



# TARC

## TARC - 24.000 km Railway

Trimble Technology Solutions for modern infrastructure

Presented by: Magnus Hedly

# Agenda

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**01**

Intro

TARC and Trimble participants

**02**

Infrastructure Challenges

What are your pains?

**03**

Trimble Solutions Overview

For infrastructure

**04**

Quantm

Feasibility

**05**

DEMO

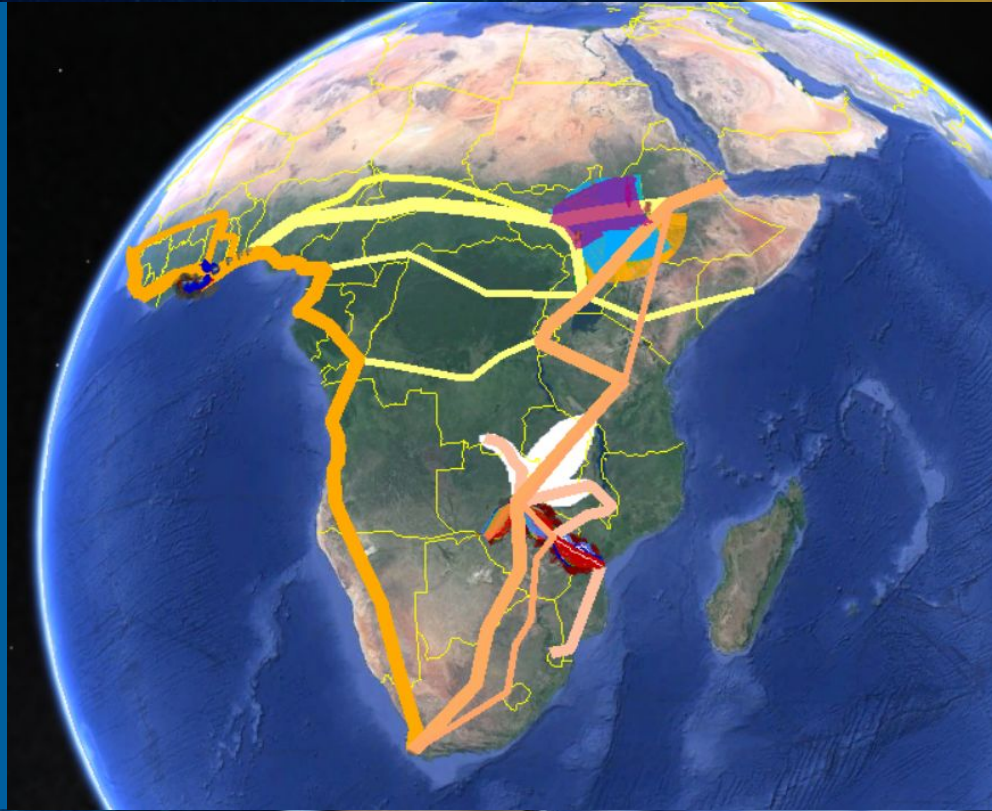


# 02

## Infra Challenges

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Pain points in Civil Engineering







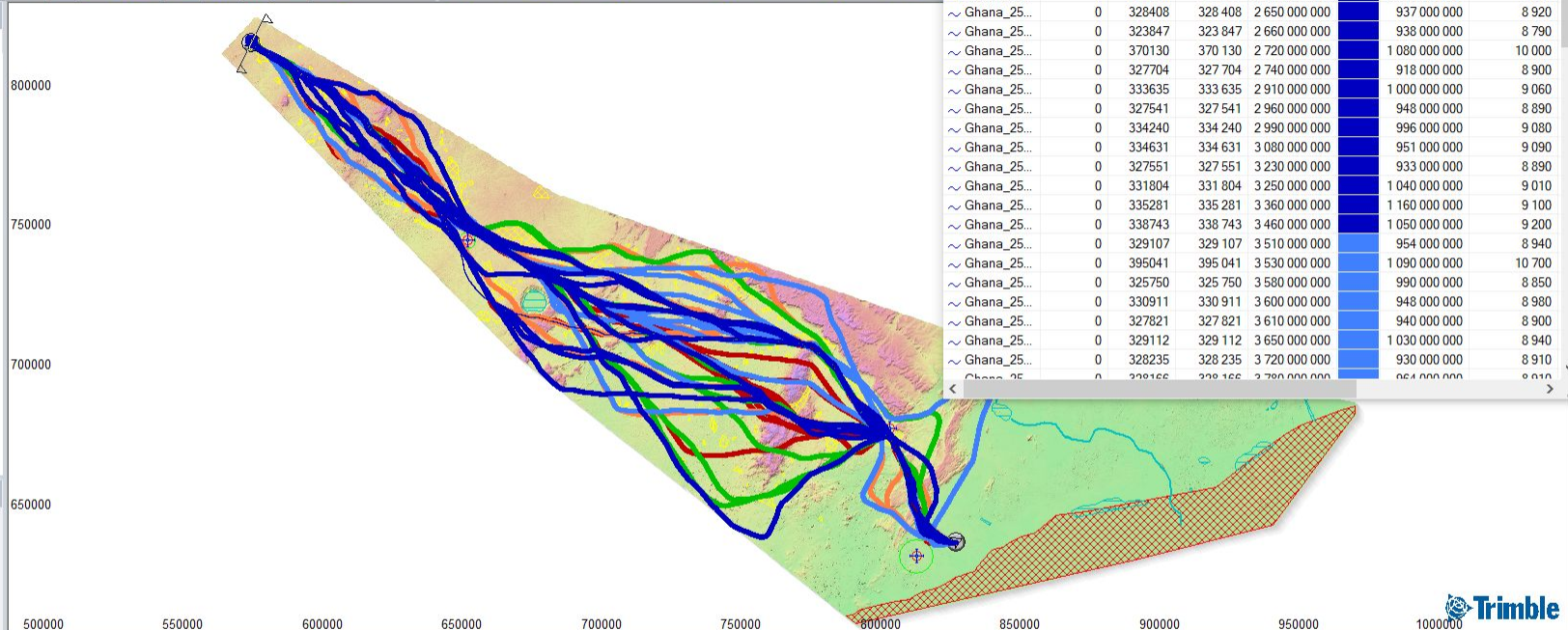
## Layer View

Layer/Item	V...	A...
DTM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Satellite image	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
End Points	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
EW limits	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Waystations	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Area cost	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Avoid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
River	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Water	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

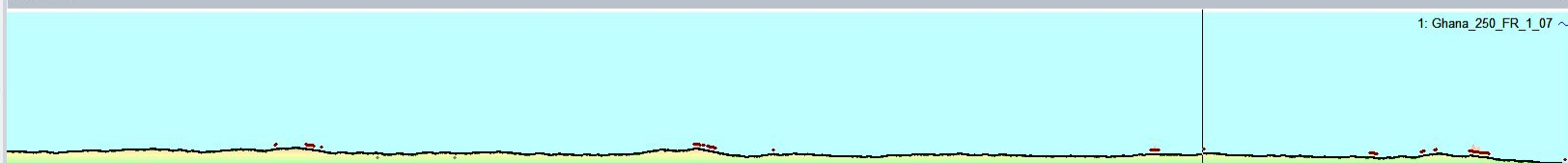
## Scenario Notes

- Ghana\_250
- DTM\_Ghana
- New\_1
- New
- New\_1\_1
- Ghana\_250\_FR\_1
- Test\_100\_injer\_300km
- Ghana\_250\_FR\_2
- TEST\_100\_300
- Magnus

Note



## Profile View



## Alignment Comparison

Alignment na...	Start Ch...	Finish C...	Length	€	Color	CO2 (Constr...	CO2 (Traffic)
~ Ghana_25...	0	339475	339 475	2 380 000 000		988 000 000	9 220
~ Ghana_25...	0	333061	333 061	2 480 000 000		972 000 000	9 040
~ Ghana_25...	0	327059	327 059	2 620 000 000		970 000 000	8 880
~ Ghana_25...	0	333829	333 829	2 620 000 000		1 010 000 000	9 060
~ Ghana_25...	0	328408	328 408	2 650 000 000		937 000 000	8 920
~ Ghana_25...	0	323847	323 847	2 660 000 000		938 000 000	8 790
~ Ghana_25...	0	370130	370 130	2 720 000 000		1 080 000 000	10 000
~ Ghana_25...	0	327704	327 704	2 740 000 000		918 000 000	8 900
~ Ghana_25...	0	333635	333 635	2 910 000 000		1 000 000 000	9 060
~ Ghana_25...	0	327541	327 541	2 960 000 000		948 000 000	8 890
~ Ghana_25...	0	334240	334 240	2 990 000 000		996 000 000	9 080
~ Ghana_25...	0	334631	334 631	3 080 000 000		951 000 000	9 090
~ Ghana_25...	0	327551	327 551	3 230 000 000		933 000 000	8 890
~ Ghana_25...	0	331804	331 804	3 250 000 000		1 040 000 000	9 010
~ Ghana_25...	0	335281	335 281	3 360 000 000		1 160 000 000	9 100
~ Ghana_25...	0	338743	338 743	3 460 000 000		1 050 000 000	9 200
~ Ghana_25...	0	329107	329 107	3 510 000 000		954 000 000	8 940
~ Ghana_25...	0	395041	395 041	3 530 000 000		1 090 000 000	10 700
~ Ghana_25...	0	325750	325 750	3 580 000 000		990 000 000	8 850
~ Ghana_25...	0	330911	330 911	3 600 000 000		948 000 000	8 980
~ Ghana_25...	0	327821	327 821	3 610 000 000		940 000 000	8 900
~ Ghana_25...	0	329112	329 112	3 650 000 000		1 030 000 000	8 940
~ Ghana_25...	0	328235	328 235	3 720 000 000		930 000 000	8 910
~ Ghana_25...	0	328166	328 166	3 780 000 000		964 000 000	9 010

# 03

## Trimble solutions

BIM for the entire lifecycle -  
working in an common data  
environment

### AMBITION IN BIM PROJECT

BIM FAME



EXISTING  
SITUATION  
IN 3D



OPEN FILE  
FORMAT  
EXCHANGE



NO DRAWINGS  
IN DESIGN



INFORMATION  
ON THE  
OBJECT



MEETINGS  
WITH  
MODEL BIM



CHAT IN  
MODEL BIM



NO  
COLLISIONS




3D STAKE OUT  
DATA

# Trimble BIM Continuum through the lifecycle



# SNCF - Choose Trimble BIM Continuum



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## French Railway Administration Selects Trimble Collaboration Platform for Improved Project Communication and Future Planning

Trimble Quadri and Trimble Connect Enable Information Sharing Across Teams and Projects

NEWS PROVIDED BY  
**Trimble** →  
Jun 24, 2020, 06:30 ET

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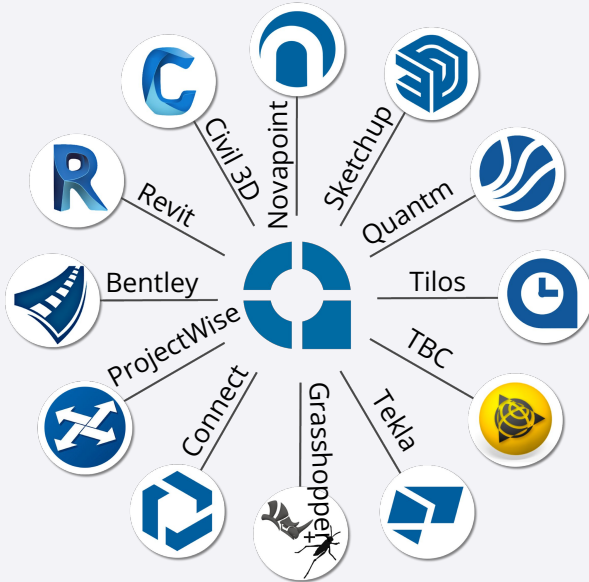




# Collaborate and Compare

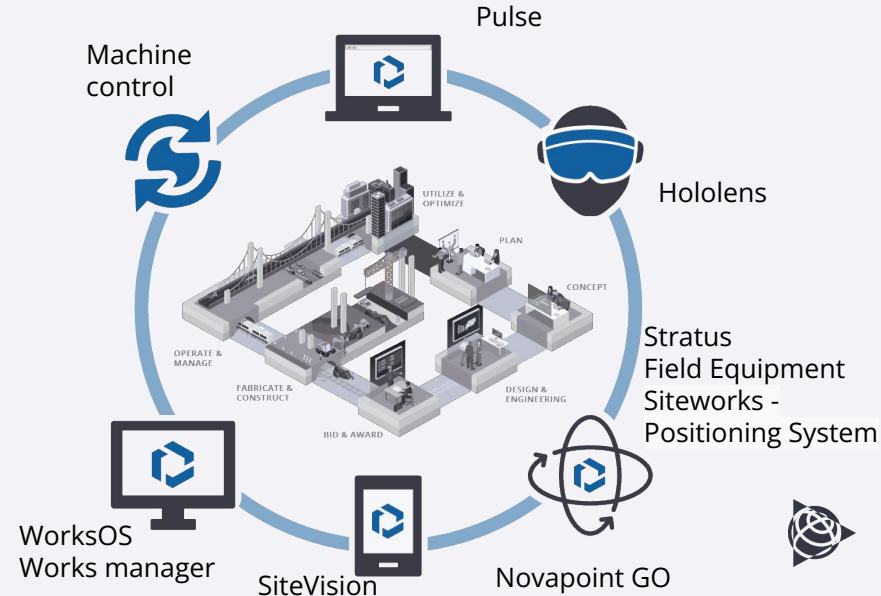
Design and edit

Quadri



View and utilize

Connect







# Horizontal

## Infrastructure

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Concept, Design, Scheduling,  
Visualization, Construction  
and Maintenance

# Quadri

## Common Data Environment

Store, receive, share, design open data via connectors



**Børge Lundhaug**  
Project Manager, Nye Veler

”

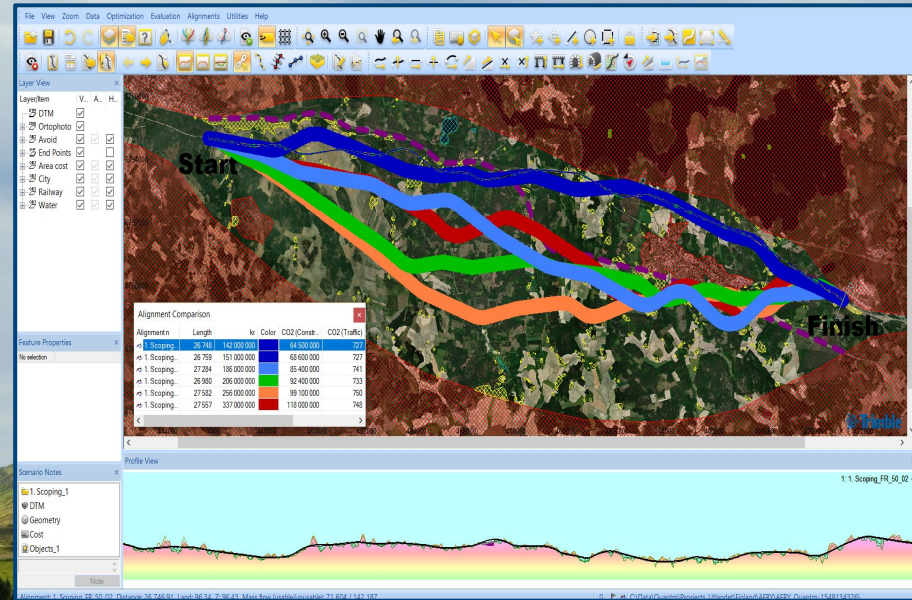
We needed a platform where we could receive project data from the design engineer and the contractor in a coherent and effective way, throughout the design- and construction phase

[Read More](#)

# Quantm

## Feasibility study

Validate, compare & optimize



**Tim Belliveau**

Transportation Engineer, Stantec

”

Not only do we save time and money, we always have a more complete route plan.



# CO2

## CO2 Carbon Calculator

Reduce CO2 footprint from  
construction and future traffic

Comparison		CO2 (Construction)		CO2 (Traffic)	
kr	Color				
117 000 000		57 200 000	268 000		
126 000 000		61 400 000	265 000		
133 000 000		64 500 000	281 000		
134 000 000		64 500 000	269 000		
136 000 000		63 700 000	268 000		
137 000 000		65 600 000	265 000		
138 000 000		66 800 000	265 000		
145 000 000		69 400 000	269 000		
146 000 000		69 500 000	282 000		
149 000 000		68 400 000	272 000		
152 000 000		73 800 000	268 000		
158 000 000		75 900 000	267 000		
158 000 000		73 600 000	266 000		
173 000 000		81 100 000	273 000		
174 000 000		83 300 000	276 000		
174 000 000		73 500 000	268 000		
178 000 000		83 700 000	277 000		
178 000 000		75 100 000	267 000		
178 000 000		84 600 000	281 000		
180 000 000		84 500 000	270 000		
180 000 000		81 600 000	265 000		
184 000 000		88 600 000	277 000		
185 000 000		88 700 000	268 000		
185 000 000		88 400 000	267 000		
189 000 000		89 800 000	283 000		
191 000 000		91 500 000	268 000		
196 000 000		93 500 000	265 000		
198 000 000		91 900 000	274 000		
205 000 000		96 200 000	269 000		

### CO2 Report

Alignment: 1. Scoping\_FR\_50\_01

**Traffic Composition**

Cars (Petrol)  %

Cars (Diesel)  %

Trucks  %

Cars (Other)  %

Cars (Emission Free)  %

Total  %

**Traffic Flow**

Average Speed  (km/hr)

Daily Traffic Flow

**Environmental Impact**

Fuel Consumption  litres

CO2 Emissions  tonnes

☐ Daily ☒ Annual



# Novapoint

## Detailed design

Railway, Road, Utilites



**Roger Johansen**  
Project Manager, Aas-Jakobsen

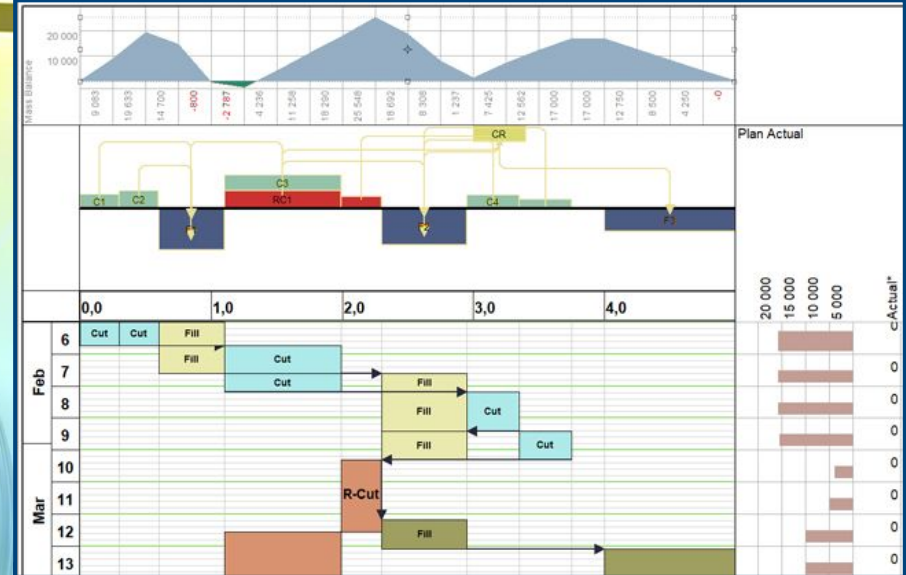
“One of the reasons for getting very few errors and mistakes is that all design has been done in 3D, with conflict control for all disciplines. That gives us good control and excellent work progress.”

[Read More about Project](#)

# Tilos

## Time-Distance

### Scheduling



**Andrea Liereng**  
Norconsult, Norway

”

With Trimble Tilos we have an excellent support tool for making important choices and decisions. I can very easily check and adjust things, and immediately see what cost consequences that might cause.



# SiteVision

## Visualization

At site with phone and GPS





# 5

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## Q/A

Thanks for us - Looking forward to collaborating with you!