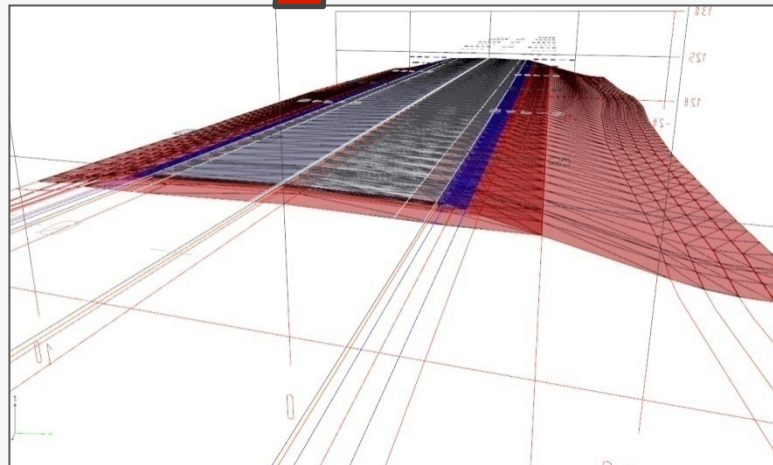


Design to automatised construction

SBUF projekt 12551

” Effektivare utnyttjande av geometri- och informationsmodeller för maskinstyrning/
guidning”

More efficient use of geometry and information models for machine control/guidance



Mattias Skoog



Funding

The project was funded by SBUF and Trafikverket (the Swedish Transport Administration)

SBUF (Svenska Byggbranschens Utvecklingsfond) is the construction industry's organisation for research and development.

The project was initiated by OpenBIM from a series of BIM workshops



Participants

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Patrick Söderström **ATCON**
Andreas Nilsson **STSupport**

Contractors

Daniel Ring **NCC**
Mattias Andersson **Skanska**
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Csaba Prokec **Veidekke**

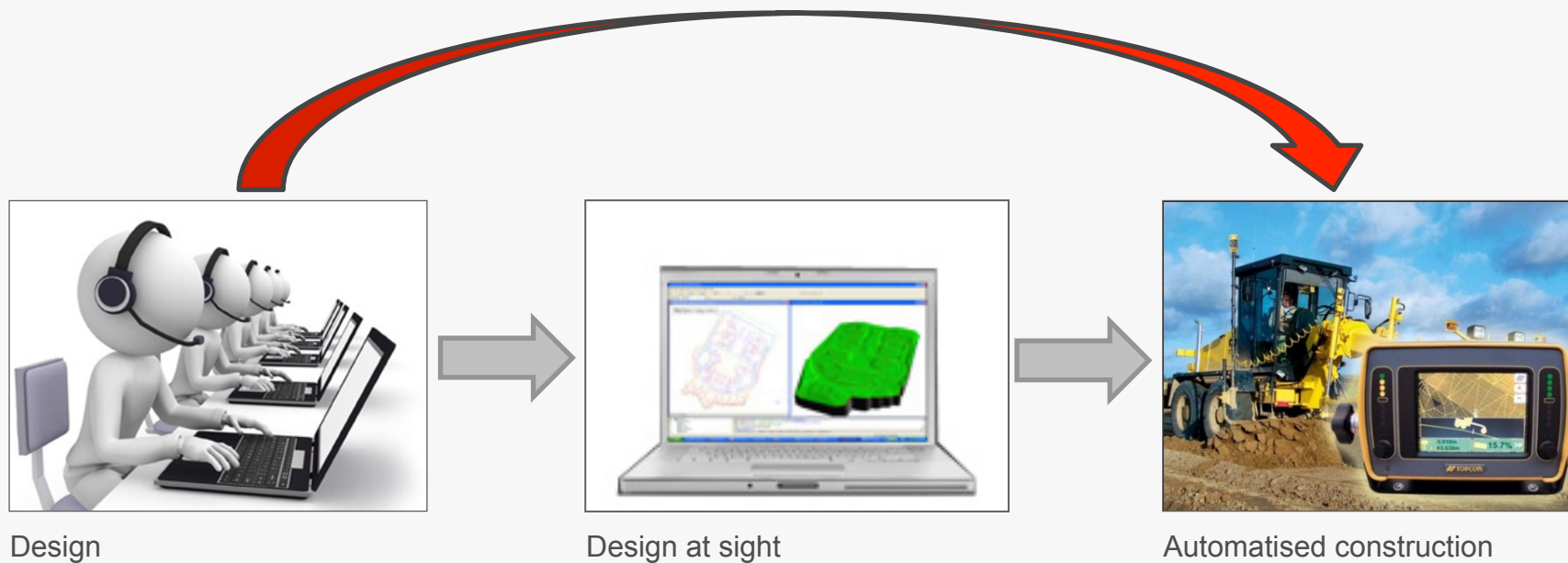
Software

Ove Cervin **Autodesk**
Wai-Lok Lam **Vianova**
Stefan Sigvardsson **Bentley**
Tore Lindell **CadQ**
Sven Bengtsson **CadQ**

Object

The object was to identify and create a data exchange that best meets the basic need for delivery from design to automatised construction

- Deliver from desing to construction with out the use of “hands on” correction at sight
- Possibility to use open formats such as LXML

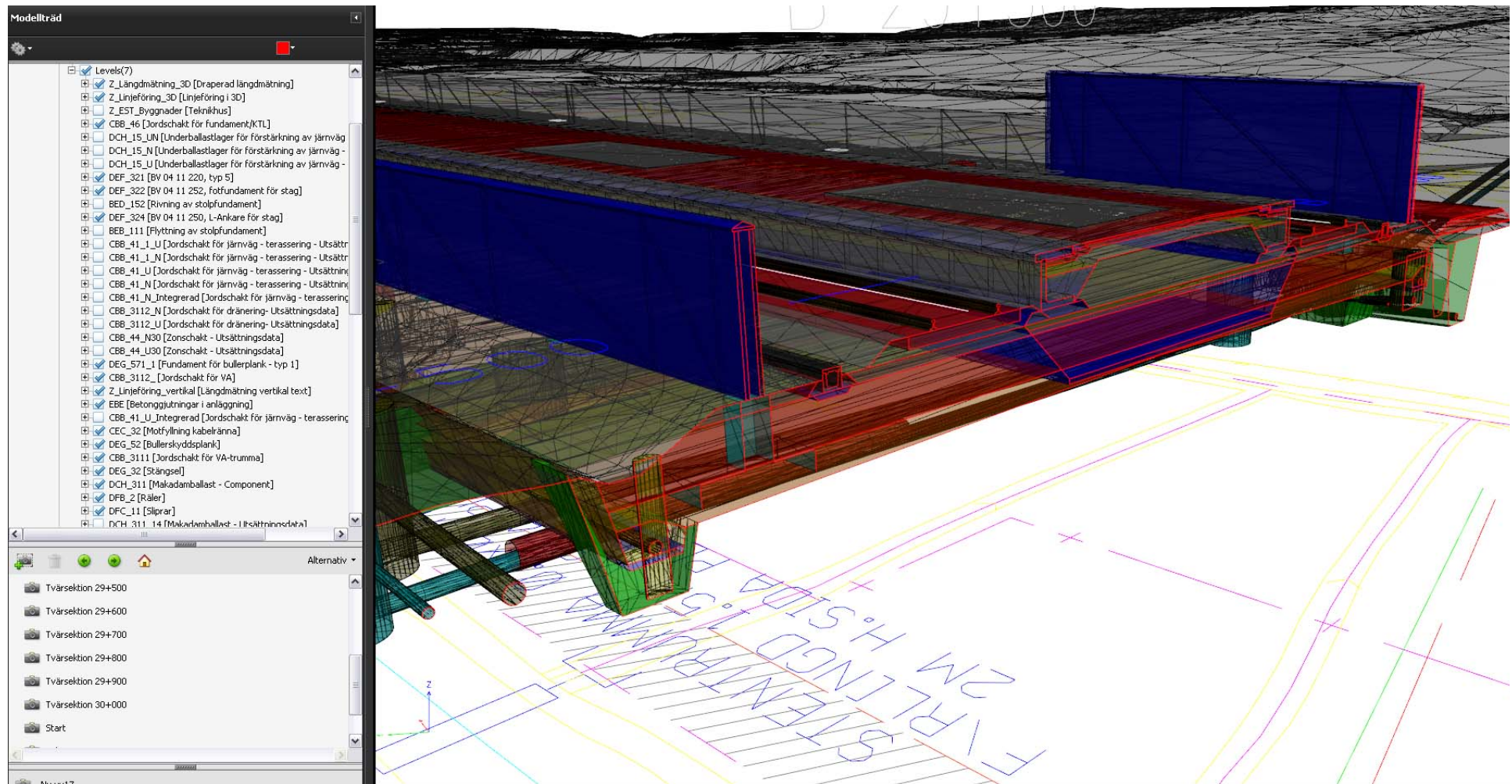


Object

- Focus on delivery to digging and excavating machines, excavators, bulldozers and graders

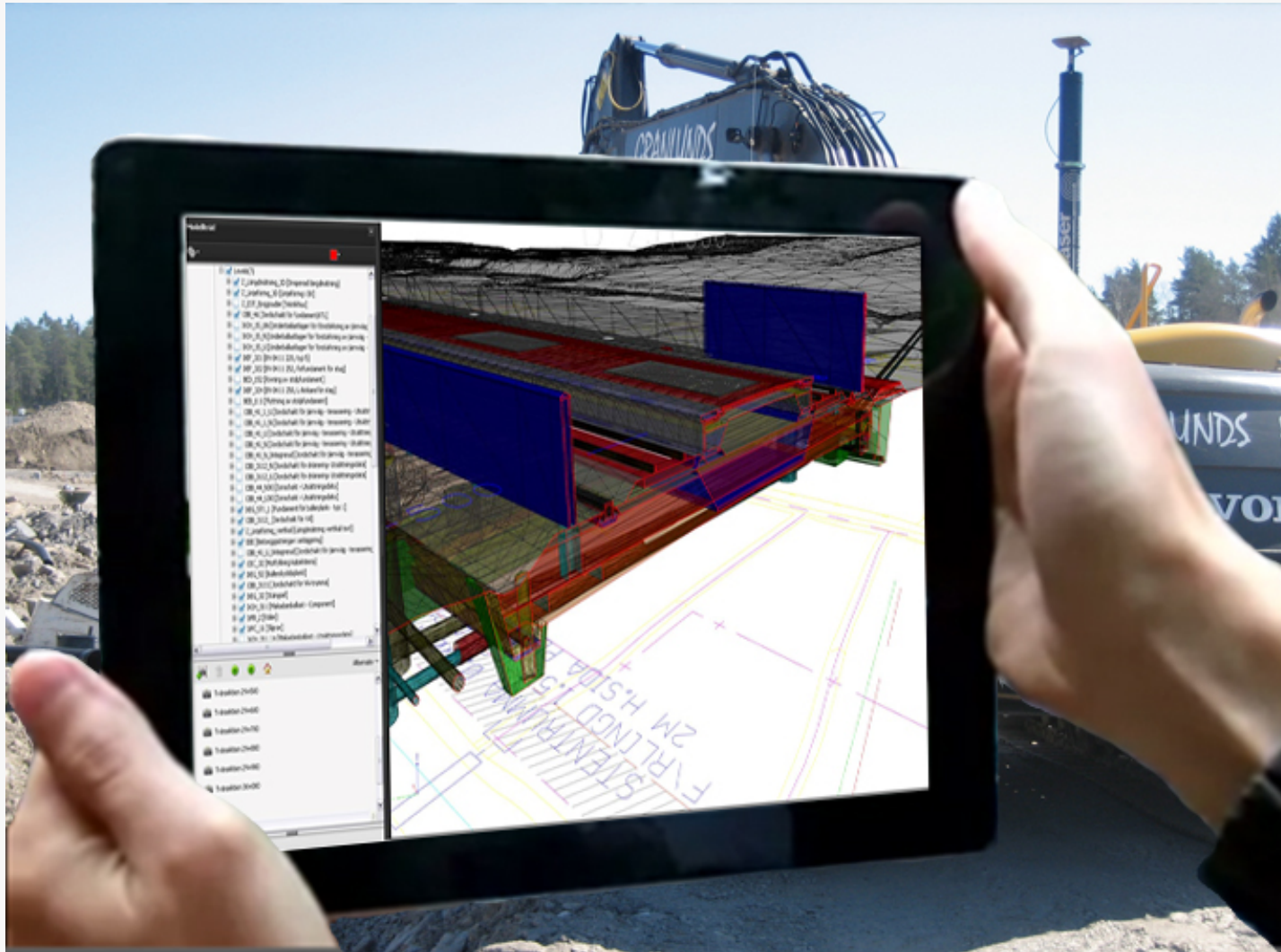


- How different design and surveying tools defines various object types and geometry models?
- How can LandXML be used as a common structure for data exchange and which versions are suitable for what?
- How does the data exchange between different tools and devices work in practice?
- How does delivery / exchange of models between design tools and surveying software work. What could be improved?
- How can the data required for production are handled in the best way?
- What can be delivered back and re-linked from production machine control systems and used to obtain data for as built model and quantity control?
- Does new data set new demands on the project organisation



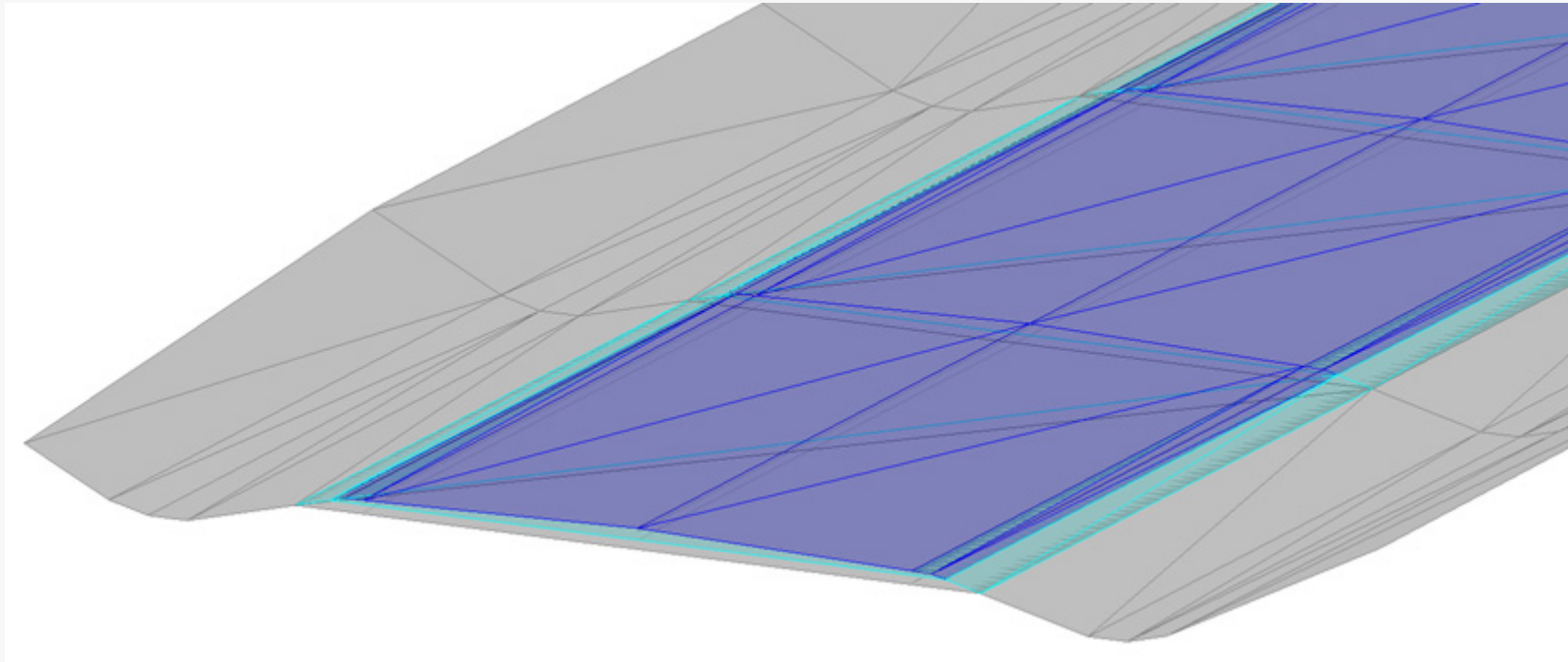
Deliver BIM modells from design to automatised construction

Vision



Case

Road



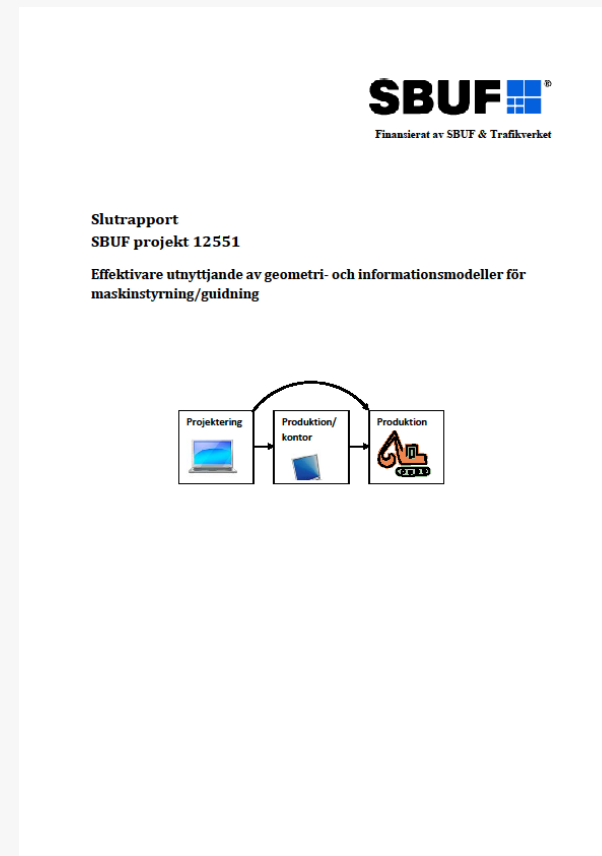
Export as linestrings and surfaces
Format LXML and dwg

Workshop

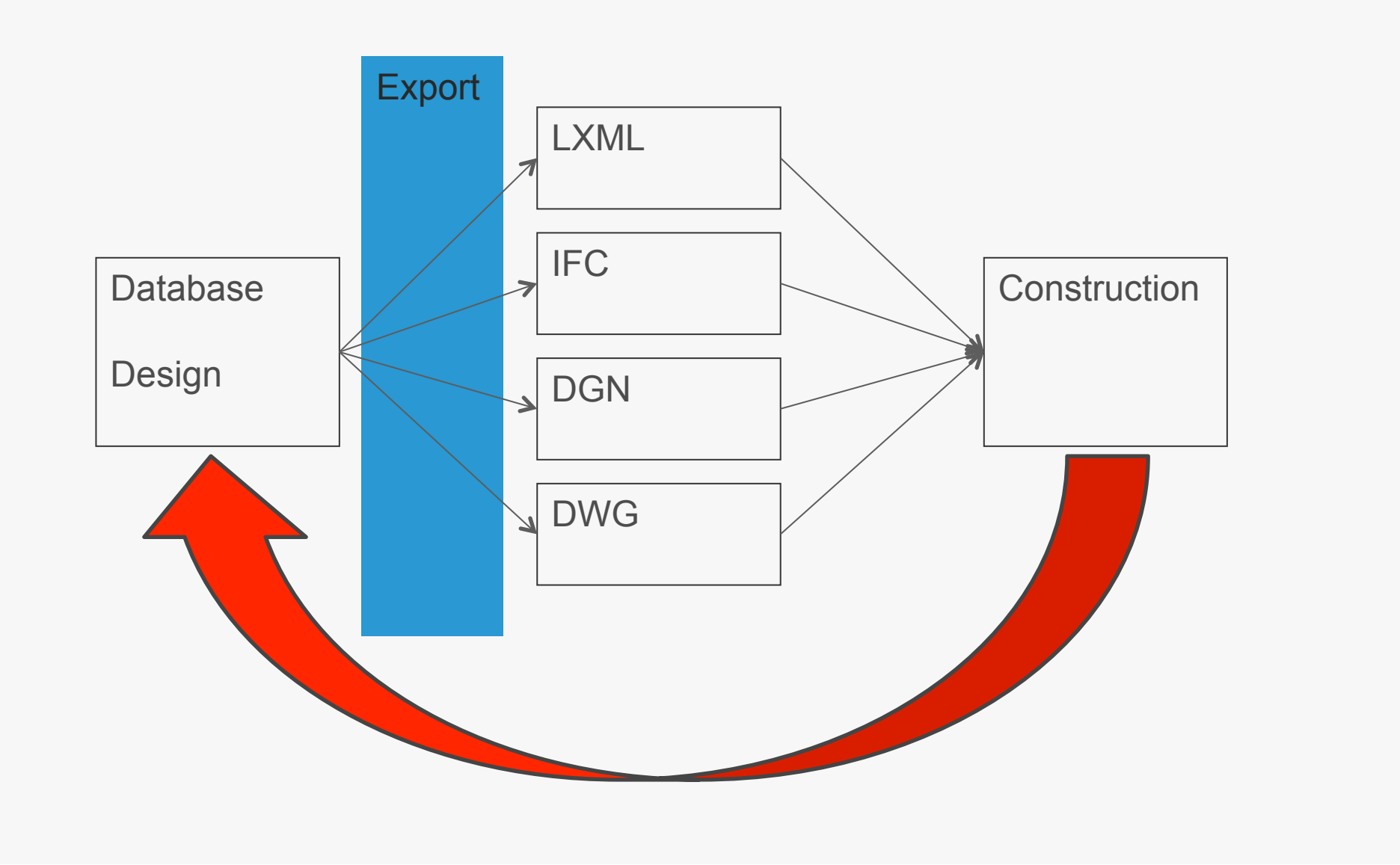


Result

The project is still running.
A report will be finished by the end of
june.



Result



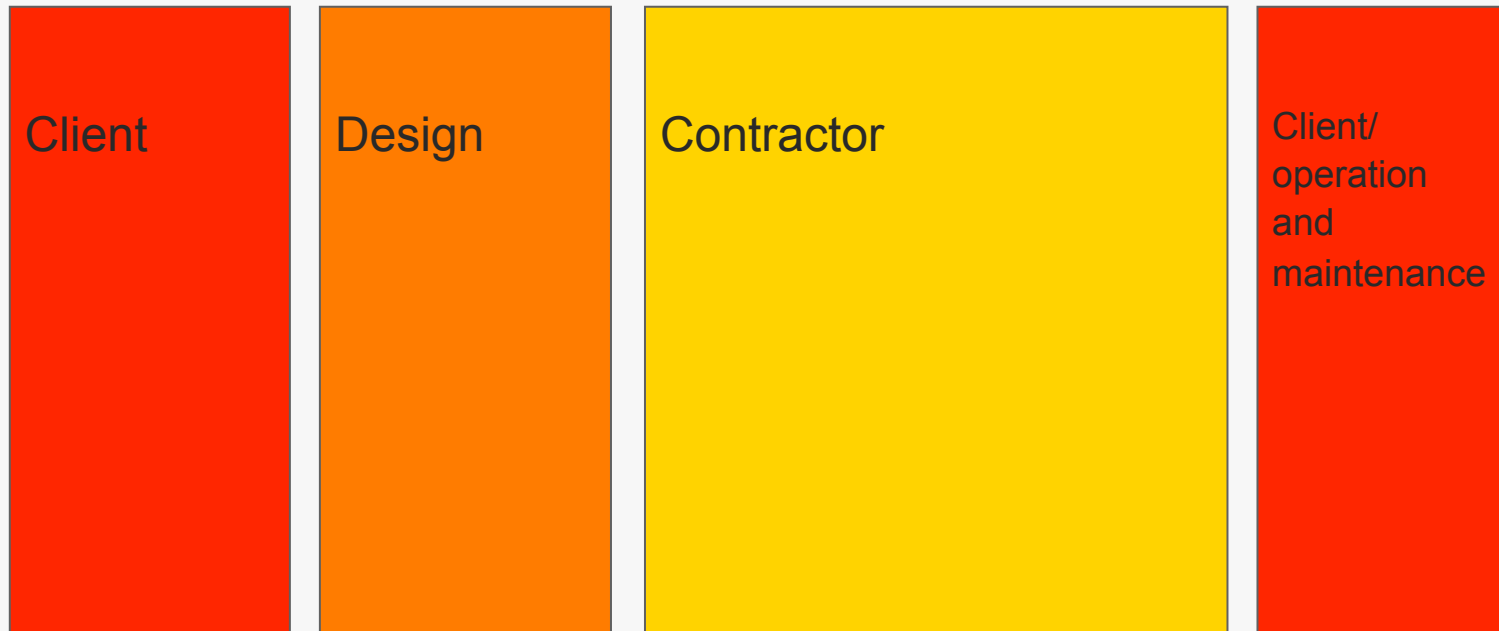
Result

- Land XML exports from different design tools give various results.
- DWG exports is a quality check
- Coded models help but is not a prerequisite
- One construction layer/model export
- Structured demands on designers
- GEO export, best result

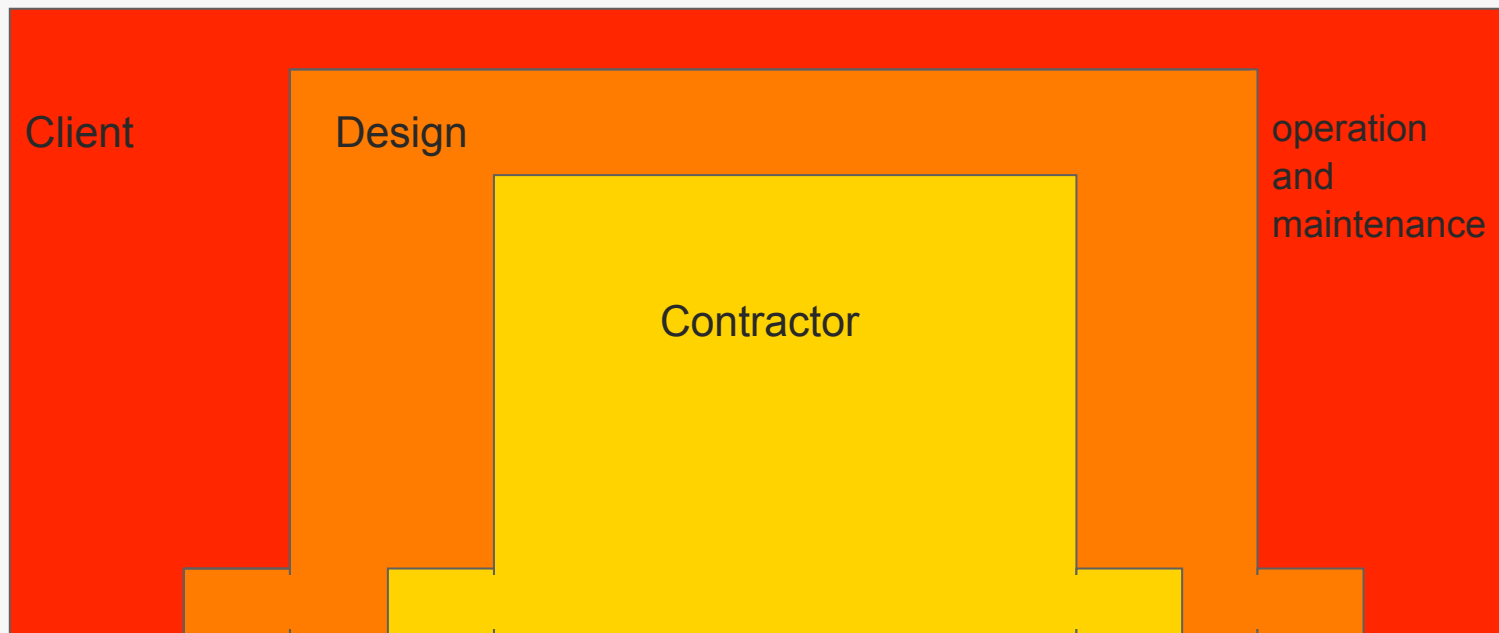
TOOLS	REFERENS!	Design data format DWG						Design data format XML						Referens line Plan			Referens line Profile			Referens line CrossSlope			Referens	
		3D stringlines/polylines			3D surfaces			3D stringlines/polylines			3D surfaces			GM	Doz	Gra	GM	Doz	Gra	GM	Doz	Gra		GM
		GM	Doz	Gra	GM	Doz	Gra	GM	Doz	Gra	GM	Doz	Gra	GM	Doz	Gra	GM	Doz	Gra	GM	Doz	Gra		GM
CIVIL 3D	UMC 3D							No	No	No	Yes	Yes	--	No	No	No	No	No	No	No	No	No	No	
	GEO 2012							Yes	Yes	Yes	Yes	Yes	--	Yes	Yes	Yes	Yes	Yes	Yes	--	--	--	No	
	3DXI / 3DMC																							
	3D-Office																							
	GCS900/CB430																							
INROADS	TBC																							
	Novatronic 3D-Vision																							
	Topocad																							
	UMC 3D							No	No	No	Yes	Yes	--	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	
	GEO 2012							--	--	--	Yes	Yes	--	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	
NOVAPOINT	3DXI / 3DMC																							
	3D-Office																							
	GCS900/CB430																							
	TBC																							
	Novatronic 3D-Vision																							
Topocad																								

Förklaring: Tips: Kopiera & klistra in cellerna
 Avser användbarheten av data levererat i respektive format med avsett innehåll i Projektverktyg och Produktions SWMaskin SW (kolumn D) och användande i resp MASKIN typ (Rad 5)
 Bedömningen är om levererad DWG/XML data uppfyller de krav som maskinen vanligtvis gör (innehåll, utformning, noggrannhet, användbarhet)

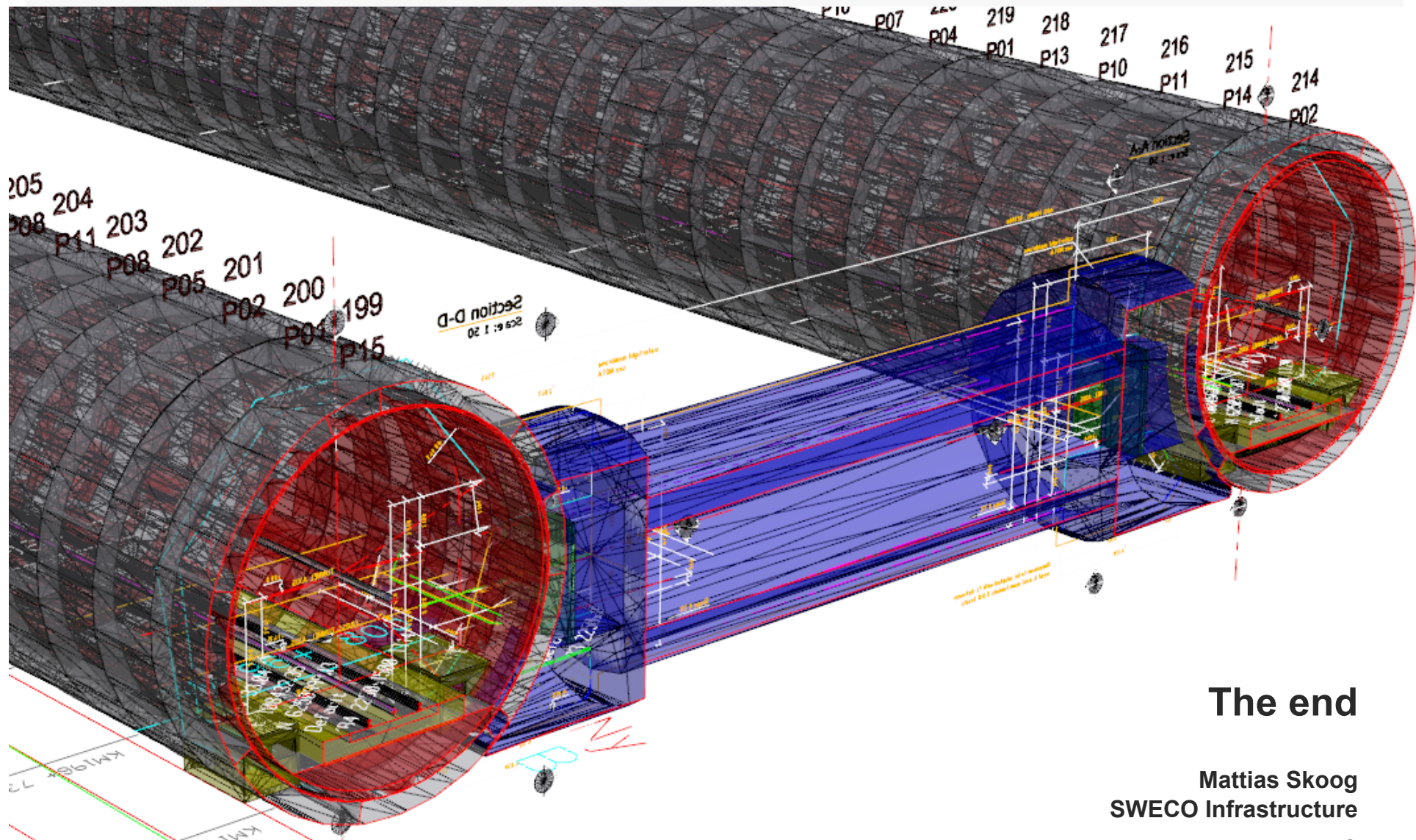
Organisation / Process



Organisation / Process



Time



The end

Mattias Skoog
SWECO Infrastructure

VDC