Round Trip

From Reality to Virtual and back again!
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Topics to be covered

• Reality Capture Types and Methods
• Discuss approaches in AEC (Design, Construction and Post construction)
• Best methods for accessing Data
• Best methods data Integration into design
What’s a Scan?
“A Picture is worth a thousand words.”
More than a Picture!
Types of Reality Capture
• LIDAR, which stands for *Light Detection and Ranging*, is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system—generate precise, three-dimensional information about the shape of the Earth and its surface characteristics. - [https://oceanservice.noaa.gov/facts/lidar.html](https://oceanservice.noaa.gov/facts/lidar.html)
Infrared / Structured Light
• The science of making measurements from photographs.

Photogrammetry
Methods of Reality Capture
Aerial
Static / Terrestrial
Mobile
Wareable / Handheld
UAS
Not all data is created Equal!
Reality Capture in Practice
As Built Drawings

• A thing of the past?
• Start with the right information
What do you need?

• Get the right tool for the Job
• Registration Method / Survey Control
• Planning is a Key for Success!
Processing and Viewing
Point Cloud viewing Software
Point Cloud Online access
View in VR!
Feature Extraction (Scan to BIM)
Scan to BIM

- WHY?!
- Be Clear in defining the project needs.
Feature Extraction (Manual Method)
Feature Extraction (Auto / Semi Automatic)
Runway Project Example

Recently, our teams used the technology for the construction monitoring of a complex runway extension, where two different UAS were used to monitor the progress and status of the current development. A major aspect of the plans included a new vegetated mechanically stabilized earth wall, a design decision that decreases the number of trees cut down, minimizes the amount of fill needed, and is less obtrusive and less distracting to pilots as they land.
Construction Uses

- Fast Track Projects
- Site Logistics
- Material Tracking
- As-Built
In Summary...

- Start with the end in mind...
- Get the right tools for the Job!
- Have a clearly defined plan!
- Explore new Possibilities
Thank You!