

# **Future-Ready Buildings: Increase Smart Assets Now to Prepare an Effective Building Renewal Tomorrow.**

**Daniele Camele, Enrico Davoli, Leonardo Franchi and Sara Gepponi (Italy)**

**Key words:** Capacity building; Cost management; Land management; Laser scanning; Professional practice; Urban renewal; Young surveyor; Building renewal; digital technologies; restructuring; building management

## **SUMMARY**

Every day surveyors come across issues concerning the state of a building, not considering that those who will follow may have quite similar needs. Hence, why do we not use the wide spectrum of new digital technologies in order to create a complete and detailed history of each property? So not a single step of its evolution is missed, starting from the embryonic stage up to the current state of things.

Nowadays it is possible to count on the support of Hi-Tech and the experience gained over time by surveyors to achieve this goal. The merging of these two elements allows the user to enter into the Virtual Reality of the building, using it to locate any information from the time it was designed until present, and continuing to update this sort of ID card whenever there is a significant change.

The use of all available tech-tools, including laser scanners and thermal imager cameras is growing and evolving continuously. This enables us to stop the clock every time a scan is carried out. Each scan or data collected can be considered as a new layer that leans on the pre-existing one. As the surveyor inserts new parameters he thickens this substrate network, which will create the structure's ID. Taking the case study of a construction site, it is possible to reconstruct every crucial step in the building's construction thanks to the various scans, preserving details relating to materials, timing and layout. It will obviously be helpful to manage this digital copy of the building in order to carry out precise future interventions without damaging any other parts. Otherwise, without this entirely inspectable virtual reality, it would not be conceivable to accurately pinpoint what may be required in the coming years, such as the exact layout of water supply, sewer or electrical networks.

This system not only collects the structure's evolutionary data, but also acquires three-dimensional geometric ones that will depict its

---

Future-Ready Buildings: Increase Smart Assets Now to Prepare an Effective Building Renewal Tomorrow. (12638)  
Daniele Camele, Enrico Davoli, Leonardo Franchi and Sara Gepponi (Italy)

FIG Working Week 2024

Your World, Our World: Resilient Environment and Sustainable Resource Management for all  
Accra, Ghana, 19–24 May 2024

evolution.

Try to imagine if all buildings had their own easily searchable and detailed history, how much more streamlined and easier the paperwork would be, in terms of professional interventions. A real digital database of the building would be created. It comes together with it and would move alongside the real and tangible evolution of the building.

---

Future-Ready Buildings: Increase Smart Assets Now to Prepare an Effective Building Renewal Tomorrow. (12638)  
Daniele Camele, Enrico Davoli, Leonardo Franchi and Sara Gepponi (Italy)

FIG Working Week 2024

Your World, Our World: Resilient Environment and Sustainable Resource Management for all  
Accra, Ghana, 19–24 May 2024