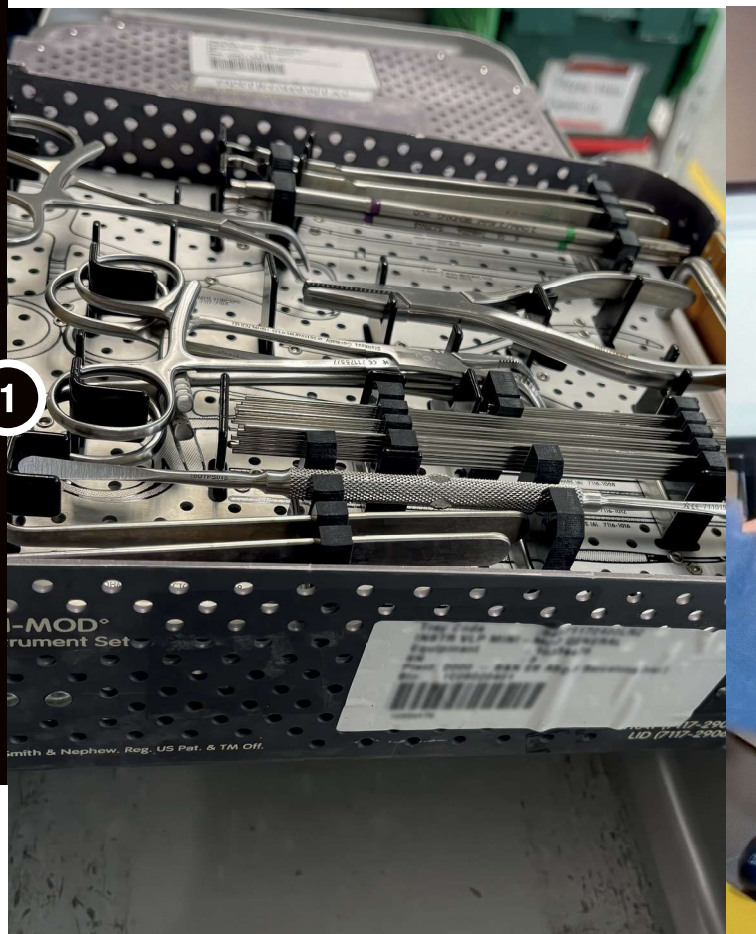
How IT WORKS?

ANCITRAK² WORKFLOW

Simple, Guided,
and Fully Secure

AnciTrak² fits naturally into the daily operations of the CSSD. Its step-by-step workflow supports staff at every stage, from tray reception to final recomposition. With automatic instrument recognition, assisted controls, and instant report generation, AnciTrak² ensures a smooth, standardized, and fully traceable process.

Each step is designed to reduce errors, speed up operations, and provide complete visibility over the status of surgical trays.

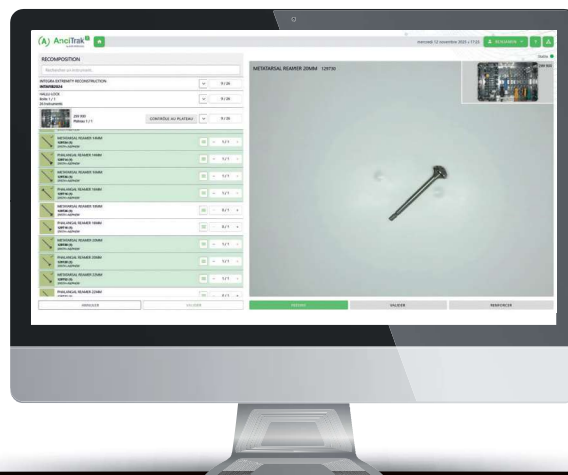


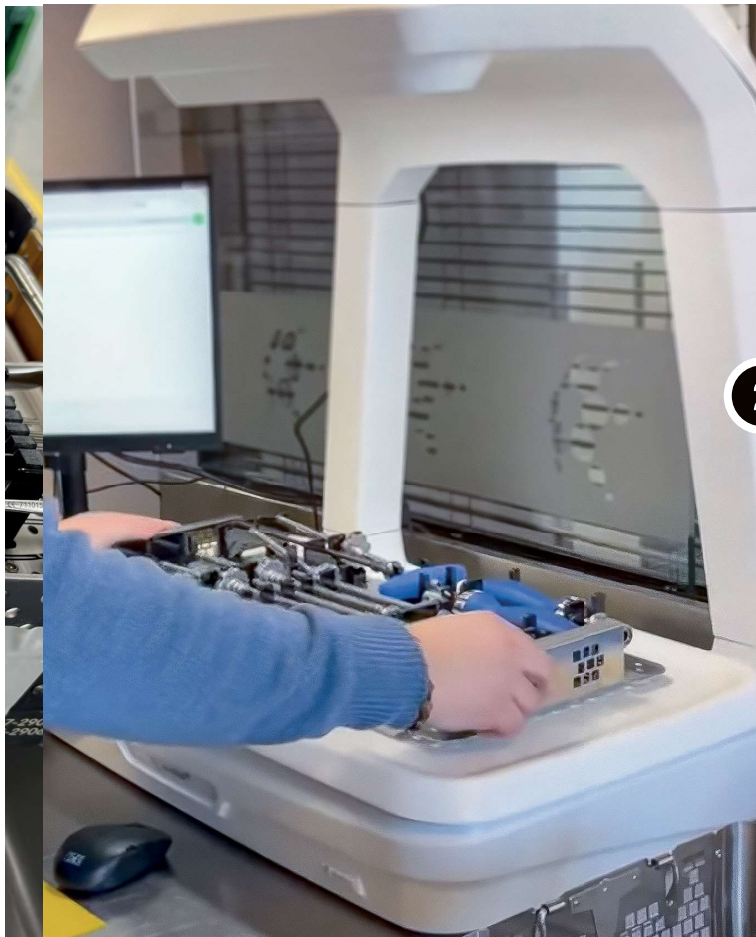
1 RECEPTION OF LOAN SET / CREATION OF THE SET

Upon arrival at the CSSD, the loan set is received and registered through AnciTrak².

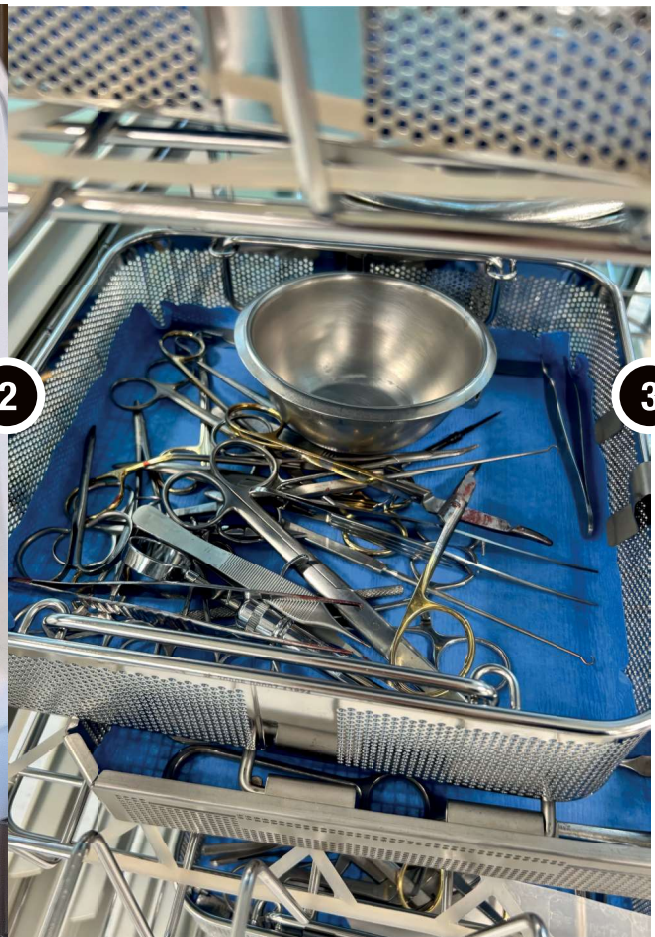
The user can **create a new composition** from the **ActCloud™** database — or **import a pre-defined set** through an active link with the manufacturer. Each instrument is verified by AI to confirm its presence and condition.

This ensures **full traceability from the start** and automatically generates a **digital Reception Certificate** shared with the supplier or manufacturer.





2



3

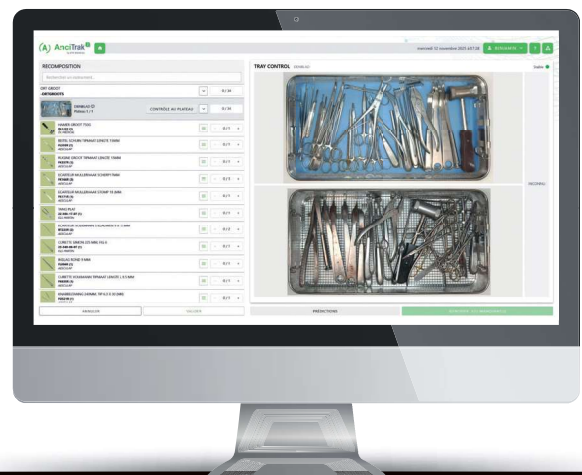
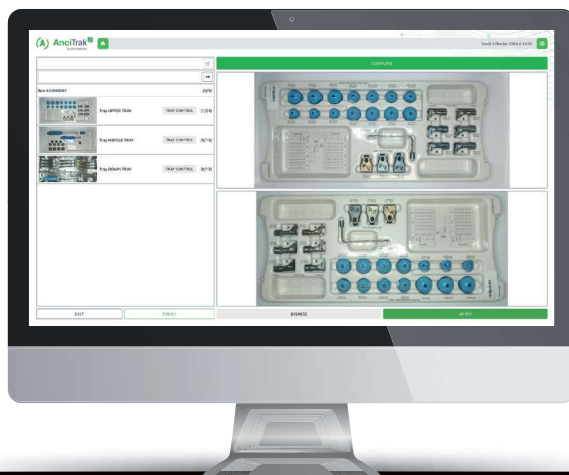
2 SENDING TO THE OPERATING ROOM

1. **Tray Control:** Before sending the compositions to the operating room, the user performs a tray control to verify the completeness of the boxes with a single click. Photos are taken to document the state of the tray before sending.
2. **Transmission:** An event is created indicating that the compositions are sent to the operating room, along with photos, nomenclature, and references for the trays and instruments, ready for surgery.

3 POST-OPERATIVE DECONTAMINATION & CONTROL

After surgery, the loan set/operating tray is transferred to the decontamination area. Before cleaning, Ancitrak² allows a **photographic and visual check** of the used tray to ensure every instrument is accounted for.

A **Post-Use Control Certificate** is generated, preserving the integrity of the set before sterilization and closing the traceability loop.





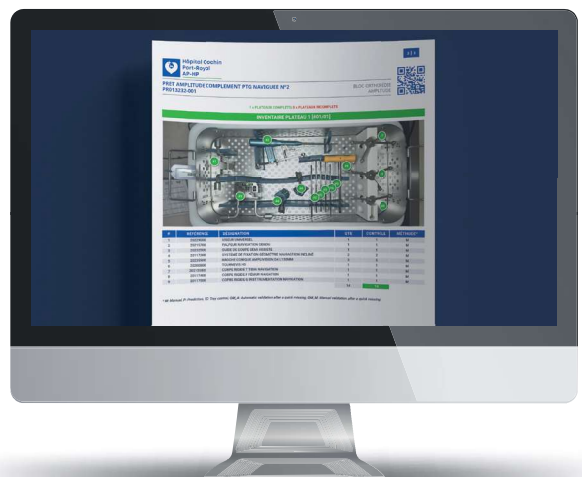
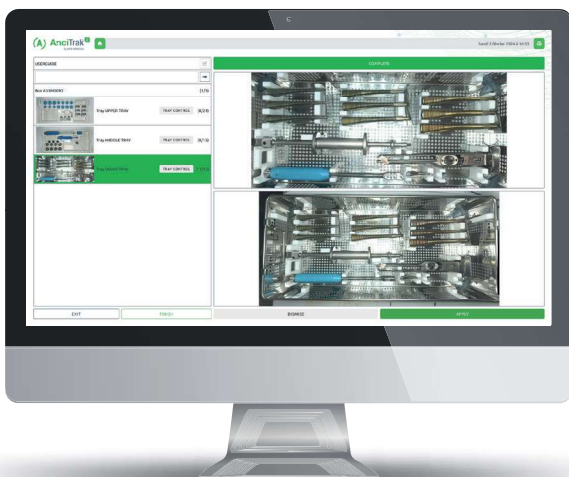
How IT WORKS?

4 RE-ASSEMBLY IN CLEAN AREA

- 1. Intelligent Recomposition:** After use, the user uses AnciTraq²'s intelligent recomposition interface to reassemble the kits instrument by instrument. AnciTraq² identifies each instrument and guides the user on where it should be placed in the tray. Photos are taken during recomposition to ensure traceability.
- 2. Tray Control:** A final tray control is performed to ensure the tray's completeness. If one or more instruments are missing, the machine will indicate the potentially missing instruments. Photos from this stage are also stored.

5 COMPOSITION REPORT

- 1. Automatic Generation:** Once the composition is checked and reassembled, a digital automatic report is created. This report includes all the photos taken throughout the process and can be sent, downloaded, or printed for optimal tracking.
- 2. Cloud Storage:** All photos taken at each stage are stored in the cloud, thereby feeding the instrument database. This enhances AnciTraq²'s performance by improving instrument recognition through AI.





TECHNOLOGY & DATABASE “Shazam”, Instant Instrument Recognition

Shazam is the fast-track identification mode built into AnciTrak². It enables users to instantly identify an instrument by simply placing it on the platform — just like a “musical Shazam” for surgical tools.

This function is especially useful in three contexts:

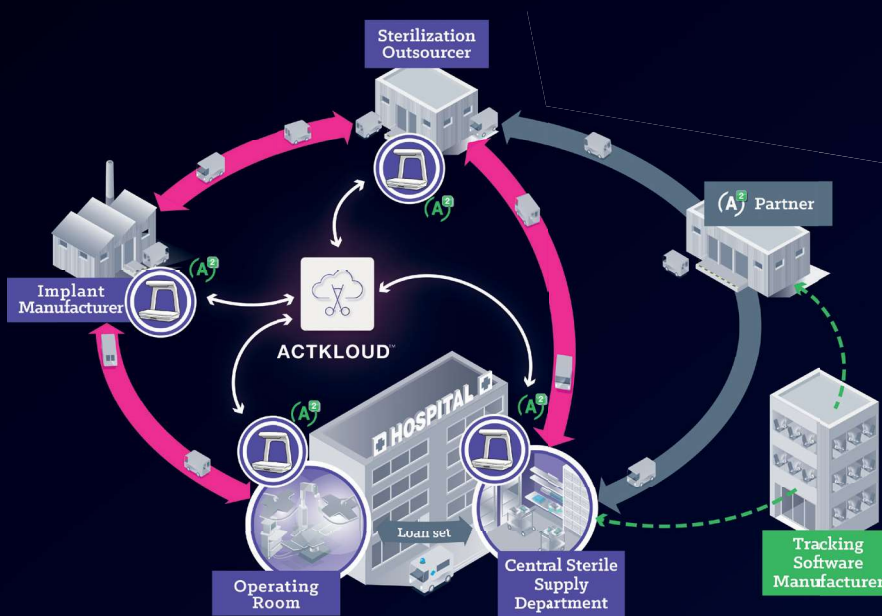
1. **Unknown or mixed operating trays:** when instruments come from different suppliers or without references.
2. **Incoming new instruments:** quick recognition and classification into existing families.
3. **Training and verification:** helping new staff confirm instrument identities during tray reassembly

Captured images are automatically compared with the ActKloud[™] database, returning all matching references, operating trays and historical occurrences within seconds.

ActKloud™

THE BRAIN BEHIND ANCITRAK²

ActKloud™ is the central cloud platform that connects hospitals, sterilization units, and manufacturers around a shared database of surgical instruments and loan sets. It now hosts over 180,000 unique instruments and thousands of trays, each referenced, photographed, and categorized.



- Installation & servicing
- Loan sets flow
- Import and export of data through ACTKLOUD
- Tracking software interfacing with A2

REAL-WORLD METRICS

+357,000
unique instruments
referenced in ActKloud™

+60%
time saved
in reassembly
vs manual control

99.8%
instrument match
accuracy through AI



ActKloud™ transforms isolated sterilization processes into a connected, data-driven ecosystem.

MAIN FEATURES



Shared Database

A constantly updated catalog connecting hospitals and suppliers.



Family Management

Group multiple references under one standard instrument name.



Custom Tray Builder

Create or adapt trays from existing compositions in seconds.



Smart KPIs

Recomposition time, completeness rate, missing items, user performance.

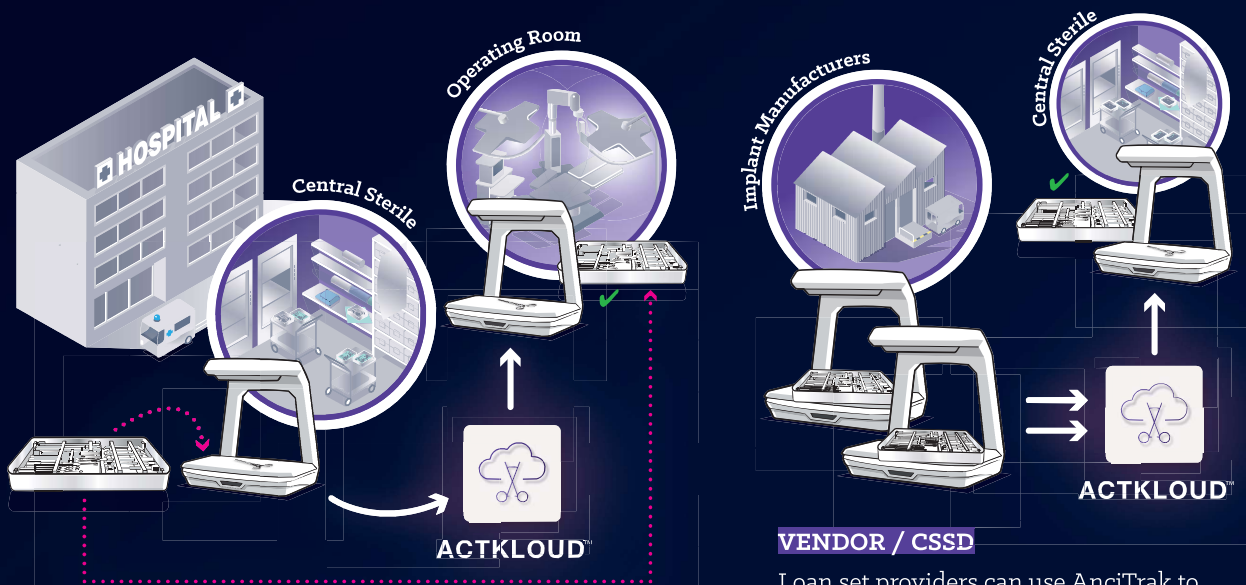


Integration

Full data sync with AnciTrak² — every photo, every tray, every statistic.

ActCloud™ customization for your workflow:

Even though a single machine can handle identification and control on its own, Ancitrak's full benefits shine when it's part of a complete workflow.



COMPATIBILITY & INTEGRATION

Working with Your Traceability Ecosystem

AnciTrak² and ActCloud™ are designed to integrate seamlessly with all major traceability systems, including our own Sterigest platform.

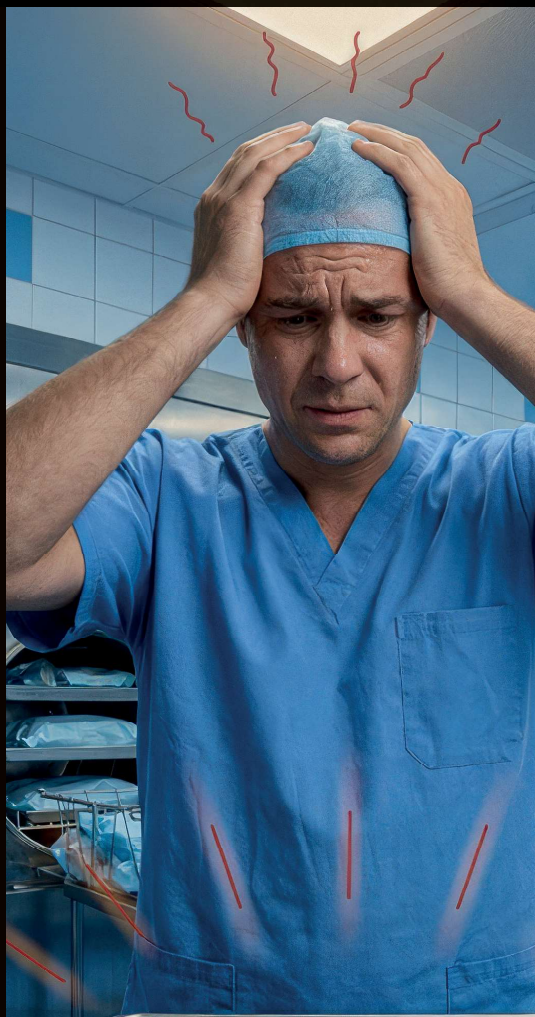
Through open data structures and API-based bridges, the system exchanges information on **tray composition**, **sterilization events**, and **control certificates** with existing hospital software.

Cross-communication between CSSD, OR, and supplier systems to ensure a continuous digital workflow

This interoperability approach reinforces Ancitrak²'s position as a flexible, vendor-neutral solution at the heart of surgical logistics.

Use cases

From Data to Daily Efficiency



Across Europe, both hospitals and medical suppliers are transforming their daily workflows with AnciTrak².

In a major public hospital in Greater Paris, the system now supports the control of over 400 consignment sets, allowing 95 % of trays to be verified in less than two minutes.

Meanwhile, a leading orthopedic and spine supplier in Southern Europe uses AnciTrak² to manage more than 200 loan kits per week, achieving 100 % digital verification of every outgoing tray.

These implementations demonstrate how AnciTrak² improves speed, reliability, and traceability, while simplifying collaboration between hospitals and manufacturers.

From CSSDs to logistics centers, the platform turns complex instrument flows into transparent, data-driven processes.

Clear dashboards, measurable KPIs, and real-time control are now part of the daily routine — bringing clarity and confidence to every tray that passes through AnciTrak².

REAL-WORLD METRICS

+550

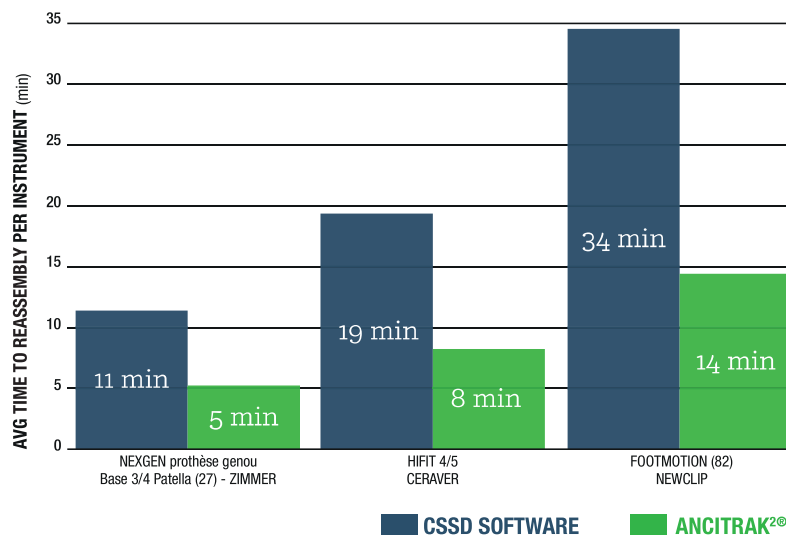
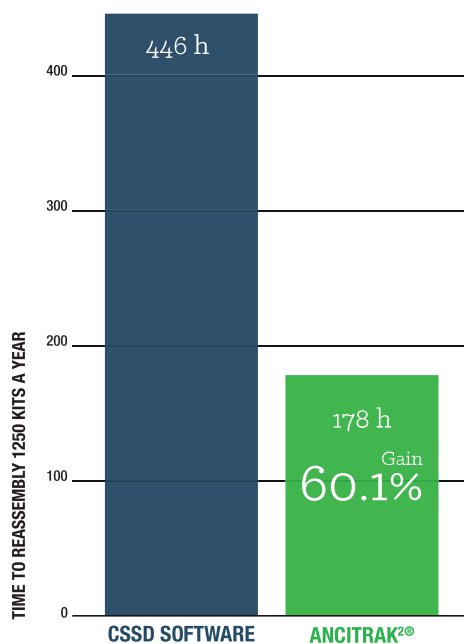
trays reassembled every
day across active sites

+4,500

daily photo captures
enriching the global
database

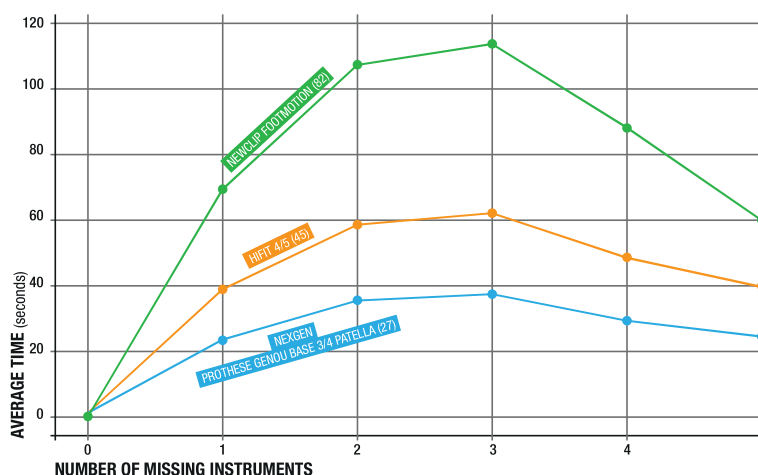
Optimization of Reassembly Time: Theoretical Analysis of Gains with ANCITRAK²®

The graph below presents a theoretical comparison of the total time required to reassemble 1,250 orthopedic kits per year between the use of sterilization software and AncITrak².



The graph above shows a comparison of the reassembly time per instrument between the use of AncITrak² and the manual reassembly method with the traceability software.

When the number of missing instruments exceeds five, our AncITrak² algorithm optimizes the inspection process by prioritizing the detection and reporting of anomalies. The algorithm employs advanced logic to quickly identify missing instruments, even in large quantities, by automatically comparing available data with the instruments present. This automation reduces inspection time compared to a thorough manual check, explaining why time decreases after reaching a peak. The system thus helps to efficiently manage complex cases, where multiple instruments are missing, minimizing the time needed to locate and correct errors.



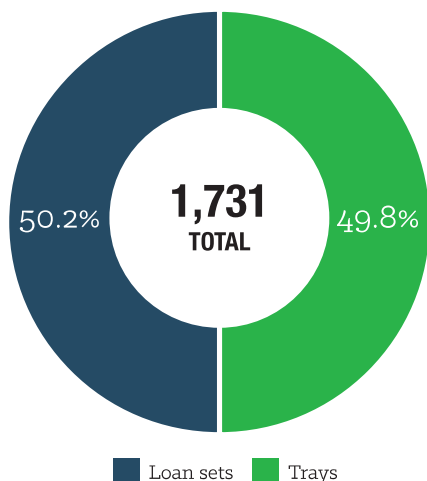
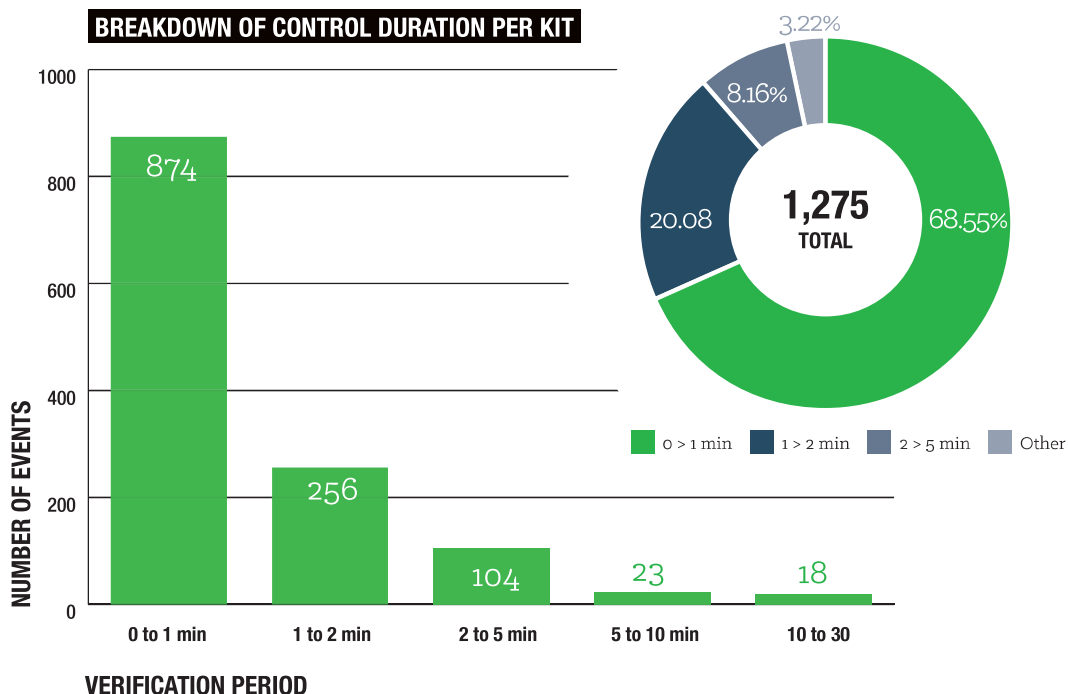


HOSPITAL REAL-WORLD USE CASE

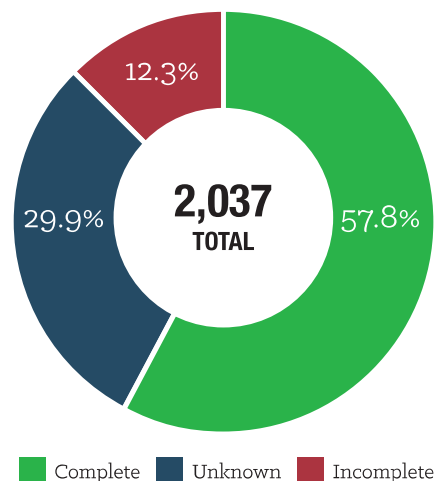
- Public Hospital located in Greater Paris
- More than 30,000 surgeries a year
- More than 5,000 orthopedic surgeries a year
- 400 orthopedic consignment sets
- 10 to 20 loan sets a week

- Installation over September 2024
- 15 CSSD agents trained on AnciTrak²
- 95% of consignment sets controlled through AnciTrak²

BREAKDOWN OF CONTROL DURATION PER KIT

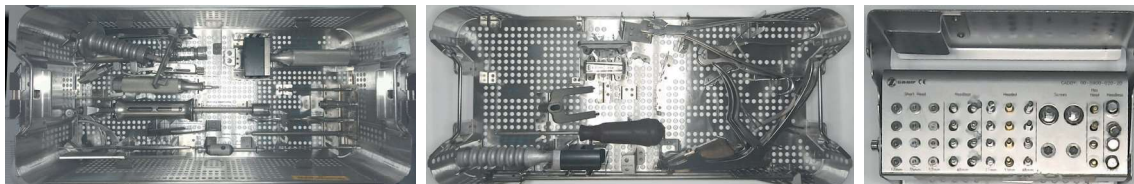


Event proportions by type of set



Verification Status Breakdown

#1 Loan set re-assembly & control | Clean area



PTG ZIMMER INSTRUMENTATION GENERALE 1/5 | 74 INSTRUMENTS

- ✓ 3 trays kits
- ✓ Creation time through ActKloud: 10 min 30 sec
- ✓ Reassembly & Control in clean area: 1 min 20 sec (average)

#2 Tray re-assembly & control | Clean area



LAPARATOMIE 5 | 72 INSTRUMENTS

- ✓ 1 tray
- ✓ Creation time through ActKloud: 15min 30 sec
- ✓ Reassembly & Control in clean area : 3min 20 sec (average)

#3 Surgical tray & control | Decontamination area

ORTHOPEDIC BASE SET | 39 INSTRUMENTS

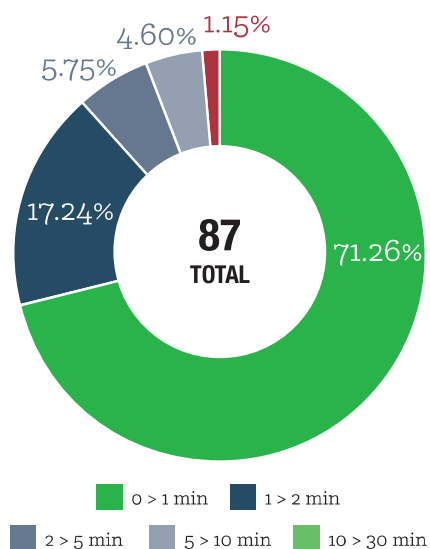
- ✓ 1 tray
- ✓ Creation time through ActKloud: 9min 30 sec
- ✓ Control in decontamination area: 1min 20 sec (average)



Orthopedic Base set in clean area



Orthopedic Base set in decontamination area

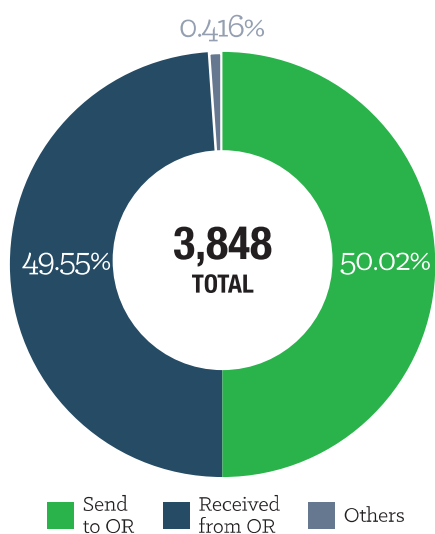
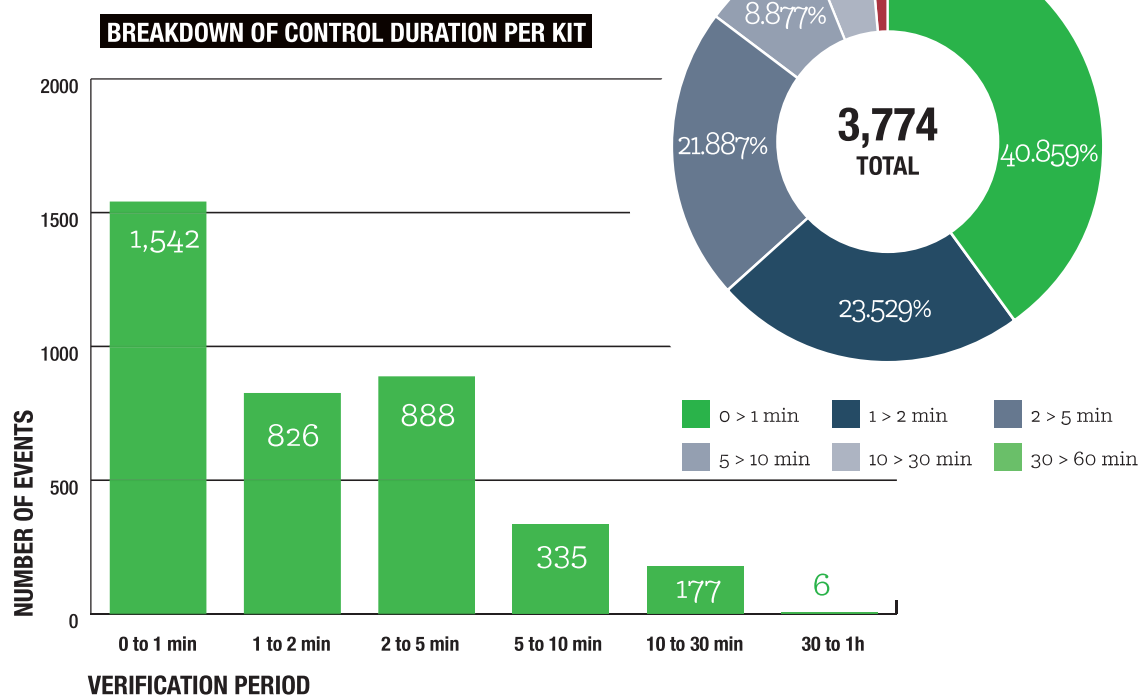




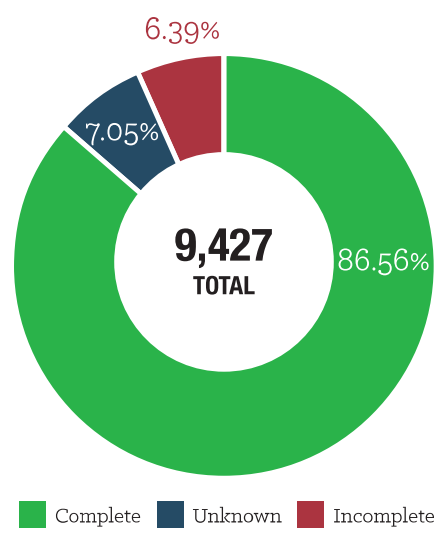
SUPPLIER REAL-WORLD USE CASE

- Orthopedic & Spine loan set supplier in Southern Europe
- More than 200 kits sent per week
- More than 500 trays registered

- Installation over December 2025, 5 workers trained on AnciTrak²
- 100% of the kits controlled through AnciTrak²

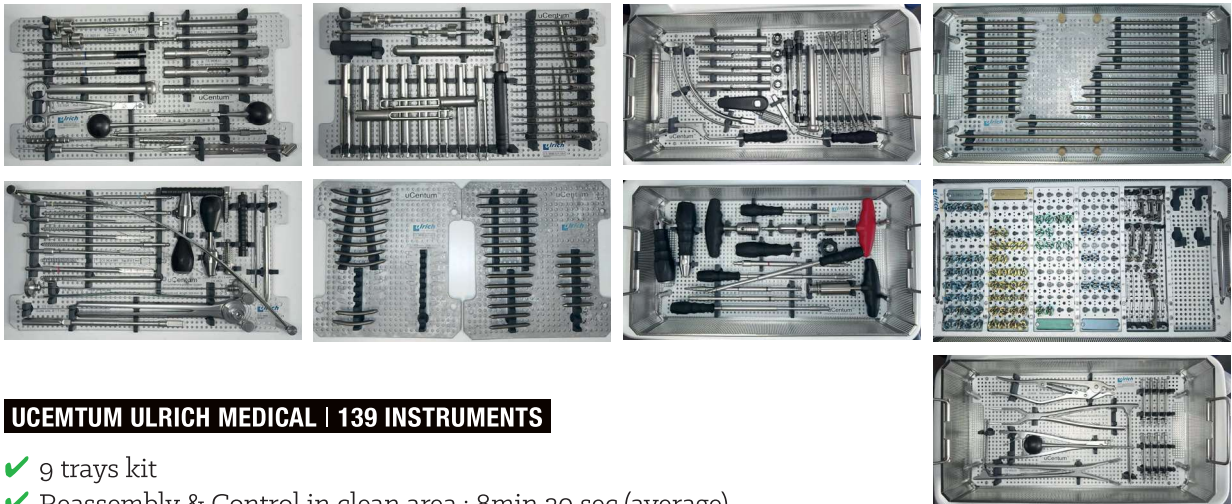


Event proportions by type



Répartition des statuts de vérification

#1 Loan set re-assembly & control | Clean area



UCENTUM ULRICH MEDICAL | 139 INSTRUMENTS

- ✓ 9 trays kit
- ✓ Reassembly & Control in clean area : 8min 20 sec (average)

#2 Loan set control | Reception area



MUST LT03 MEDACTA | 62 INSTRUMENTS

- ✓ 3 trays kit
- ✓ Reassembly & Control in Reception area : 2min 35 sec



ATHMEDICAL
TRACEABILITY OF SURGICAL DEVICES

ATH MEDICAL
3, Avenue du Sénateur Girard
59300 Valenciennes - France
Tél. +33 (0)3 27 34 30 73
info@athmedical.com
www.athmedical.com