Open Mine Format

106th OGC Technical Committee, GeoScienceDWG session

Orléans, France

Andrew Scott

Global Mining Standards and Guidelines Group

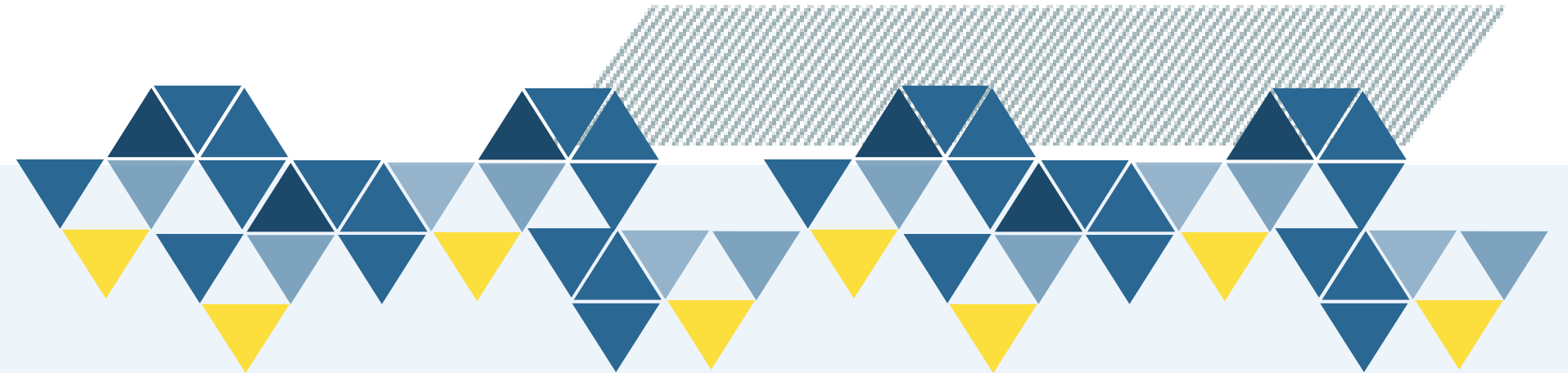22 March 2018

Working Group:

Data Access and Usage:
Data Exchange for Mine Software

Enabling data exchange between mine software to increase operational integration.

The Challenge: The mining industry needs a shared open format for 3D data, to allow users to easily move clean and accurate 3D information between applications.
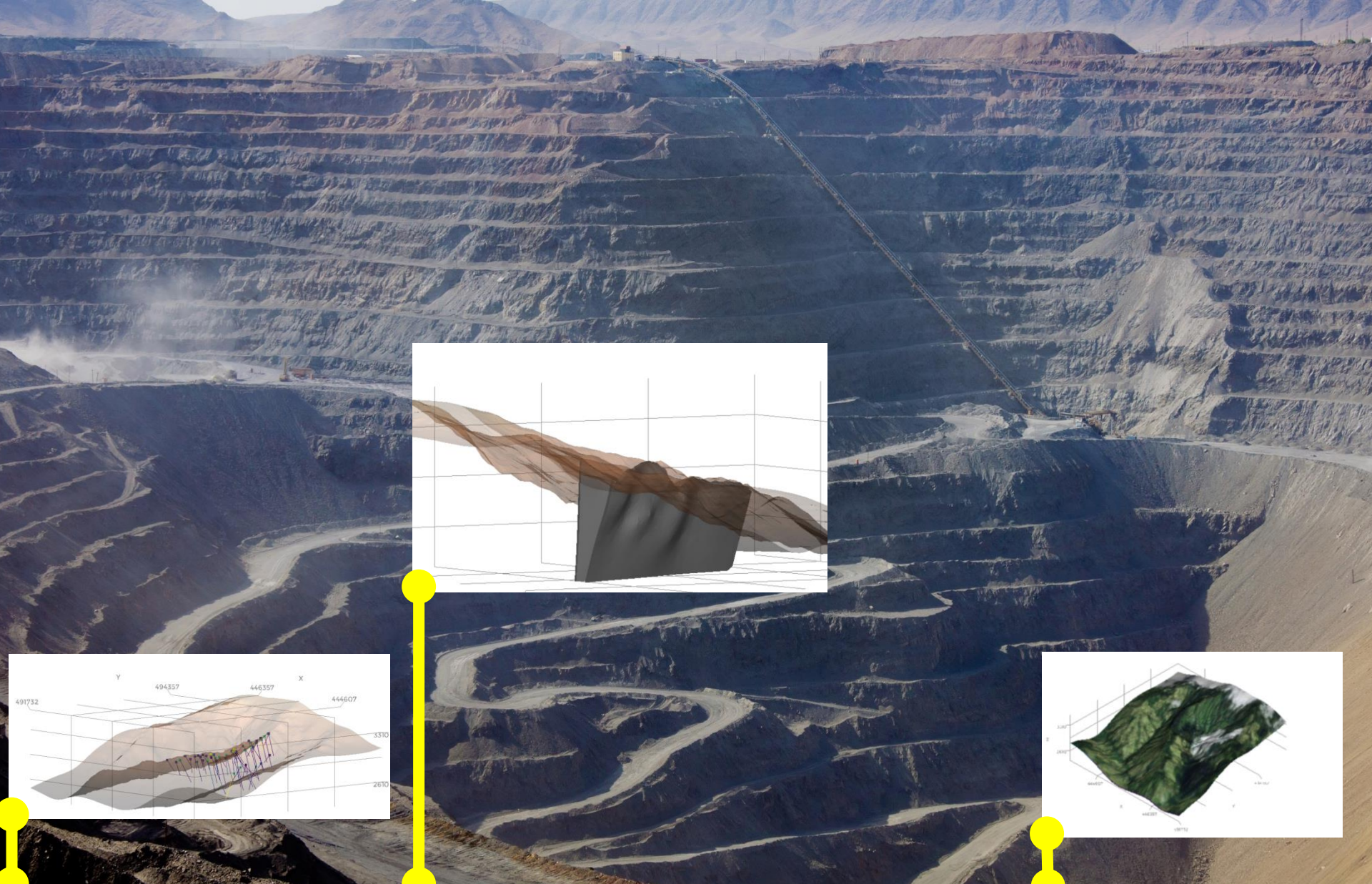
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Exploration ▷ Development ▷ Production ▷ Reclamation

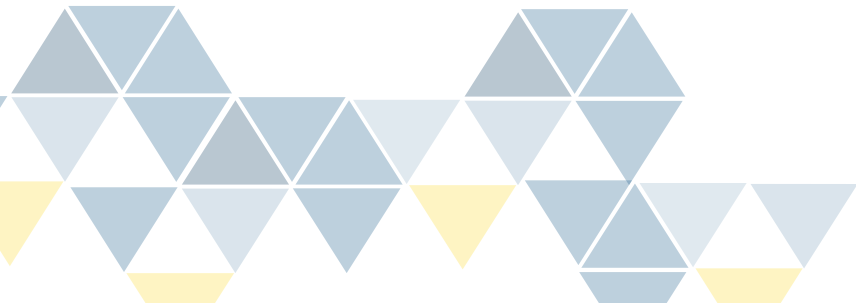Exploration > Development > Production > Reclamation
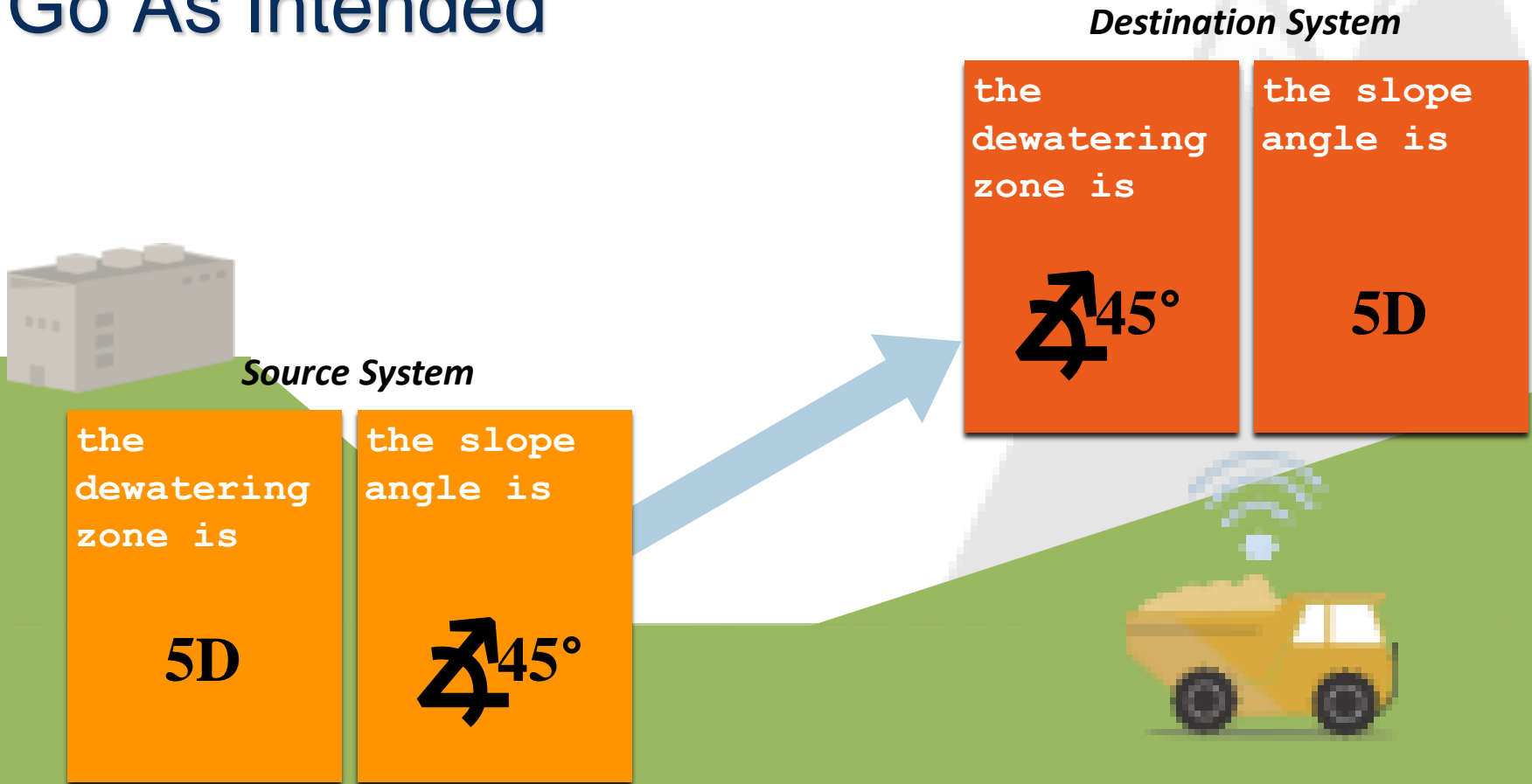
Exploration Development Production Reclamation

"If you're importing a model from one software to another and not double-checking that the variables are imported correctly, you could totally screw up pit operations."
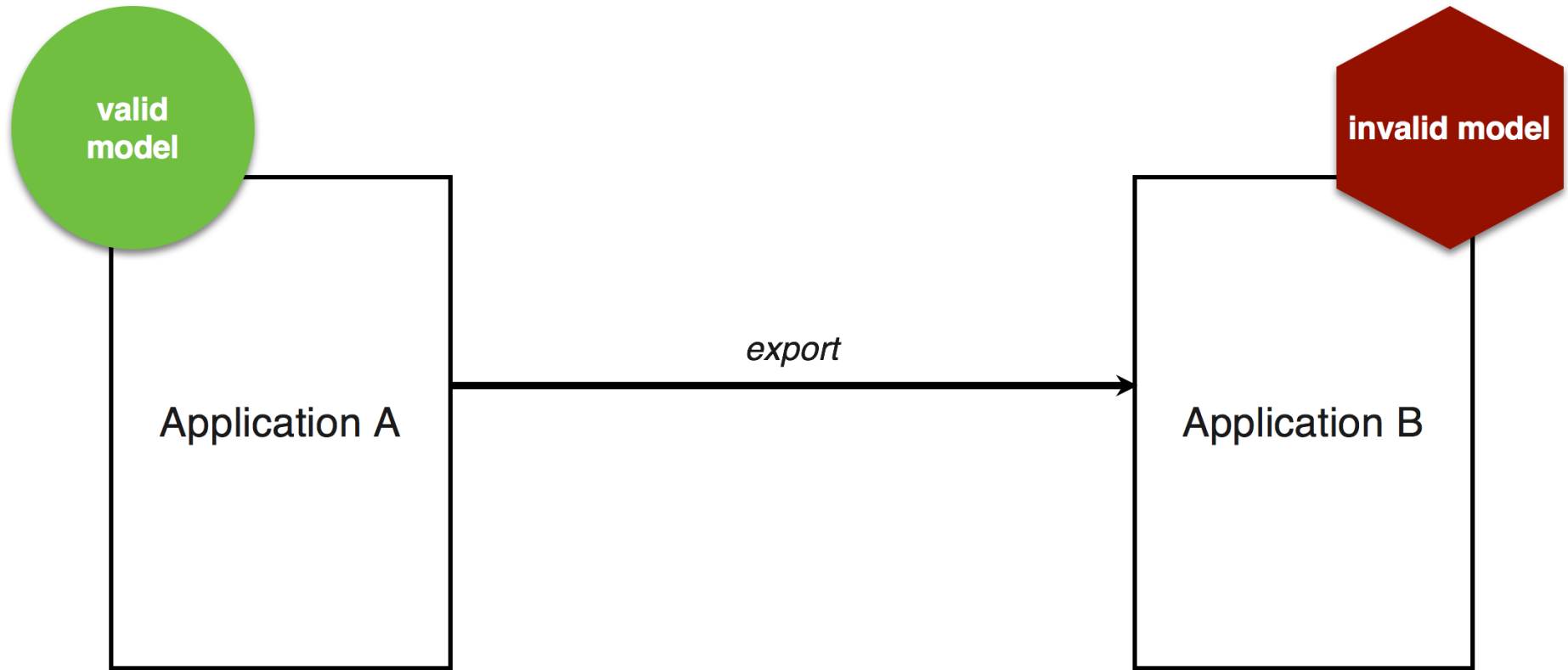
User Challenge: When Exports Don't Go As Intended

Destination System

Source System

the dewatering zone is	the slope angle is
5D	45°

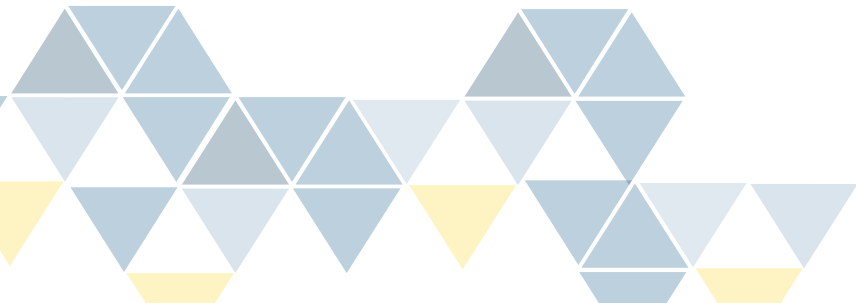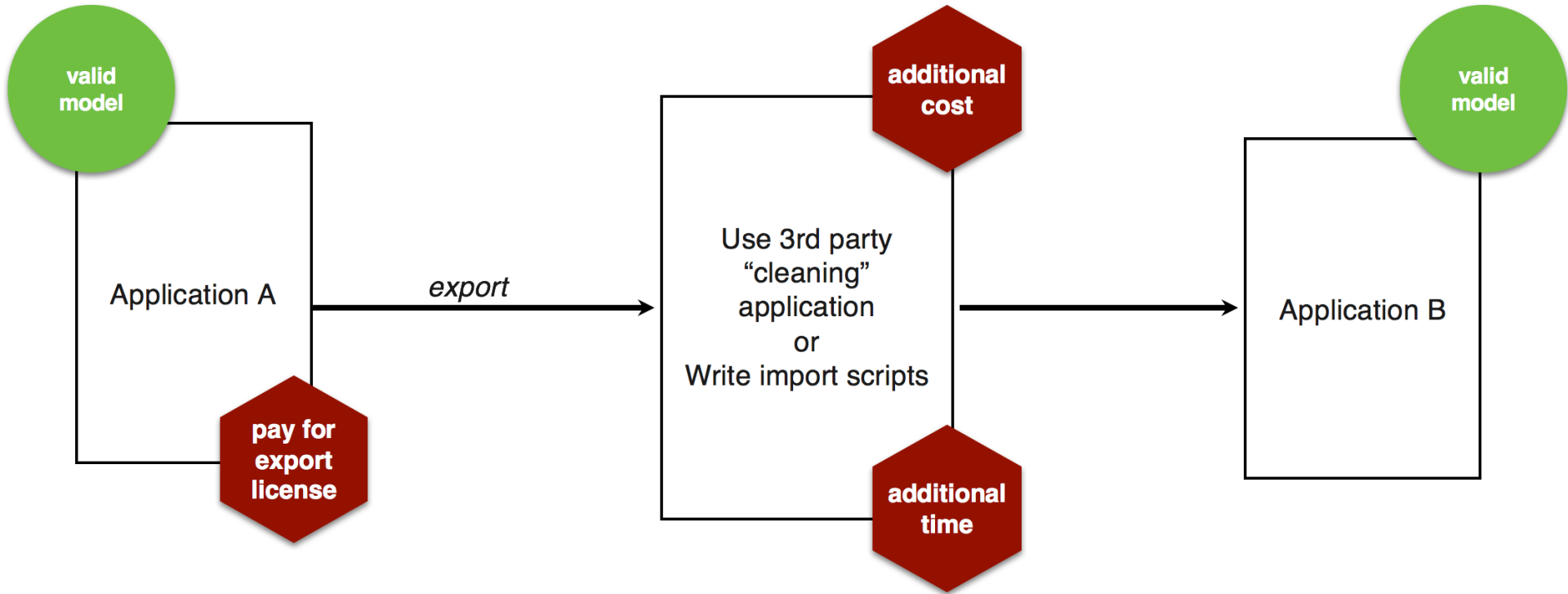| the dewatering zone is	the slope angle is
45°	5D

"We had a watering area flag. Because of [the] export, the import was screwed up … So unless you were going through and double checking, and had the background to do that, could have been totally messed up."
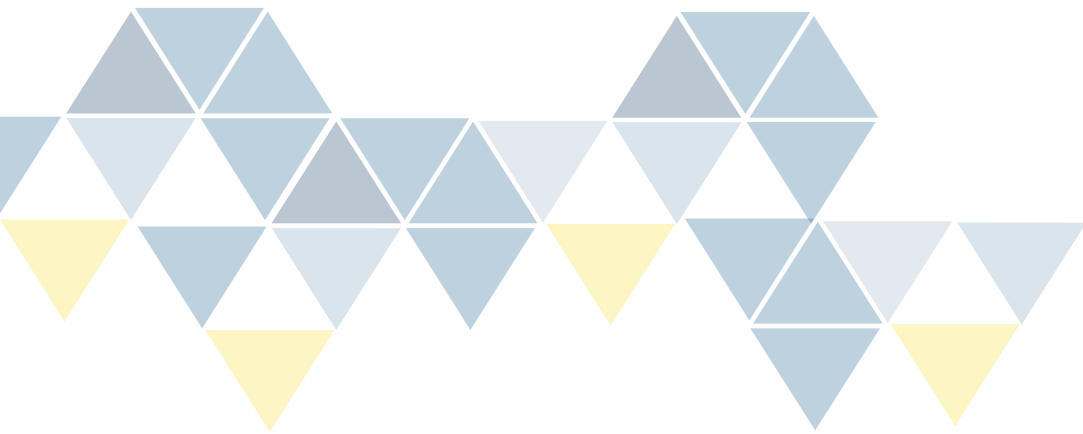
User Experience: Exported Model Not Valid or Contains Errors

User Solution: Use Intermediary Software or Scripts
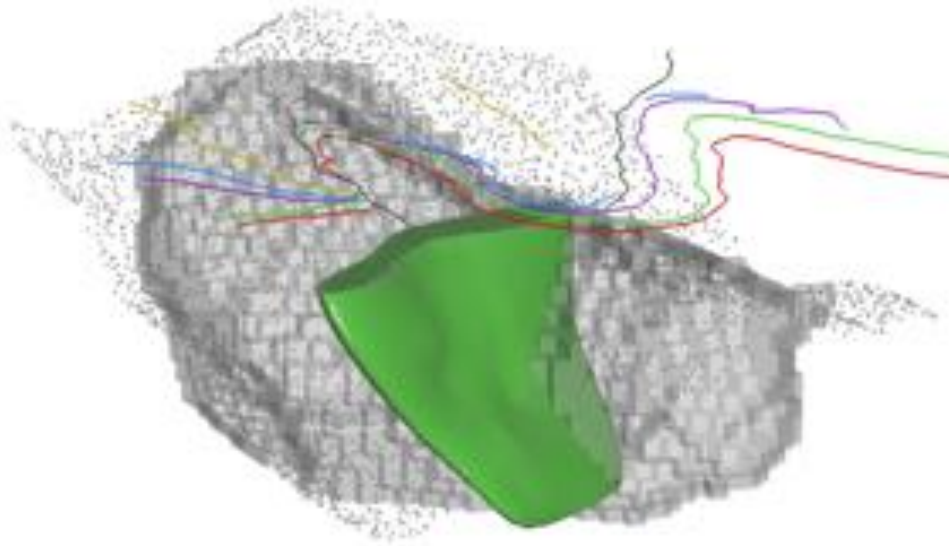
valid model

Application A

pay for export license

export

additional cost

Use 3rd party "cleaning" application
or
Write import scripts

additional time

Application B

valid model

Shift the paradigm

Open Mining format:
universal access to mining data

At a site like this…

…you may have:

Contact surface
Borehole assays
Block model
Access roads
Topography
Lidar survey
Ore body
Mining bench
…

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How do we support all 3D mining objects?

Thinking at a lower level:

Object	=	Geometry	+	Data

Object

Contact surface
Borehole assays
Block model
Access roads
Topography
Lidar survey
Ore body
Mining bench

…

Geometry

PointSet
LineSet
Surface
Volume

Data

Scalar Data
Vector Data
Date/Time Data
Colors
Images

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How do we support all 3D mining objects?

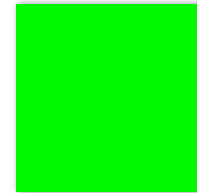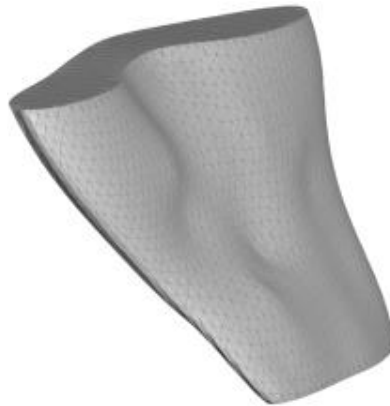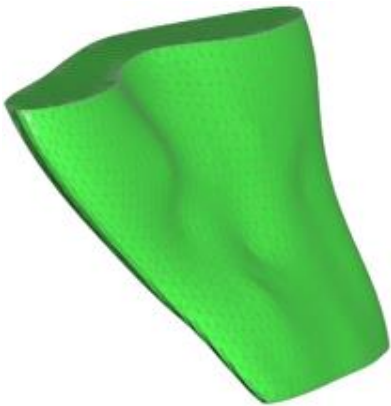**Thinking at a lower level:**

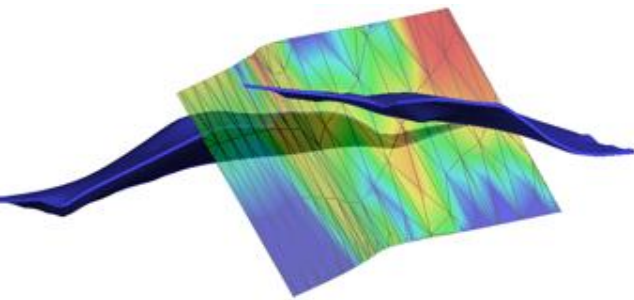**Ore Body = Volume + Data**
(Grade, Geochemistry)

How do we support all 3D mining objects?

Thinking at a lower level:

Geophysics Survey = **Surface** + **Scalar Data**

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In the wild: Leapfrog and Deswik

Generate geomodel

Generate scheduling blocks

Move models easily in both directions

Leapfrog Geo

Deswik

This is now the state of OMF v1.0:

OMF:

Contact surface	POSSIBLE
Borehole assays	POSSIBLE
Block model	POSSIBLE
Access roads	POSSIBLE
Topography	POSSIBLE
Lidar survey	POSSIBLE
Ore body	POSSIBLE
Mining bench	POSSIBLE
…	POSSIBLE
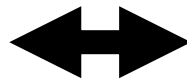
OMF:

Surface + Data	SUPPORTED
LineSet + Data	SUPPORTED
Volume + Data	SUPPORTED
LineSet + Data	SUPPORTED
Surface + Data	SUPPORTED
Surface + Data	SUPPORTED
Surface + Data	SUPPORTED
Surface + Data	SUPPORTED
…	SUPPORTED
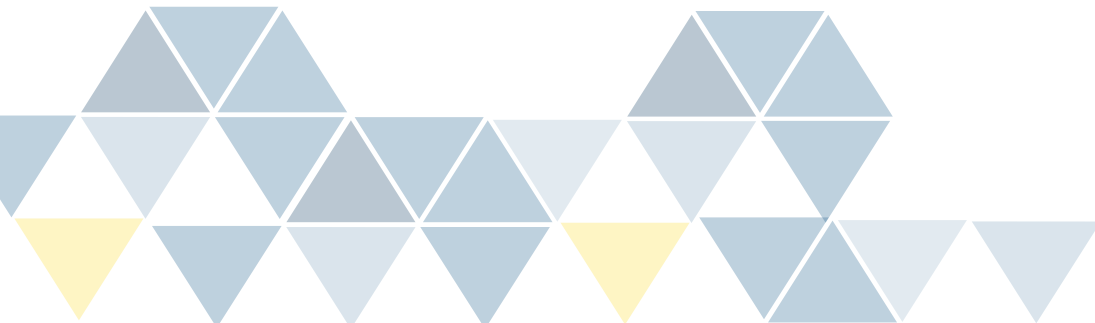
So where are things?

- **We have focused on the foundation, not objects**

- **It demonstrates that a solution is possible and actually not that hard**

- **V1.0 is as much about changing mindsets as it is about a technical solution**

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What's next?

1. **End users need to drive (e.g. $$, mandate to vendors, use-cases)**

2. **We need to explore development of V2.0 and/or adoption of other standards**

3. **We need to get permanent management of this solution (Technical, project management).**

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Questions