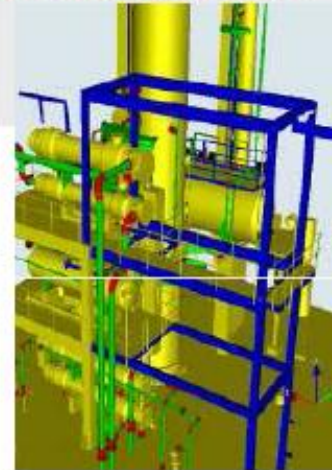
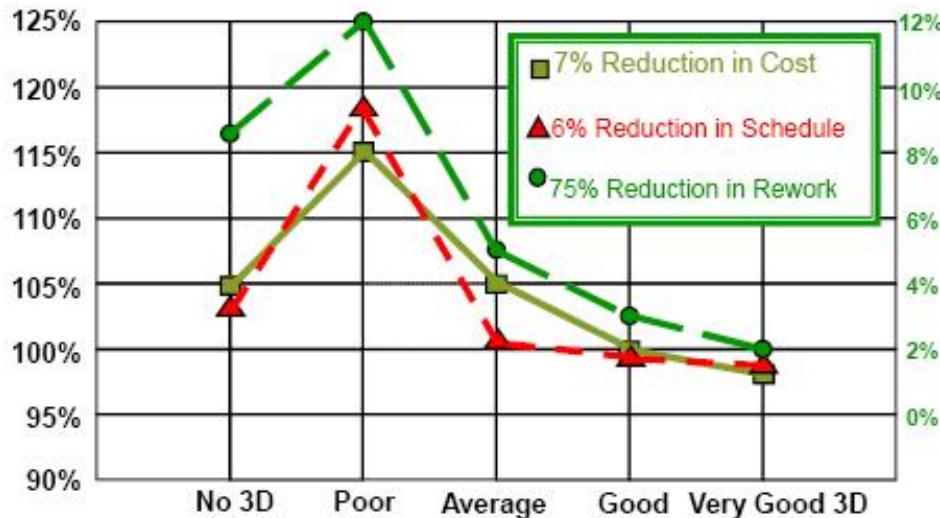


Project Benefits

3-D computer modeling has completely replaced 2-D design and has significantly reduced EPC cost, schedule and rework to the owners and operators.

Reduction in Cost and Schedule



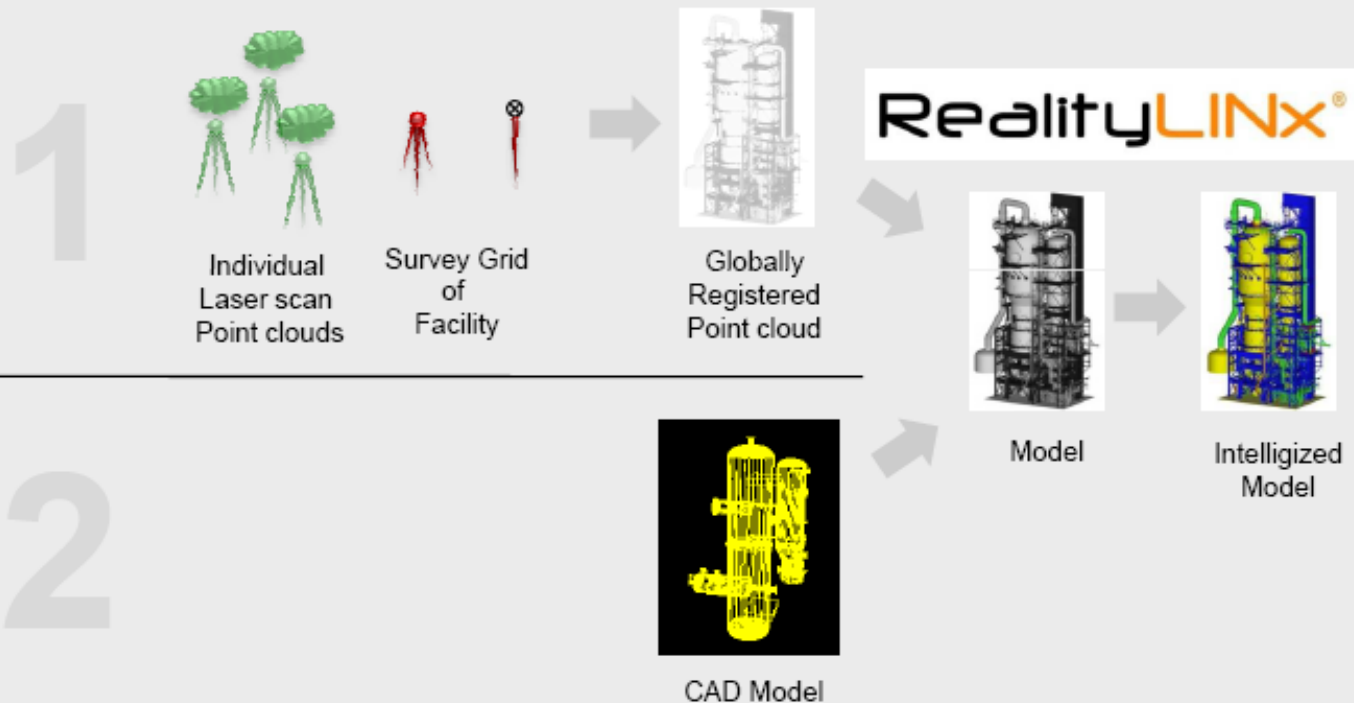
- CCM – Construction Cost Metric
(actual cost)/(estimated cost), %
- ▲ CDM – Construction Duration Metric
(actual duration)/(estimated duration)
- RWM – Rework Metric
(rework hours)/(total hours)



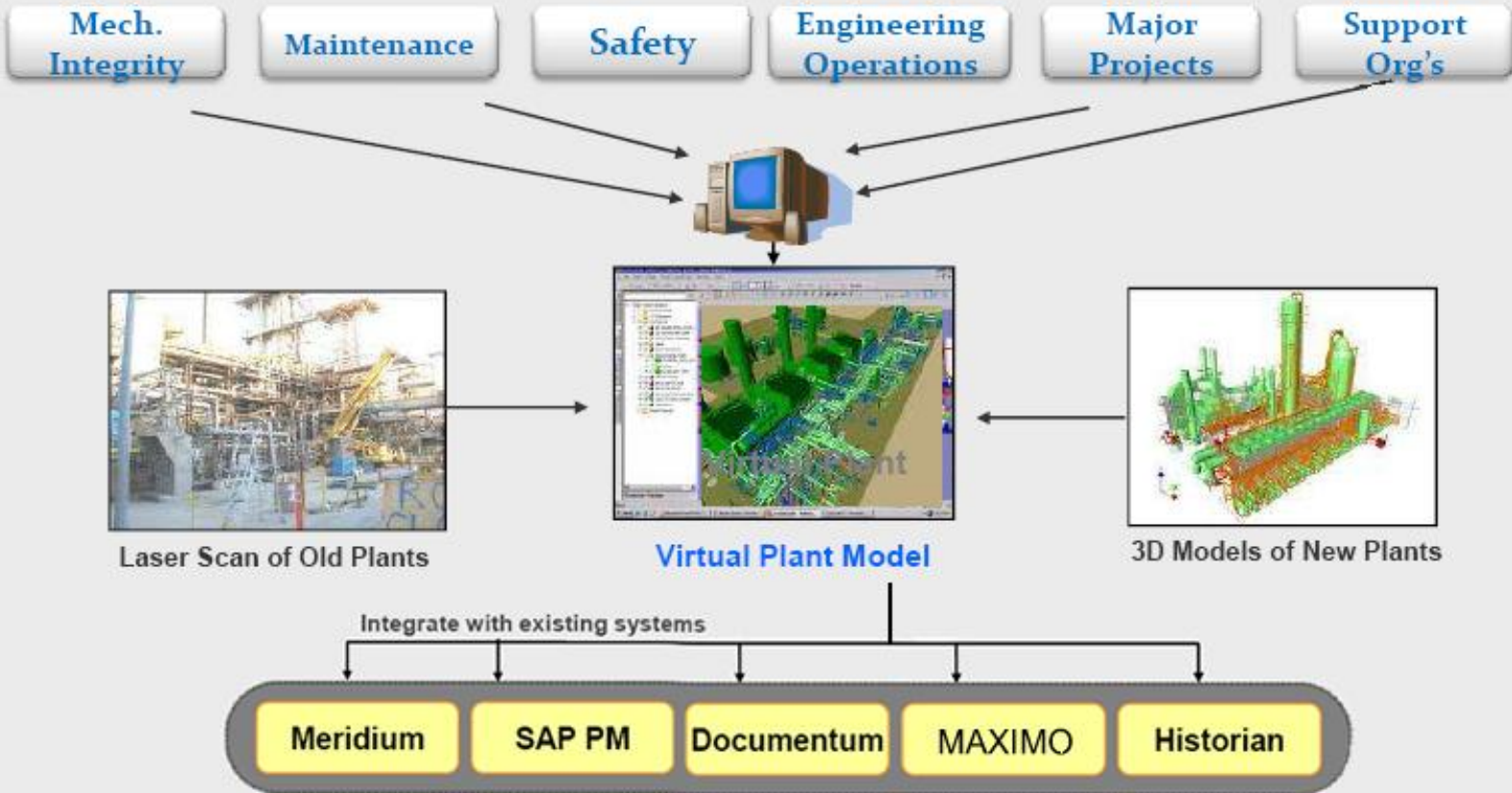
*Construction Industry Institute,
*An Analysis of the Impacts of Using 3D Models in Construction, : Griffis, Hogan, Li



2 Ways to get the Intelligized Model



How Virtualization Works



Areas of Impact (Use Cases)

Maintenance	Turn Around Planning, Execution & Major Lifts Planning	Optimizing Maintenance / Mechanical Integrity	Spare Parts & Warehouse Availability Review
Operation	Monitoring Daily Work and Scoping / Coordinating new changes	HAZOP Coordination Safety Reviews & Operator Training	Planning and Coordinating Faster Response to Emergencies
Reliability	Optimizing inspection planning, technician time	Isometrics / corrosion loops drawings, TML Locations	Corrosion Trending Studies & Root Cause Analysis
Engineering	Revamp Project Scoping, Review with Operations, Maint. & Contractors	As-Built Data Management, Design Modifications, MOC	Quick Access to Engineering data, Equipment data, P&ID, etc.
Compliance	Optimizing fugitive emissions routes / coordinate with maintenance actions	Ensuring correct tag-out/lock-out locations, document procedures	Contractor training and site familiarization