DIGITAL CONSTRUCTION

Vikram Jeet Singh Jasrotia, BU, GMAT
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WHAT WE DO

BUILDING & CONSTRUCTION

ROADS SRVY & CONSTRUCTION

RAIL

TUNNELS

TOPO, CADASTAR

MONITORING

INFRA MANAGEMENT

ENGINEERING
Why Shift to Digital Construction
Why Digital Construction is important?

Overview of productivity improvement over time

$ thousand per worker


Manufacturing
Construction

1.7x
Many Projects Suffer Cost Overruns

<table>
<thead>
<tr>
<th>PROJECT NAME</th>
<th>COST OVERRUN</th>
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<tbody>
<tr>
<td>Leipzig City Tunnel (Germany)</td>
<td>68%</td>
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<tr>
<td>Wembley Stadium (UK)</td>
<td>81%</td>
</tr>
<tr>
<td>The Channel Tunnel (UK-France)</td>
<td>145%</td>
</tr>
<tr>
<td>Denver International Airport (USA)</td>
<td>167%</td>
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<tr>
<td>Guangzhou City Transport Project (China)</td>
<td>335%</td>
</tr>
</tbody>
</table>

GC’s: 1/3 of all projects lose money

Source: Forbes
Global Construction Productivity has Declined

Sources: McKinsey & Company, IHS Global Insight
Digitalization, Cloud & Mobile Adoption = Positive Future

Sources: McKinsey & Company, IHS Global Insight
Digital Construction Layout
Leica Geosystems

3D Digital Model Arch/Struc/MEP
Modelled inside Autodesk, Bentley, Tekla or another software package.

Digital Points Added
Digital points added using stand-alone software or plugins inside 3D software

Staked Out On Site
Digital points & 3D model sent to instrument and staked out ‘robotically’

Digital as-built points & reports sent back to office
Digital Construction Layout
The Benefits

- Reduces Errors & Rework
- Improves Site Efficiency
- Complete BIM Workflow
- Accurate As-Built Data
Digital Construction Layout Technology Options

**Leica Captivate**
- Range of survey functions
- Laser scanning Total Station
- Ruggerised site equipment
- Free Point Creation Plugin

**Leica iCON**
- Designed for Construction
- Specialised functionality
- Ruggerised site equipment
- Free Point Creation Plugin

**BIM360 & iCON**
- Autodesk Environment
- Seamless workflow
- iPad Controller
- Comprehensive Point Plugin