

HI-TARGET

Hi-Target International Group Ltd

The Evolution of Technology in Big Data Management for Construction Industry

J.W Chen

President

Hi-Target International Group Limited

HI-TARGET

Surveying the world, Mapping the future.

SATLAB[®]
GEOSOLUTIONS

Building the Future with Accuracy and Precision

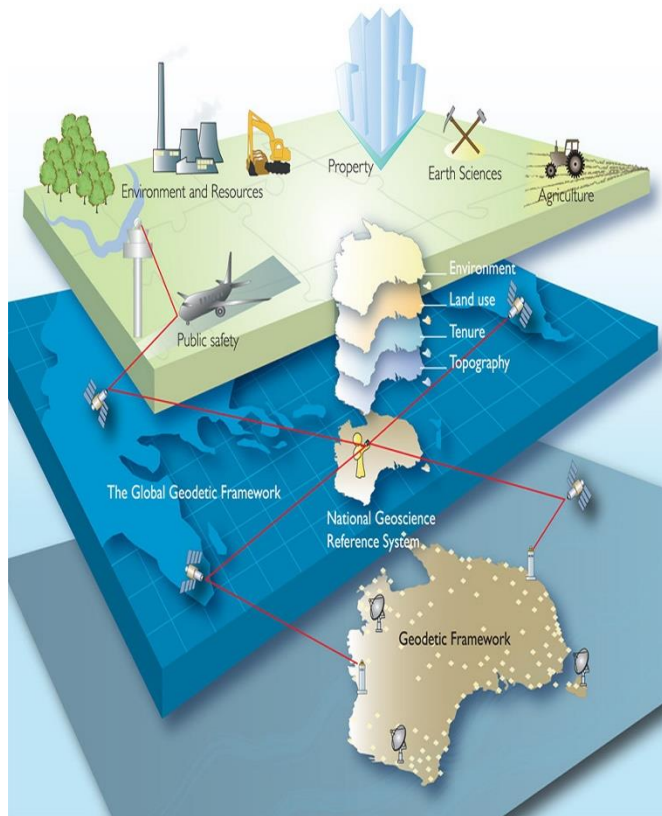
TITAN[™]

Where Technology Meets Innovation

Contents

- 1) Geospatial Technology in the Digital Era Ecosystem
- 2) Geospatial Information Data Acquisition & Usage
- 3) BIM Benefits & How Can we Integrate into BIM
- 4) AR/VR Development
- 5) GIS + AR/VR Project Implementation Project Sharing

Geospatial Technology in the Digital Era Ecosystem



GIS
Geographic
Information
System

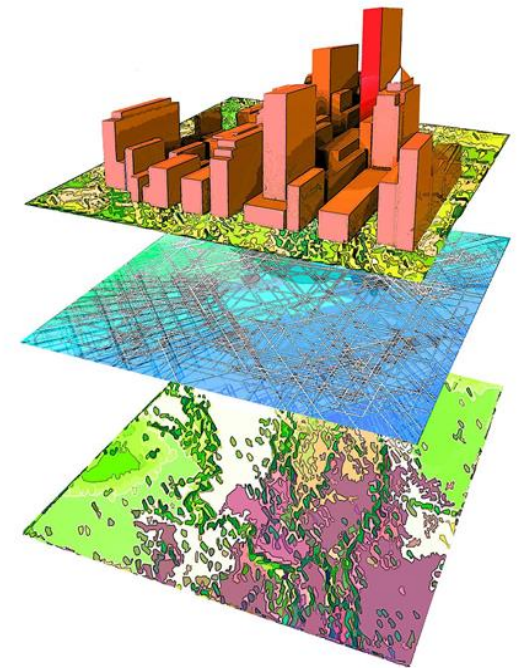
GPS
Global
Positioning
System



RS
Remote
Sensing

Other
Emerging
Technologies

Components of Geospatial Technology



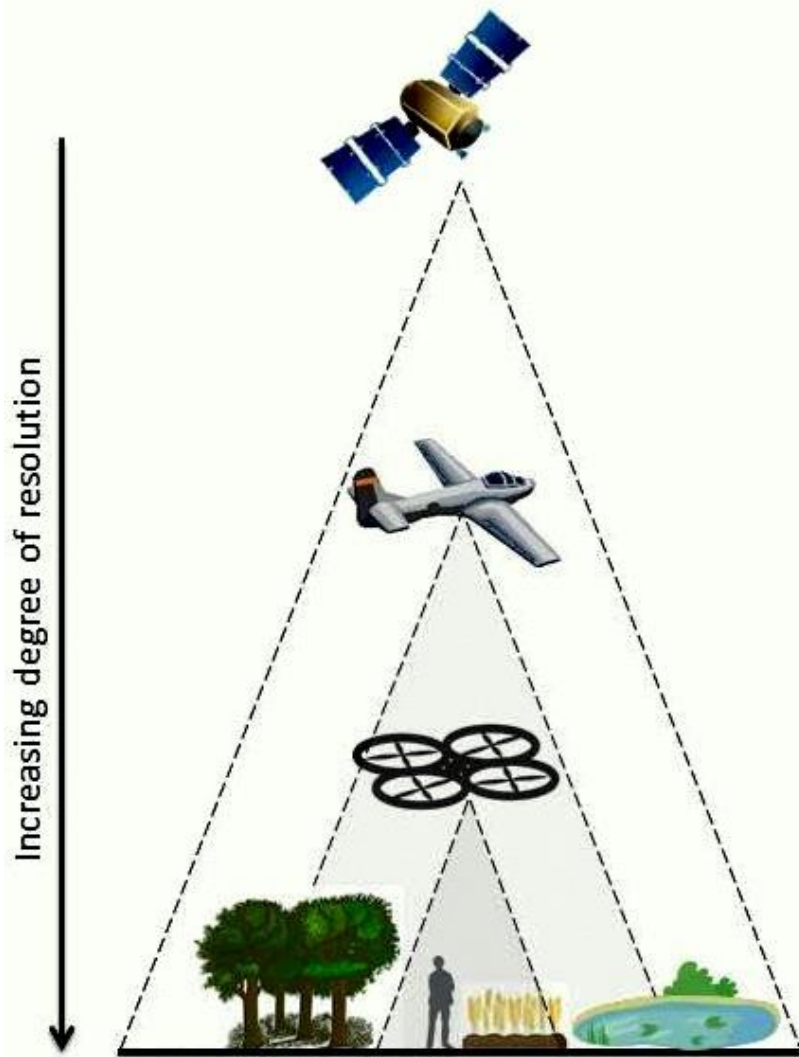
GIS / Spatial Analytic



Global Navigation Satellite Systems & Positioning



Earth Observation & Remote Sensing



Scanning



BIM APPLICATION

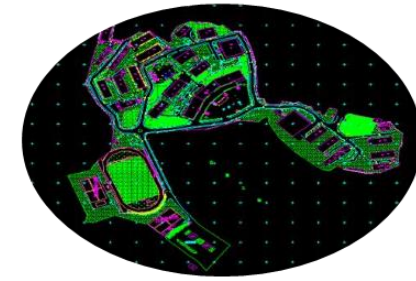
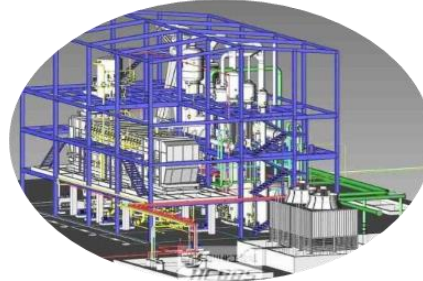
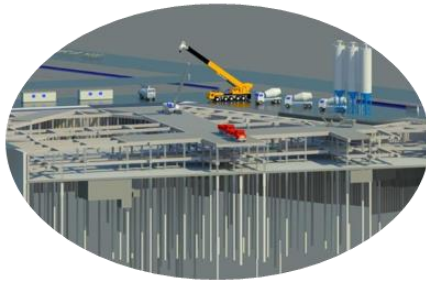


DIGITAL FACTORY



TOPOGRAPHIC MAPPING

CULTURAL HERITAGE



Substation Inspection



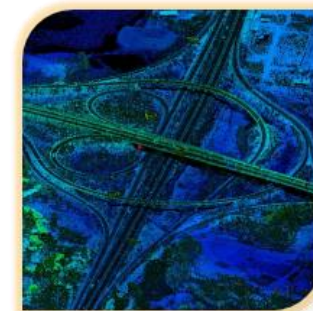
Transmission Line
Inspection



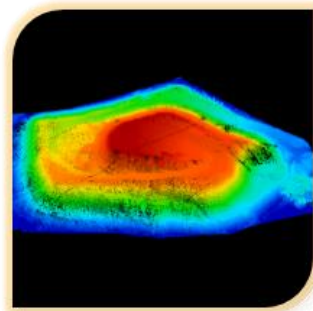
Urban 3D modeling



Survey
Photogrammetry

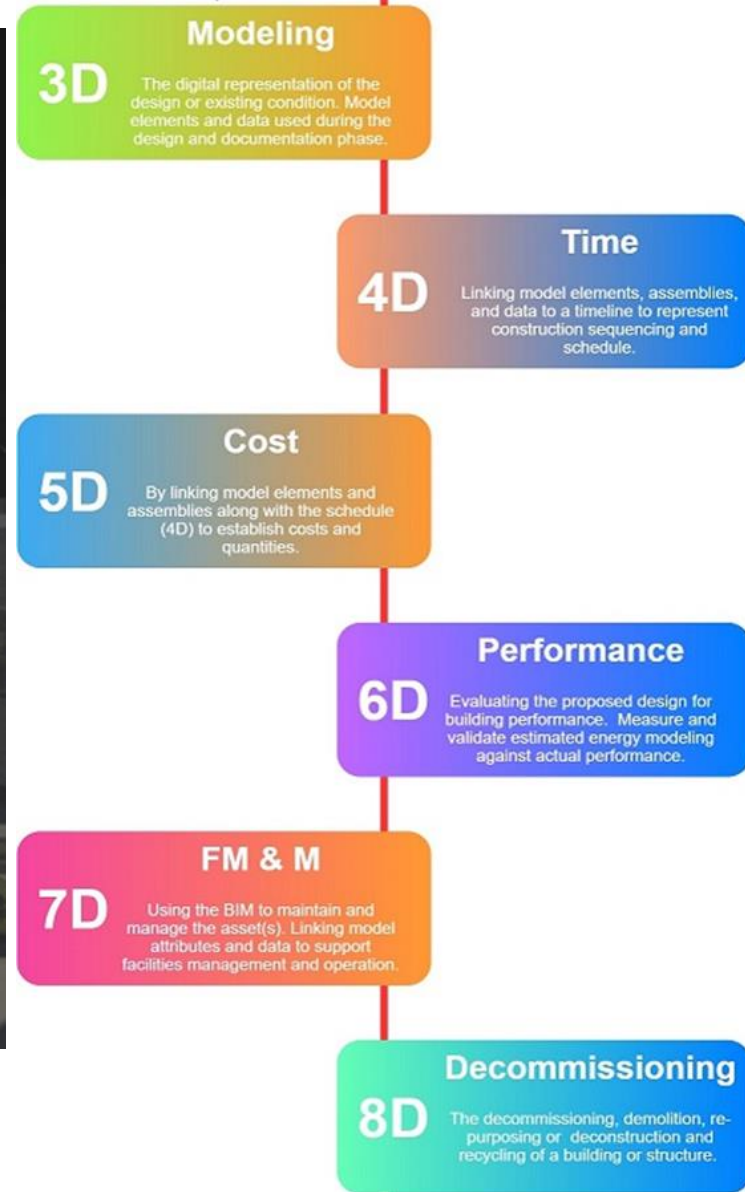
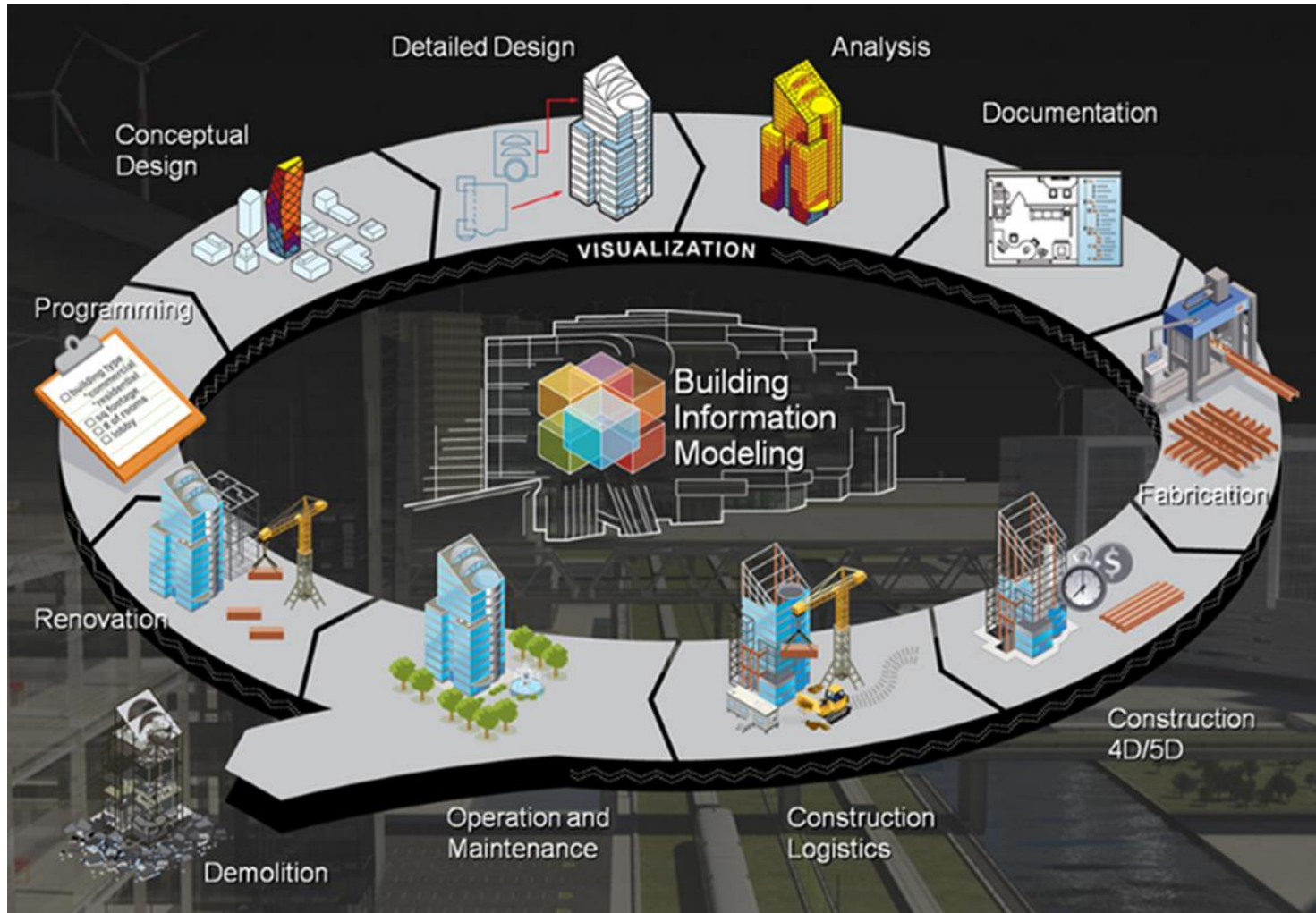


Topographic and
DEM/DSM/DOM/DLG



Volume calculation
and Heap monitoring

Geospatial Information Data Acquisition & Usage



BIM Benefits & How Can we Integrate into BIM

Increased collaboration

- Multi-disciplinary project coordination
- Sharing model with all stakeholders

Increased understanding

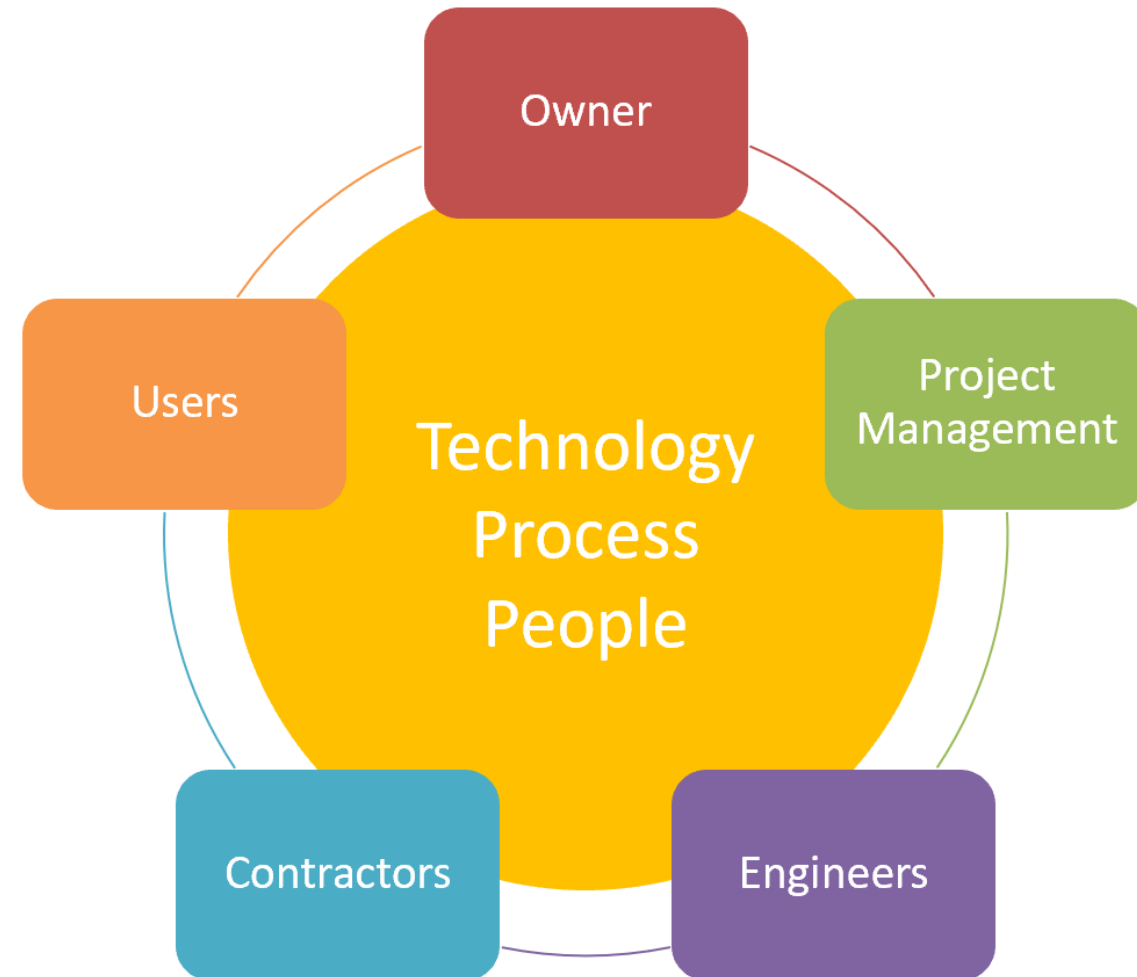
- Visualization for presentations, decision making and marketing
- Less resistance, better solutions

Decreased risks and conflicts

- Detect and manage risks virtually earlier
- Remove conflicts between disciplines

Decreased costs and time usage

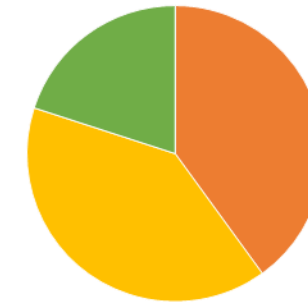
- 5% - 15% lower project cost
- Faster production and information access



5% - 15% Lower Project Cost

- Design conflicts found during construction cause extra costs
- With BIM conflicts can be eliminated
- Faster construction with lower cost
- The analysis shows 75 % decrease in construction change orders when BIM is used

Additional costs in construction



■ Unforeseen ■ Design issues ■ Other

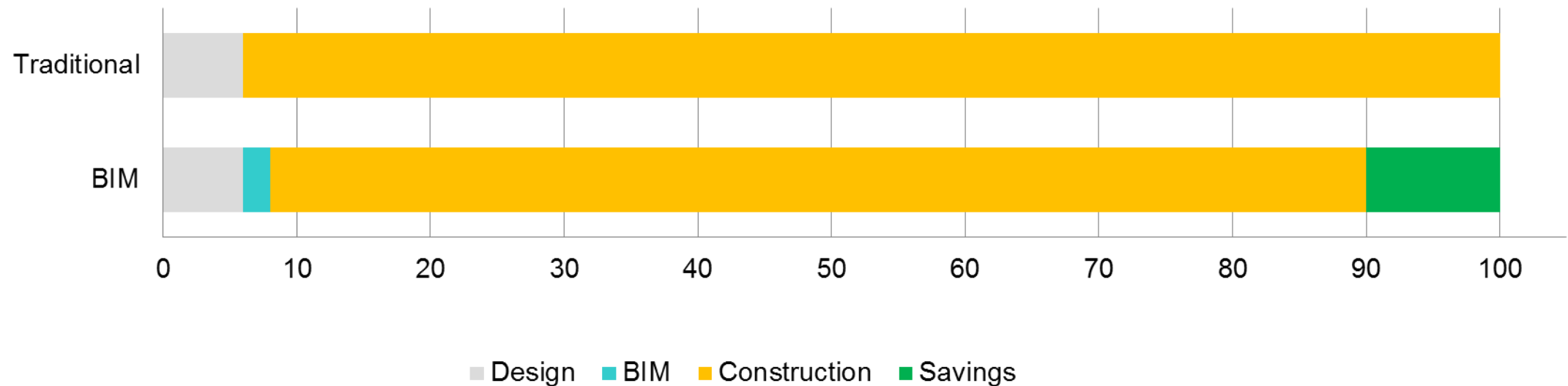
Project	Project method	Contract sum	CCO %	Contractor
RV 150 - E03; Ring 3 Ulven-Sinsen	Traditional	301 mill	18,9%	NCC Construction
RV 150 - E22; Ring 3 Ulven-Sinsen	BIM	532 mill	9,8%	Veidekke
E6 – Nordre, Trondheim	BIM	263 mill	7,6%	Skanska
Fv. 456 Vågsbygdveien	BIM	43,7 mill	4,2%	Veidekke Entreprenør
E6 Skaberud - Kolomoen	Traditional	470 mill	18,1%	Hæhre Entreprenør
Joint Project E6-Dovrebanen	BIM	1,8 mrd	8,3%	Hæhre Entreprenør

Norwegian Public Road Administration

5% - 15% Lower Project Cost

- Typical construction change orders are about 5% - 20% of total costs
- By using BIM about 40% of change orders can be avoided
- Even 15% lower project cost

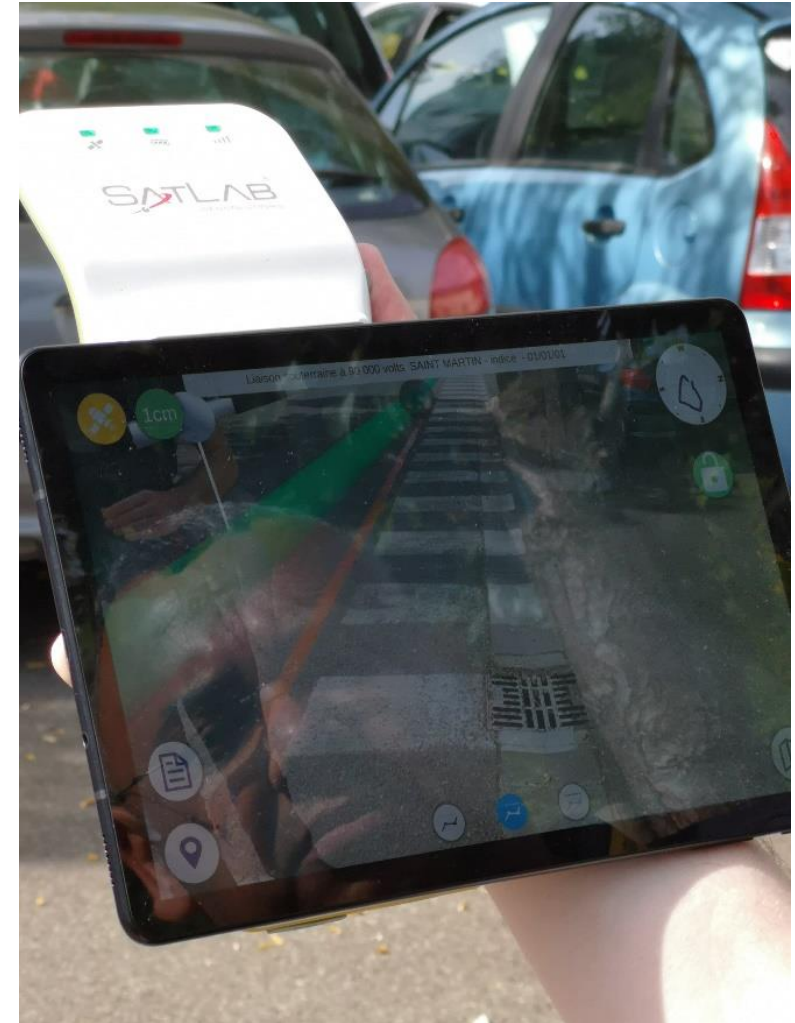
- Everybody benefits from BIM
 - Owners get project in lower cost
 - Engineers get more work
 - Contractors win projects with lower price
- Even 500% return on investment



When Virtual Reality & Augmented Reality is now a reality



GIS Project with VR & AR Solutions





Co-Inspection of Supervisor & Maintenance crew learning about the new aided device & technology

Maintenance crew trying out the technology which include online support of Remote Expert





Whether indoor/outdoor,
AR/VR + High Precision
Location in every aspect of
Construction, CIM/BIM would
definitely add value to every
project



HI-TARGET

Hi-Target International Group Ltd

THANK YOU

HI-TARGET
Surveying the world, Mapping the future.

SATLAB[®]
GEOSOLUTIONS
Building the Future with Accuracy and Precision

TITAN[™]
Where Technology Meets Innovation