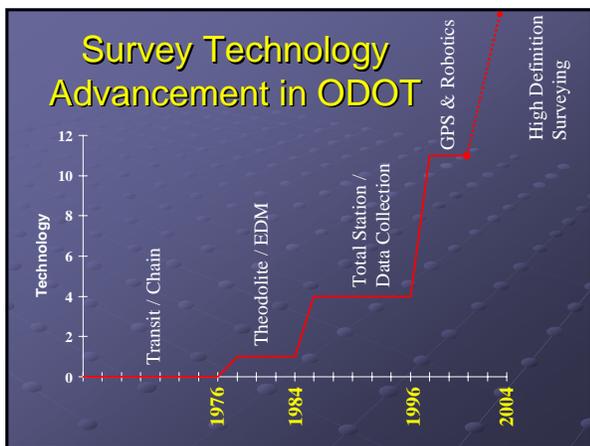
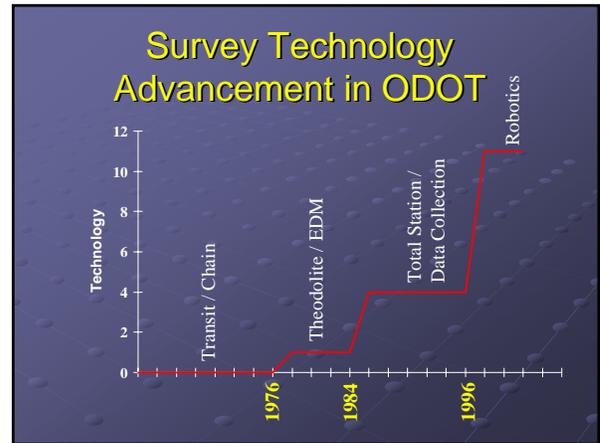
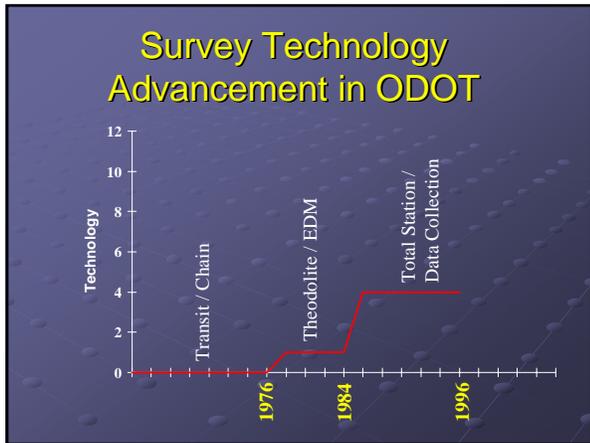
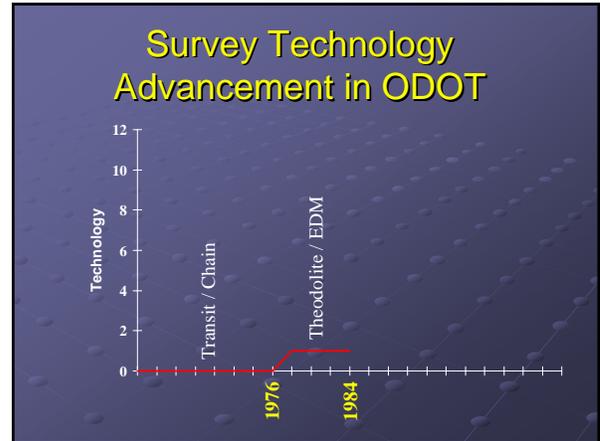


Geometronics



High Definition Surveying



- 3 Dimensional Laser Scanning
- Captures the geometry of existing physical objects
- Allows Virtual Surveying in Office
- Facilitates Solid Object Modeling

High Definition Surveying



- Reverse Engineering
- Non-Contact Inspection
- Structure Analysis and Testing
- Determine Fit Before Shipping to Site
- As-Built Surveys
- Historical Archive

High Definition Surveying

- Theodolite Positioning Systems (TPS) and Global Positioning Systems (GPS), capture single point measurements – one point at a time
- HDS systems capture thousands of points per second – scanning an area or object with a continuous sweep of a laser beam
- Total Station in Steroids



Scanning Technology

- 2-6mm Accuracy for Big Structures, Areas
- Structures: Inaccessible, Unsafe, Delicate
- Complex Geometry
- Data Collection Must Be Done Quickly
- Extensive Detail Is Valuable
- Immediate Results

Scanning Technology



Scanning Technology

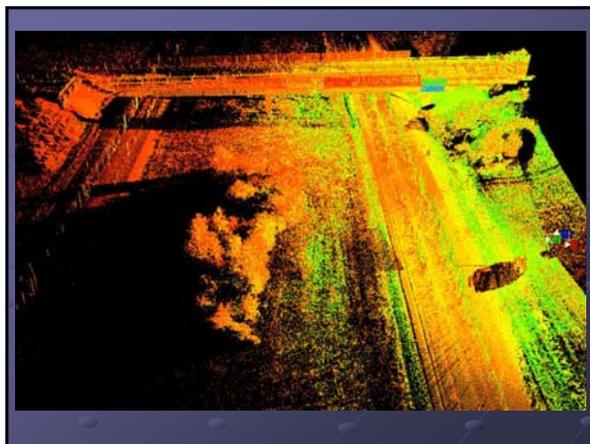
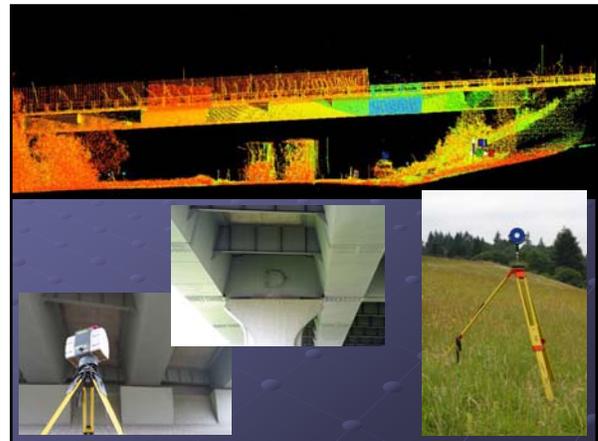
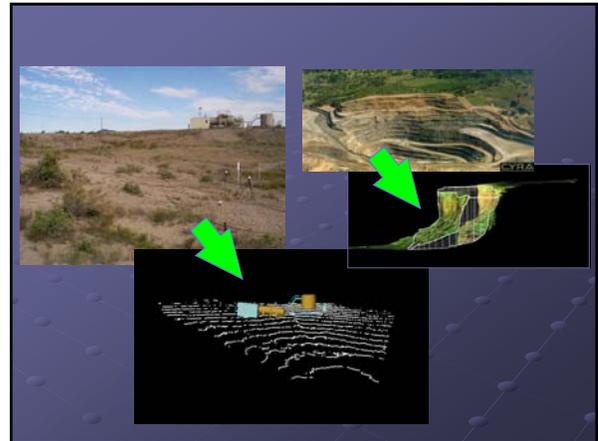
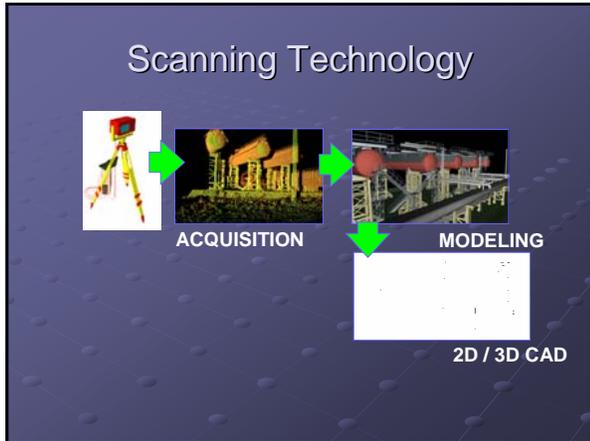


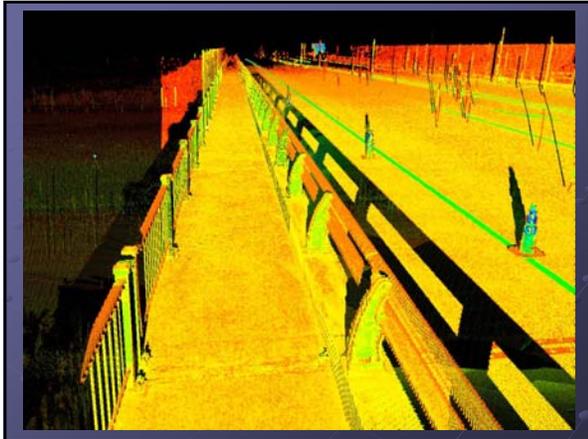
ACQUISITION

Scanning Technology



ACQUISITION MODELING





Scanning Technology - Inspection / As Built Records

A 3D point cloud scan of a bridge pier, showing the vertical structure and the surrounding area. An inset image shows a photograph of the actual bridge pier for comparison.

Scanning Technology - Monitoring Deformation

Two images illustrating the application of scanning technology in monitoring deformation. The left image shows a truss bridge over a river, and the right image shows a large dam structure.

The Near Future

- Increased Complexity
- Instruments Without Telescopes
- Real Time Surveying and Mapping
- Advanced Wireless Technology
- 3D Spatial Data
- Huge Volumes of Data
- Increased Use of GPS Coupled with Inertial Measurement Systems

The Near Future

- ◆ Advanced Scanning Systems
- ◆ Collaborative Workplace Technology with Increased Use of Internet, Intranet, and Extranet
- ◆ Solid Object Modeling
- ◆ Machine Control
- ◆ High Definition Surveying

Survey Initiatives

- ◆ Engineering Data Management Systems
- ◆ Digital Signatures on Survey Products
- ◆ GPS Reference Station Network
- ◆ Vertical Control Infrastructure Re-vitalization

Expect:

- ◆ Rapid Changes in Technology
- ◆ Completely Different Ways of Thinking
- ◆ Long Standing Survey Laws To Change
- ◆ Specialization
- ◆ And Guaranteed
- ◆ **Change!**

