Surveying & Mapping

Sofia, CLGE 22nd March 2019
Gabriele Ruggiero, gabriele@pix4d.com

Agenda

1. Vision
2. Workflow
3. Real cases

1. Vision

170+ global employees
23 nationalities
60% R&D talent

SAN FRANCISCO **U.S.A.** | LAUSANNE **SWITZERLAND** | BERLIN **GERMANY** | SHANGHAI **CHINA** | MADRID **SPAIN**


Why?

Why?

Reliable information
for faster and better decisions


Why Surveyors?

Why Surveyors?

You are **pushing the limits** of the latest technology to fit your **exacting standards** across any industry and application.

That's why you **challenge** us to continue **innovating**.


How?

How?

From images and/or videos

What is photogrammetry ?

Photogrammetry allows to digitize the world, purely from images

Industry mindset

Surveyor [noun]

A person whose job is to measure and record the details of areas of land.*

*https://dictionary.cambridge.org/dictionary/english/surveyor

Industry mindset

Industry mindset change

Digital Surveyor [noun]

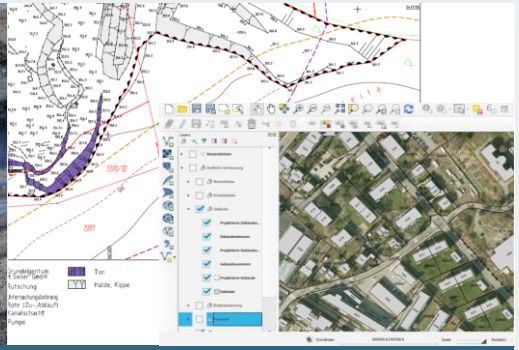
A person whose job is to measure and record the details of areas of land **with cutting-edge digital technology**.*

*Pix4D

Industry mindset change

Capture (inputs)

Process (outputs)



CAD/GIS

Now I have the terrain in my office.

I am working in CAD/GIS software.


Pix4D unique software ecosystem

2. Workflow

1. Capture
2. Digitize
3. Check,
   Measure & Inspect
4. Share

Inputs

RGB images

Drone images

Multispectral images

Thermal images

Fisheye images

360° camera images

Camera rig images

Videos

Inputs

Inputs

Pix4D software : surveying & mapping

Pix4D**capture**

Free mobile flight planning app

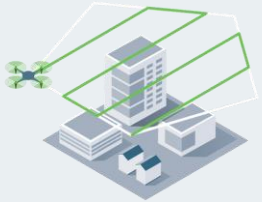
Pix4D**mapper**

Desktop and Cloud software

1. Capture

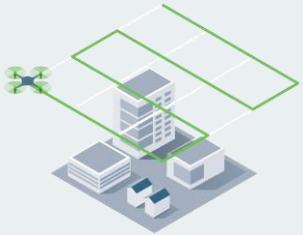
- Plan and control drone flights for professional mapping and data capture
- iOS & Android
- DJI, Parrot, and Yuneec drones

Flight missions



Polygon

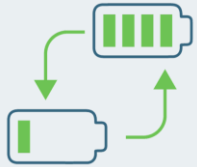
Grid



Double grid

Circular

Free flight

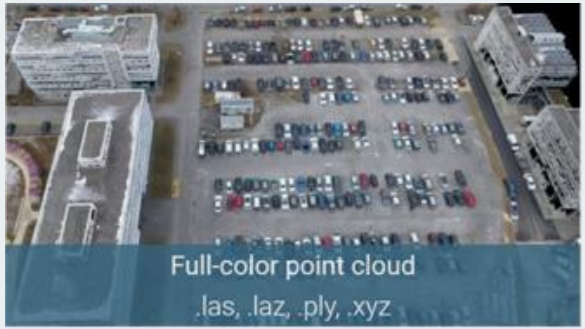


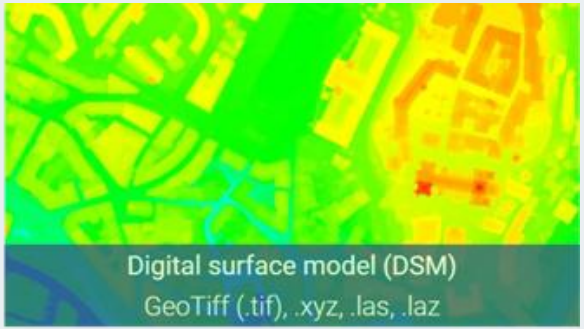
Multi-battery

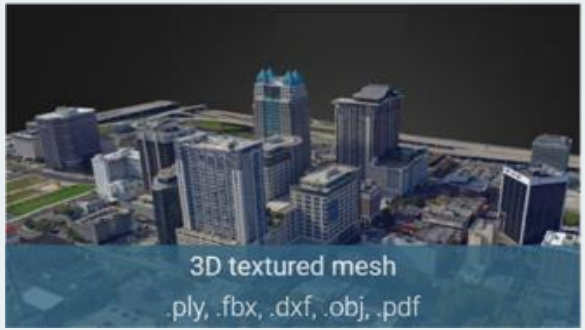
2. Digitize

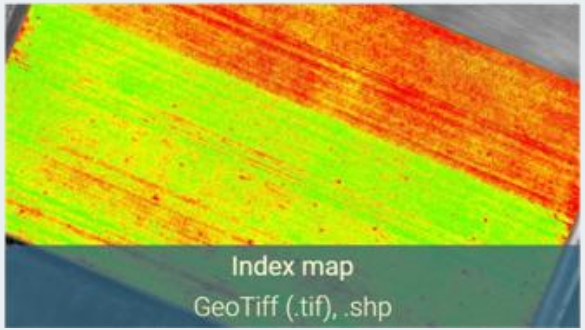
- Transform your images into accurate digital outputs.
- Process your projects locally on Pix4Dmapper Desktop or online on Pix4Dmapper Cloud.

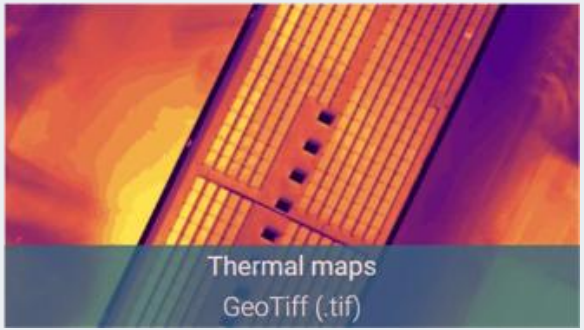
Outputs











And more...

3. Check, Measure & Inspect

Desktop:

- Assess and improve the accuracy of your project with the Quality Report and the rayCloud™
- Perform measurements locally

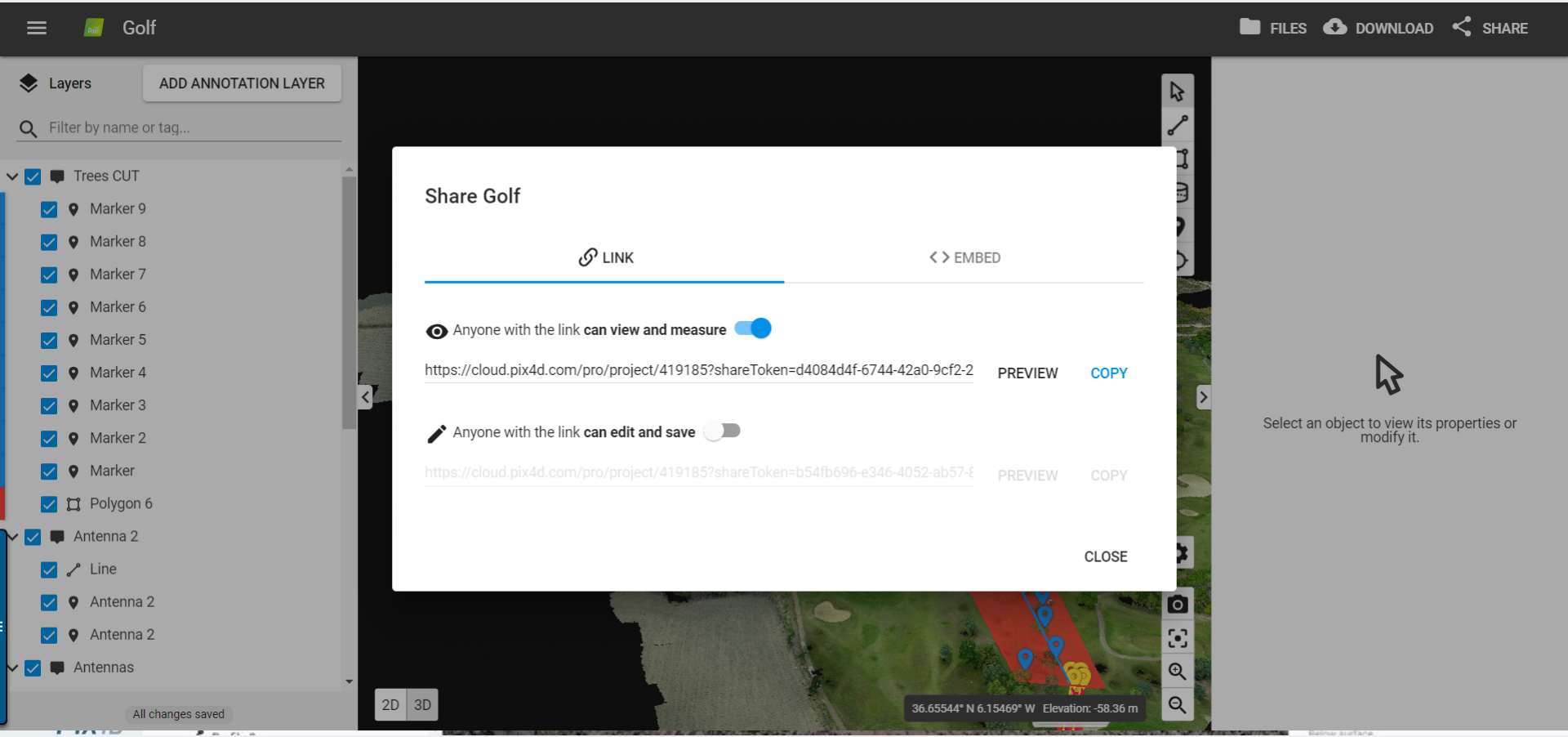
Cloud:

- Measure distances, areas, and volumes
- Extract elevation profile data
- Perform virtual inspections

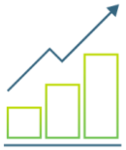
4. Collaborate & share

- Export individual files
- Perform extra analysis
- Work with third-party software
- Select and securely share data only with an URL link

4. Collaborate & share



Why mapping with Pix4D?



Increased productivity

Reduce field time and surveying time

Reduce operational risks

Accurate results

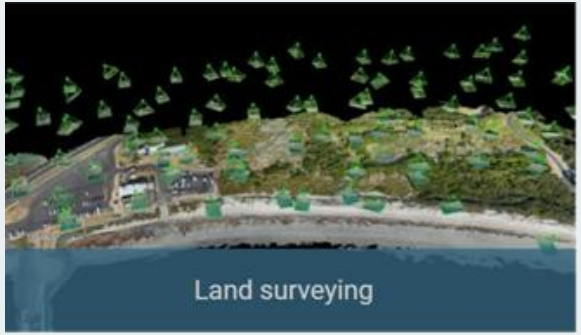
Assess and improve your data accuracy

Updated maps

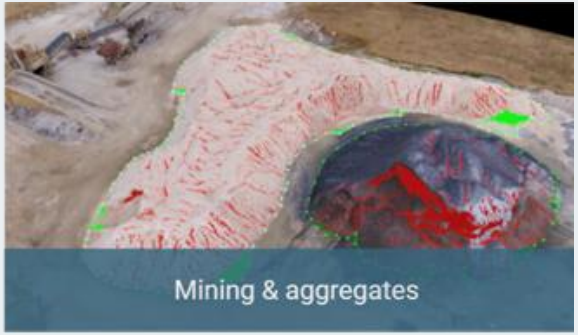
Simple workflow

Easily repeatable data capture

3. Real cases


Land surveying


GIS

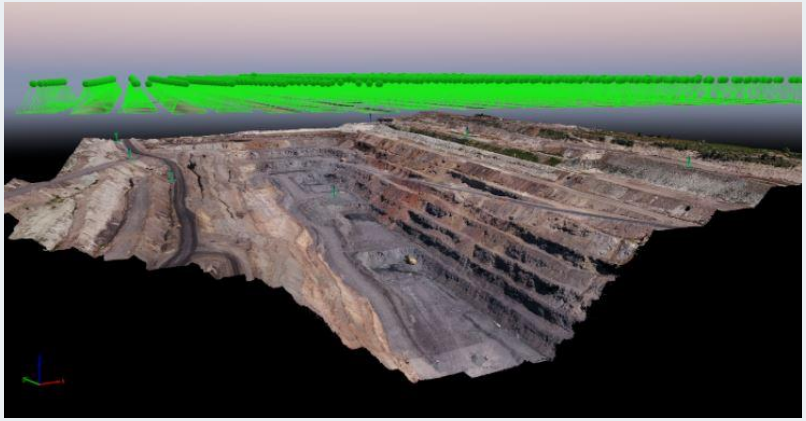

Mining & aggregates


Planning & design


Construction


Infrastructure & asset management

Drone photogrammetry

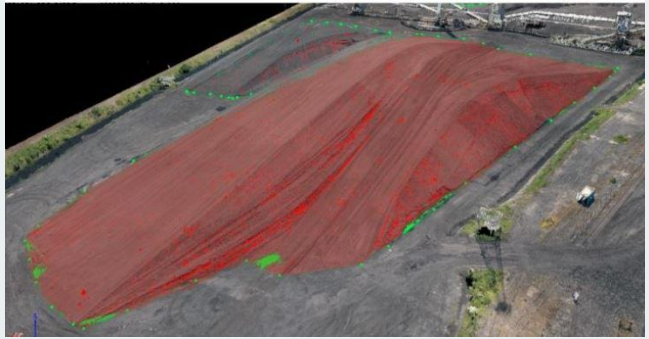


- DJI Matrice 210 RTK
- 82 hectares, 1 h flight, 12 h processing
- GSD 3.7 cm
- Ferrexpo, Yeristovo, Ukraine
- Project here

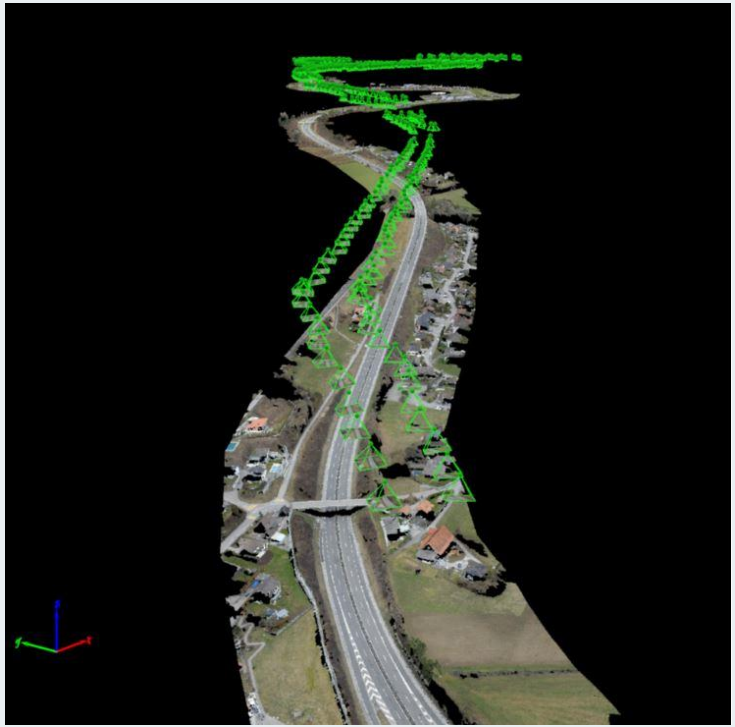
Drone photogrammetry

PwC's first drone stock audit completed 85% faster

- QuestUAV PPK
- 200 hectares, United Kingdom
- Project here

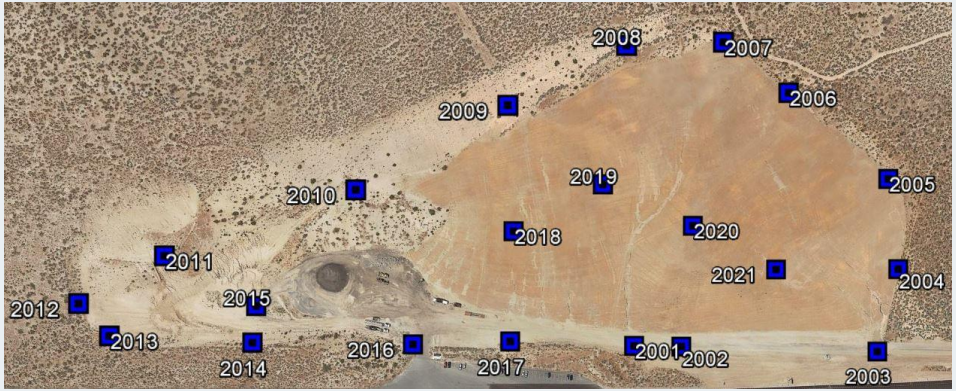


Drone photogrammetry



- eBee, SODA camera
- 115 km, Switzerland
- GSD 3 cm
- Project here

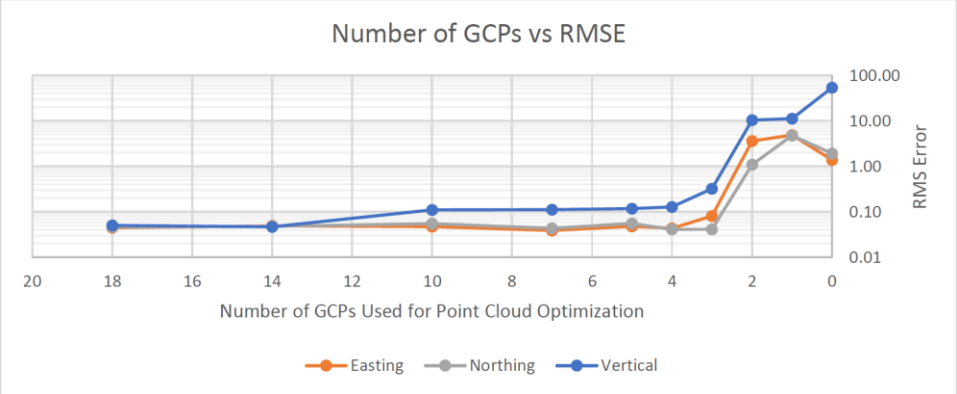
Drone photogrammetry



- DJI P4P
- 34 acres, 318 images
- GSD 1.9 cm
- 21 GCPs, Trimble R10 RTK
- Nevada, USA
- Project here

Drone photogrammetry

	Number of GCPs	18	14	10	7	5	4	3	2	1	0
	Number of Check Shots	3	7	11	14	16	17	18	19	20	21
Check Point RMSE	Easting	0.045	0.049	0.047	0.039	0.048	0.043	0.081	3.594	4.880	1.388
	Northing	0.046	0.048	0.055	0.044	0.056	0.041	0.041	1.087	4.776	1.912
	Vertical	0.051	0.047	0.111	0.112	0.117	0.128	0.320	10.469	11.157	53.873
RMSE Divided by GSD	Easting	0.715	0.784	0.756	0.622	0.767	0.693	1.292	57.507	78.076	22.208
	Northing	0.740	0.769	0.883	0.698	0.893	0.657	0.658	17.386	76.412	30.597
	Vertical	0.810	0.749	1.771	1.792	1.874	2.043	5.127	167.504	178.508	861.974



Terrestrial and drone photogrammetry

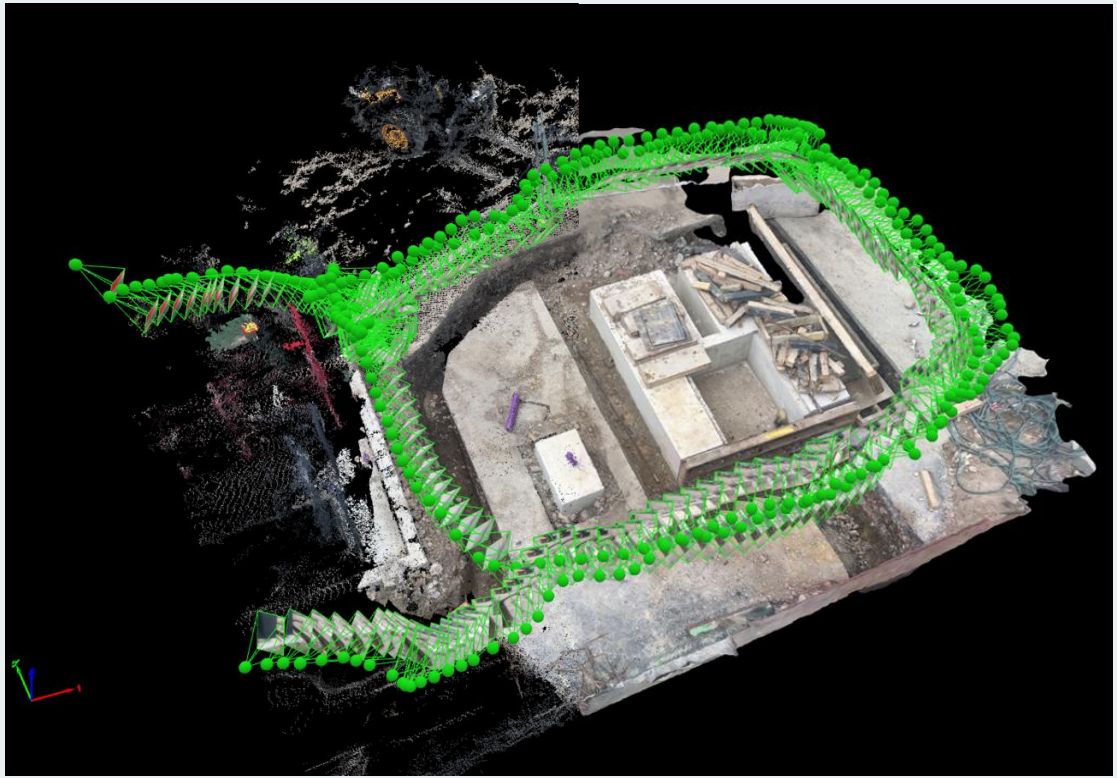
- DJI P4 Pro + Canon EOS 6D
- 755 aerial, 646 terrestrial, Finland
- GSD 0.5 cm/pixel
- Project here

Terrestrial “Mobile-grammetry”

- Project here

Terrestrial “Mobile-grammetry”

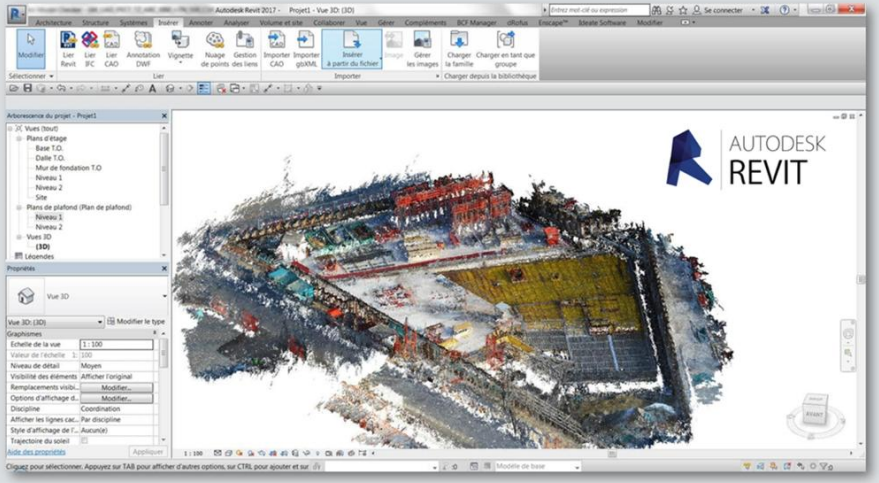
Terrestrial Mobile-grammetry



Terrestrial “Mobile-grammetry”

What else?
BIM Integration

As-built data integrated with your 3D design and collaboration software



Q&A

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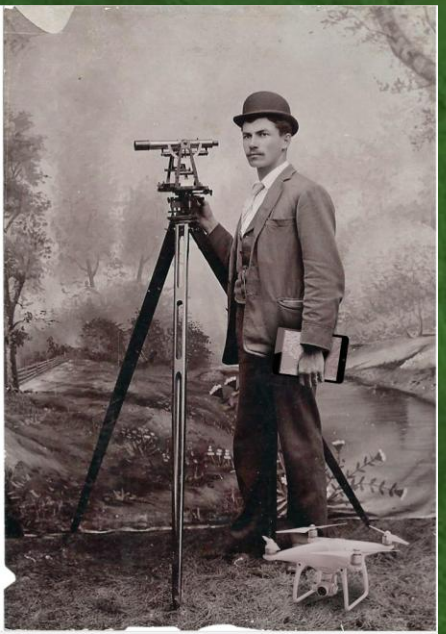

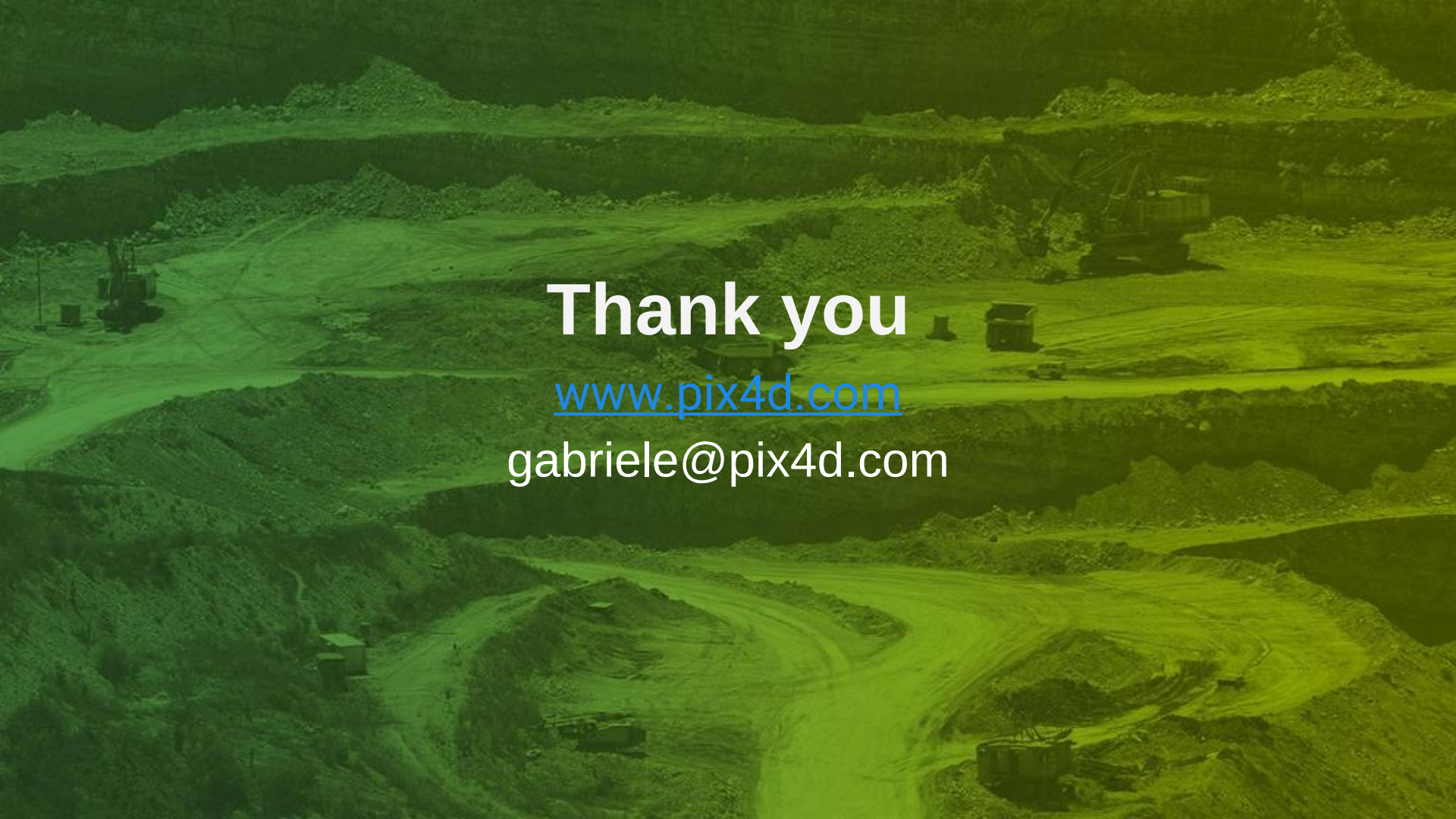
Thank you
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gabriele@pix4d.com