Digital Twins based on the Trimble Ecosystem

Trimble is Uniquely Positioned to Connect the Digital and Physical Worlds
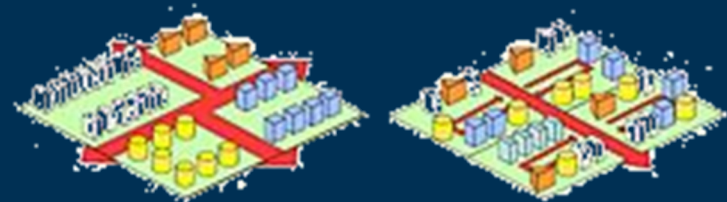
◈ Trimble®

Overview

Digital Construction

Twins, Concepts, Workflows

- **Question**:
    - Do new technologies and trends influence the way we work?

    - Are we changing or adapting our work processes?

    - What is a trend?

Connecting a Fragmented Industry

Enabling data to flow seamlessly between all project stakeholders and work processes

- One digital source of truth e.g. Civil + BIM
- Provide Contractors with insight into ongoing and latest design, enabling improved planning of construction work
- Provide Owners full visibility of project data, design and construction processes
- Connect teams and information, communicate directly in the model

Digital Twins - Digital Construction

What does it mean?

With digitalisation, all players along the value chain are networked and become an integral part of continuous processes: "Together, instead of everyone for themselves"

PLANNIING → PROCUREMENT → DESIGN → BID → BUILD → HANDOVER → OPERATE → RENEW

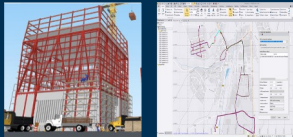| COST SAVING | QUALITY IMPROVMENT | PRODUCTIVITY | PREVENTION OF WASTE AND EMISSIONS |

Trimble is Uniquely Positioned to **Connect** the **Digital** and **Physical** Worlds

Digital

Physical

What

Where

Why

3D Model, GIS, Constructible BIM, Digital Twin
Software for design, visualization, data preparation

Positioning, Sensing & Control, Field Data
Sensing, measuring & dynamically controlling in a geospatial context

Common Data Environment
Our platform connects these technologies & workflows together via a Common Data Environment
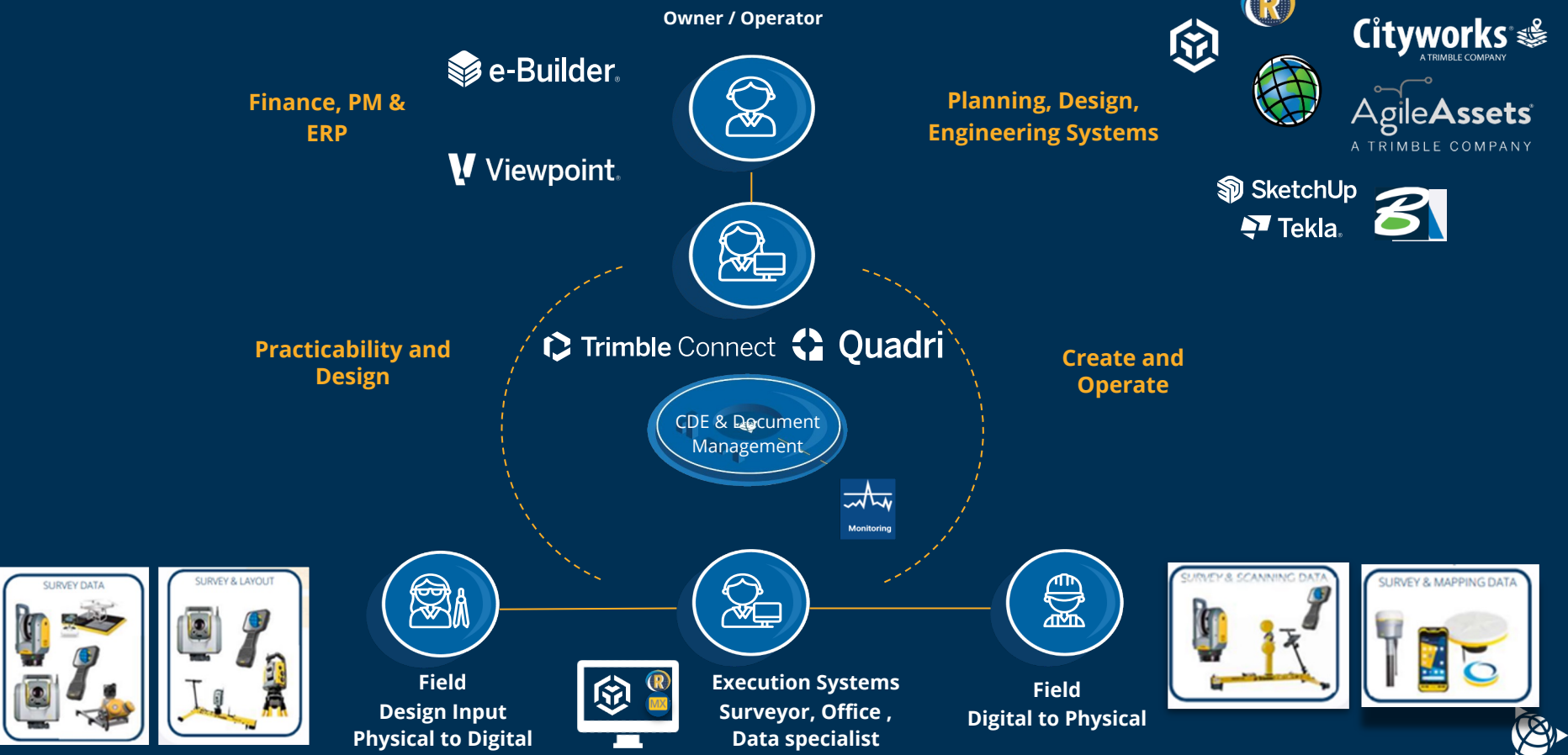
Industry Analytics and Optimization
Supporting informed decision making by delivering reliable, accurate information to engineering & construction, utilities, miing, oil & gas.. etc.
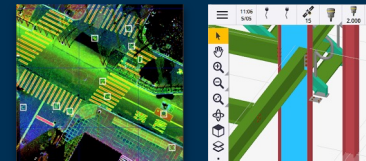
A Connected Construction Ecosystem & Workflow

Enabled via Real-time Collaboration

Transforming the way the industry works by unlocking the unrealized potential of digital construction

Multi-User Common Data Environment

Multi-user, multi-disciplined central model enables collaboration throughout the entire construction lifecycle

Object Based 3D Model

Facilitates near real-time updating of the 3D model without having to wait for full design updates.

Software Agnostic Platform

Allow all stakeholders (i.e. owners, designers, contractors, consultants) to maximize the value of their existing hardware and software technologies and expertise
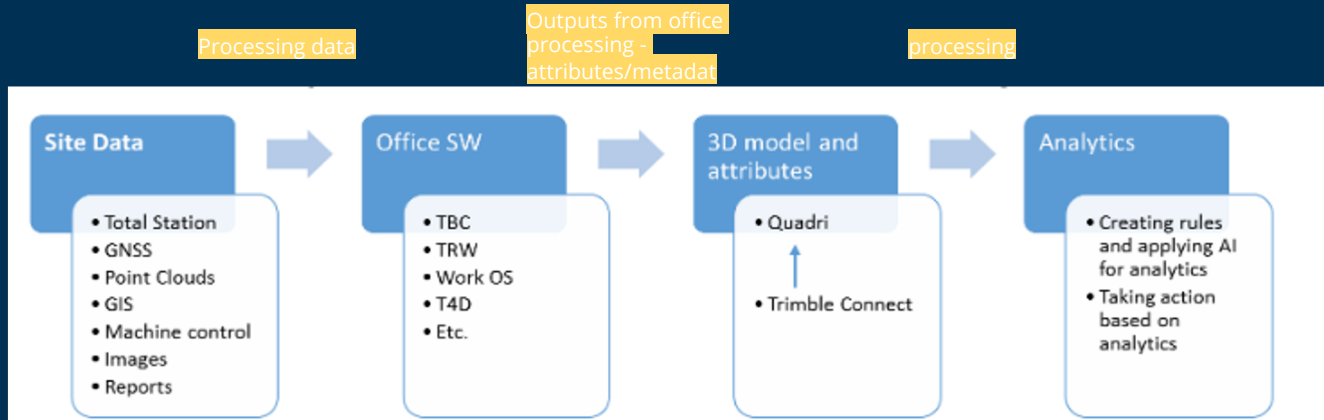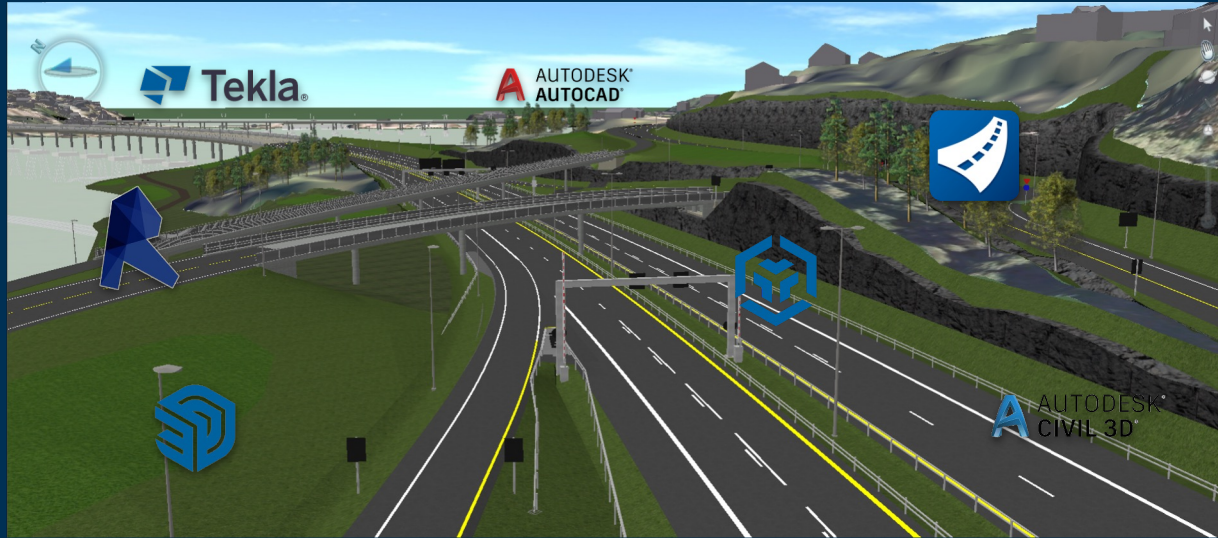
Suggested Digital Twin Workflow

Based on the Trimble Ecosystem

Most Important - Proper data flow!

- Capture digital data in the field and processed in the office.
- Add data and outputs from processing (metadata) to a common data environment.
- All the data combined together in a common data environment could assist in better and timely decision making.

Processing data

Outputs from office processing - attributes/metadat

processing

Site Data
- Total Station
- GNSS
- Point Clouds
- GIS
- Machine control
- Images
- Reports

Office SW
- TBC
- TRW
- Work OS
- T4D
- Etc.

3D model and attributes
- Quadri
- Trimble Connect

Analytics
- Creating rules and applying AI for analytics
- Taking action based on analytics

The End Goal the Digital As-Built

Optimize the design process
All team members can share model data across all disciplines, where changes are shared continuously in a transparent and agile process

Deliver construction-ready design
Minimize idle time, downtime and theft, and extend the life of your equipment

Collaborate throughout the project
Track design changes through real-time collaboration in one central model

Trimble

Thank You

Credits

For Questions
or Feedback
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