



SUFFOLK CONSTRUCTION CASE STUDY: Delivering Better Field Documentation Faster by Working Smarter

Summary

Project perspective: The construction team on a \$300MM+ hospital project was looking to create progress and key milestone documentation in a “smarter” way. Traditional methods of taking digital pictures for a space and then organizing them manually were time consuming and error prone. There had to be a better way.

Company perspective: Project teams were attempting to load large video and image files to the local knowledge management system at an ever-increasing rate. The IT group wanted to encourage the use of mobile phones, wearable devices and drones. But how could the CIO support this field innovation without crippling their infrastructure?

Outcome: By partnering with cloud software provider, Smartvid.io, the field team moved from a manual photo-based process to a video process with automatic tagging. As a result, the team was able to reduce time required for field documentation by over two (2) months (over 60% savings). The CIO was able to offload video and photo storage and management to the cloud, sparing back-end systems from the ever-increasing load.



Project: Longwood Medical Area, Boston, MA

Background

QA lead Tom Reid, Assistant PM Alexander MacNeil, and PM Jason Seaburg needed to document 1,500 rooms and spaces at multiple phases of construction for progress updates to the owner, create a digital document data set for future search, and complete handover documentation. This activity was on the critical path to subsequent phases, so it needed to be completed in a timely manner. If questions arose later (e.g., is there backing in that part of the wall?), this visual documentation would be critical. It had to be well organized.

Despite many advances in technology in construction, visual field documentation processes are still what they've been for many years. Digital photos are taken by field personnel and then stored in folders on a shared directory that must be managed manually. Taking digital pictures of every room from every angle took a lot of time. Occasionally, the correct imagery wasn't captured and teams had to retake images. Once back in the office, images had to be renamed. If they weren't, then searching for specific content required remembering the exact date of the recorded images. Using plans or drawings directly required a laborious process of clicking on 2D or 3D plans to locate the correct spot to generate photos and took more time than the current process.

The team started out by experimenting with ring and spherical-type photos to reduce the amount of time necessary in each room. The team was able to reduce time since only one photo was needed that captured 360 degrees, but the results weren't sufficient. First, the imagery wasn't high enough quality. Second, ring photos missed the floor and ceiling. This required additional traditional photos of the floor and ceiling. Lastly, the files that resulted needed to be stored and managed. Renaming the files for each room took valuable time. Then they started working with Smartvid.io.

How it worked

- The team switched their visual field documentation process to Smartvid.io's field media management platform
- Imported floor and room schedule from Revit® model file to define the location tags in Smartvid.io
- Moved from taking 6-10 photos/room (or the 360 degree camera + 2 more) to doing a single video with voice narration per room
- Walked each room with a mobile phone (iPhone 5) or GoPro™ narrating the room location (e.g., Room 1592) and specific views (e.g., North Elevation), taking 45-second videos
- Uploaded the videos to the Smartvid.io platform where they were processed and automatically tagged—the spoken location tags were matched to the actual location-based tags from the Revit model
- Now, all content could be searched instantly via Smartvid.io to retrieve the exact imagery tagged with specific location (or other) tags (e.g., Room 1592, North Elevation).

Step/Challenge	Before	Now with Smartvid.io	Old Process	Minutes Saved	Instances*	Hours Saved
Field Data Gathering	Write room name on whiteboard so location is known Take 5-10 pictures/room	Take video of room	5 min/room	3	4,500	225
Office Organization Time	Create file folder with room name, rename files with room names	Run Smart Tagging	2 min/room	1	4,500	75
Finding Imagery Later	Look through pictures to find correct image for location	Search	30 min/search	25	150	63
Forgetting a specific shot	Need to go back to the field and retake	Review video for needed shot	15 min/instance	15	25	6

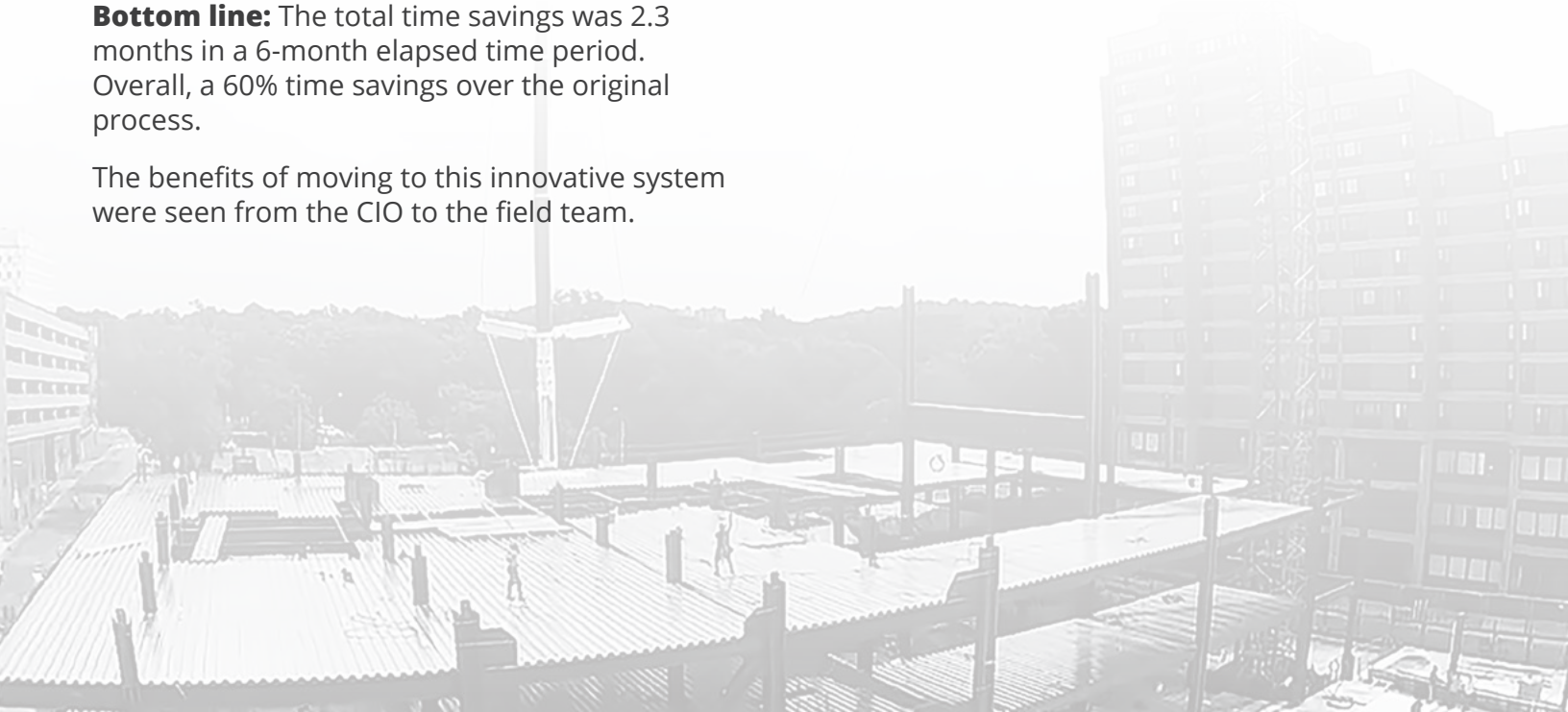
*1,500 rooms to be documented * 3 visits/room = 4,500

Benefits

The benefits were immediately apparent. First, the time required in the field went from five (5) minutes/room on average to two (2) minutes/room. The time then required to organize each rooms' content dropped to 1 minute/room. Then, later, when looking for content (e.g., where is the junction box?) the time required to find content was reduced by 25 minutes for each search. Lastly, by taking a video of the entire room there were no "forgotten shots" requiring a revisit to the field for recapture (if lucky enough that the spot wasn't covered up or gone by that point), conservatively saving 15 minutes each revisit.

Bottom line: The total time savings was 2.3 months in a 6-month elapsed time period. Overall, a 60% time savings over the original process.

The benefits of moving to this innovative system were seen from the CIO to the field team.



Corren Collura, CIO:

"As our organization continues to innovate with devices from mobile tablets, to phones, drones and more, we were looking for a way to securely manage the photo and video content being generated and extend the value of our current enterprise content management system. Smartvid.io's cloud approach and enterprise data model fits nicely within our IT strategy, takes away the challenge of managing all of the media internally and provides a better experience to our internal and external clients."

**Chris Mayer,
Chief Innovation Officer:**

"We're always looking for ways we can build smarter through innovative technology—bringing better results to our customers through better tools in the hands of our team. The work we are doing with Smartvid.io is a part of our leadership in getting data from the field and using it to build faster, learn more, and communicate better with all parties. This is just the beginning as we move to more and more data from the field."

**Jason Seaburg,
Project Manager,
Boston Hospital Project:**

"Communication from the field is a visual process and Smartvid.io enables us to leverage the best ways to communicate to everyone. With Smartvid.io we can get better and faster documentation that is then searchable when we need it."

**Alexander MacNeil,
Assistant Project Manager,
Boston Hospital Project:**

"In the VDC world, documenting and interacting with reality is developing into usable technology; however capturing reality has been difficult to date as you need specialized equipment. By exporting our room and floor data from our BIM model we could then import it into Smartvid.io as tags. The Smartvid.io platform turns every device, including mobile phones, into a reality capture device by enabling SmartTagging to key searchable tags such as location, status, equipment and more."

Thomas Reid, QA/QC Manager:

"Smartvid.io saves me a lot of time creating and then finding my visual field documentation. Instead of taking a bunch of digital pictures that I have to manually categorize, I can take a video and talk. The SmartTagging engine then tags my content automatically, reducing the time I had to spend at my desk organizing things. I won't go back to the old way of doing progress tracking and milestone documentation."

For more information on Suffolk Construction and their Build Smart approach, visit www.suffolk.com.

For more information on managing field documentation via the Smartvid.io platform, visit www.smartvid.io.