Registration and georeferencing are the most important aspects of a successful laser scanning project. No project enables you to capture the entire scope of a project. Digital twin building, VR, 3D printing, and more are just a few examples of the benefits that can be obtained from laser scanning and georeferencing. Results for various data sets, and rate the tools based on general and registration criteria. We will use one of the strong point cloud processing software systems on the market. We will perform a side-by-side registration comparison between ReCap Pro© and Leica Cyclone®. The next step is providing an accurate as-built to the client. These are several methods in providing an accurate as-built to the client. Therefore, registration is one of the most critical steps in laser scanning projects. No project enables you to capture the entire scope of a successful project. We think that the following are important:

-精度
-一致性
-可重复性

Class summary

 Recap Pro© vs Leica Cyclone®

Virtual Building Manager
Silviu Stoian

Virtual Building Director
Kelly Cone
At the end of this class, you will be able to:

- Assess project registration results
- Use Recap Pro to C2C register scan data
- Use Cyclone to C2C register scan data
- Determine which registration tool meets your project needs

Key Learning Objectives
Linear Registration Workflow

Registration Demo
Recap Pro – C2C
Cyclone – C2C Registration Demo

Circular registration workflow
Data Sets – Project 1

Registration Results
Registration Reports - Project 1
Visual validation - Project 1

1. Recap Pro
2. Cyclone

Visual validation – Tight Spaces (1+2)
Visual validation – Room to Room Transfer (3+4)

Cyclone Recap Pro

Visual validation – Level to Level Transfer (5+6)

Cyclone Recap Pro
Visual Validation – Exterior Spaces (9+10)

Visual Validation – Interior Open Spaces (7+8)
Data Sets – Project 2

Visual validation – Int to Ext Transfer (11+12)
Visual Validation - Interior Open Spaces (1+2)
Visual validation – Room to Room Transfer (6+7)

Cyclone ReCap Pro

Visual validation – Exterior Spaces (3+4)

Cyclone ReCap Pro
<table>
<thead>
<tr>
<th>Criteria</th>
<th>Project 1</th>
<th>Project 2</th>
<th>Project 1</th>
<th>Project 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Registration Time</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>User Interface</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Data organization</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Workflow</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Ease of Use/Learn</td>
<td>5</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>QA/QC</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Tight Spaces</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Registration</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Comparison Sheet**