



SMARTER SERVICES FOR HEALTHCARE

TRILOGIS BOX³ ALLOWS SMARTER
ASSET TRACKING AND MAINTENANCE
IN THE HEALTHCARE DOMAIN

Accurate medical asset management and maintenance through RFID and Real-Time Locating Systems (RTLS)



The solution by Trilogis allows compliancy with prescriptions of Directive 93/42/CE + 2007/47/CE for servicing and maintenance of medical electrical equipment and with the EC Directive on the protection of health and safety at work (89/391/EEC)



Trilogis' Box³ client showing a map with location of assets

According to recent studies¹, the number of portable medical devices has increased by 62% between 1995 and 2010. This has led, on the one hand, to a significant increase (+90%) in service and maintenance costs and, on the other, to increasing so-called "invisibility" of portable medical equipment.

In fact, recent figures indicate that, on average, 10-15% of portable medical equipment becomes "invisible", i.e. it is stolen or lost every year within hospitals.

A further effect of the same phenomenon is that a large portion of mobile medical equipment is not used or its usage rate is very low (typically 30-40%).

The typical downstream effect is over-procurement, estimated at an additional 20-30% on top of real requirements, with higher costs.

It is further estimated that nurses, spend 10-30% of staff time looking for portable medical equipment whereas maintenance engineers spend +75% of their time searching for, rather than maintaining, those devices. This not only generates significantly higher costs but it also reduces the time these operators spend for their core activities.

Not being able to identify the position of devices can have serious safety implications:

- when lifesaver equipment is to be found in case of emergency and
- when devices out of maintenance are used (with potential liability issues).

Trilogis Box³, hardware-independent real time location technologies, allows control of each piece of equipment to monitor where it is located and to analyse its maintenance state.

This is done by integrating Trilogis' Box³ software for asset management & maintenance with a variety of Real-Time Locating System (RTLS), to deliver accurate control over the fixed and portable medical equipment and their thorough maintenance.

The solution supports automatic scheduling of maintenance tasks across different maintenance teams. Operators can use mobile devices to be guided to the location of a device and be guided through the list of activities planned for the maintenance of that specific device.

By running Box³ on mobile computers, operators can sign-in and sign out automatically when starting or completing a maintenance task by simply scanning the RFID tag attached to a device.

All maintenance operations can be therefore certified bringing to improved operations, efficiency and safety as well as reduced costs and lower liability.

In addition, operators can use Box³ to retrieve documentation, the full history of maintenance activities carried on the device etc.

Managers can extract Key Performance Indicators (KPI) over maintenance and use of equipment in order to optimise operations and reduce costs.

¹ According to a study by GE Healthcare

Real-time location of equipment

By attaching real-time localisation tags to medical devices (e.g. infusion pumps), Trilogis' Box³ can locate those pieces of equipment, infer usage patterns, derive indicators essential to assess their actual levels of use.

Nurses, medical doctors, clinical engineers can use Box³ mobile or web client to see where each device is located.

As a result, asset management and maintenance activities can significantly benefit from increased operational capabilities.

Further, Box³ increases safety of operations (e.g. generating alerts when an unserviced device is used), it prevents stealing and, more generally, it solves the "invisibility" problem.

Box³ web-based technology provides real time control of each piece of equipment to monitor where it is located, regardless if this is indoor (through RTLS) or outdoor (through Global Navigation Satellite System - GNSS), and to access its maintenance history.

Real-time active tags from various vendors can be used for real-time location of devices. Box³ has been engineered to be vendor-neutral allowing for high scalability through a number of different location technologies, for instance Wi-Fi, Bluetooth 4.0, beacons, Ultra Wide Band – UWB, or any solution compliant with the ISO/IEC 24730-1:2014 standard on "Information technology — Real-time locating systems (RTLS)".

This makes the system completely independent from the different hardware manufactures, ensuring high scalability on top of different RTLS systems in the market (including future technologies).

In fact, the solution developed allows even use of parallel hardware localisation at once (e.g. two different receivers respectively for indoor and outdoor location), which are then logically handled as single data source by the system.

In fact, hospitals can use any combination of localisation technologies avoiding vendor lock-in with benefits in terms of adaptability, scalability and future expandability of the system.



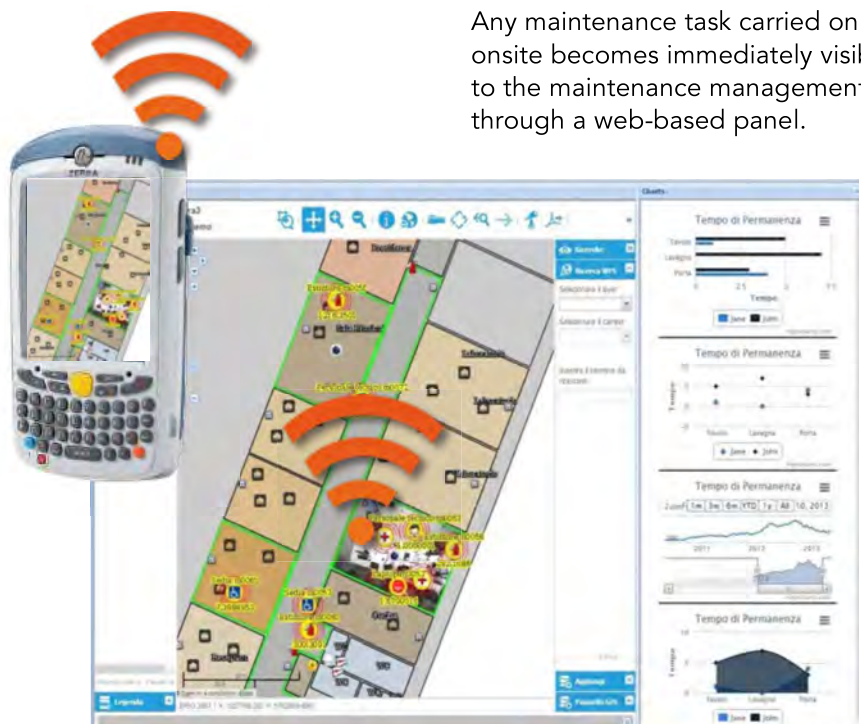
Trilogis' Box³ software for asset management & maintenance together with one or more Real-Time Location System (RTLS), can reduce asset invisibility with RoI up to 250-500,000 euros per annum in saved device rental & reduced costs for a 200-bed hospital.

Use with RFID technology

Whenever real-time location of asset is not required, for instance for non-moving pieces of equipment, Box³ can use RFID tags, printed by RFID printers.

By running Box³ on mobile computers, as well as smartphones and tablets, users can scan the RFID tag attached to any piece of equipment, to:

- Access documentation (operating instructions, certifications, etc.).
- Perform scheduled or preventive maintenance.
- Access its maintenance history.
- Check the list of accessories.



Any maintenance task carried on onsite becomes immediately visible to the maintenance management through a web-based panel.

Improved efficiency and operations within healthcare infrastructures

Typical healthcare infrastructures

- Public/private hospitals, where localisation/management of medical asset is carried on by dedicated staff.
- Day care centres (e.g. for elderly or handicapped people) which make use of an increasing number of medical devices for diagnostics, therapy and assistance.

Target users

- Hospital managers, who need to improve use of resources (human & devices) through analysis of spatial distribution.
- Medical doctors/nurses, who need to locate devices (e.g. in case of emergency).
- Clinical engineers who manage and maintain medical appliances.

Integration with IT systems

The solution features different modules for integration with existing IT services, e.g.: SAP, Microsoft SharePoint or Alfresco (document management), Qlick or Apache Pentaho (business intelligence), and other major enterprise software.

Advantages

- Full certification of the maintenance history.
- Reduction of "asset invisibility".
- Reduction of over-procurement.
- Improved equipment inventories.
- Improved asset tracking and management.
- Maximisation of usage rate.
- Possibility to define rental payment models based on real-time data.
- Support for location intelligence.
- Support for more informed contract negotiation.
- Lowering of costs.
- Reduce capital investments.
- Increased control.
- Increased safety.
- Staff safety and workflows optimisation.
- Increased patient safety.
- Increased quality of services.
- Increased quality activity time.
- Higher operational efficiency.



Automatic notification: When maintenance is due, the system automatically generates the job order and notifies the operator in charge.

