

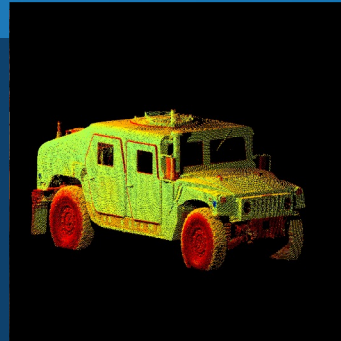
# Trimble and Defense

---

*Indo-Pacific Geointelligence Conference, New Delhi  
June 6-7, 2023*



# A Partnership in Defense & National Security



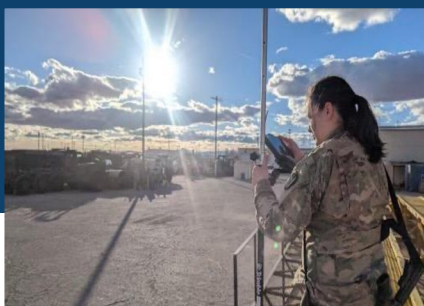
# Trimble-equipped Military Land Survey Units Worldwide

US Military

---



Navy and USMC



Army



Air Force



USACE

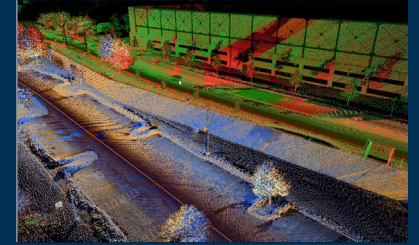
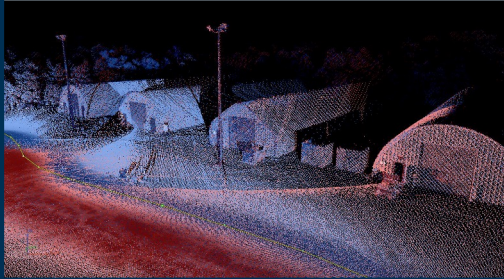


# Common Defense Applications



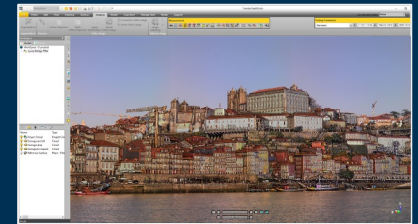
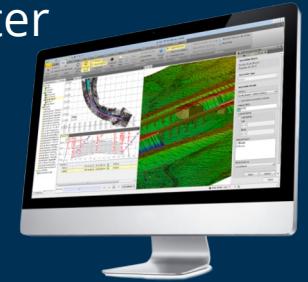
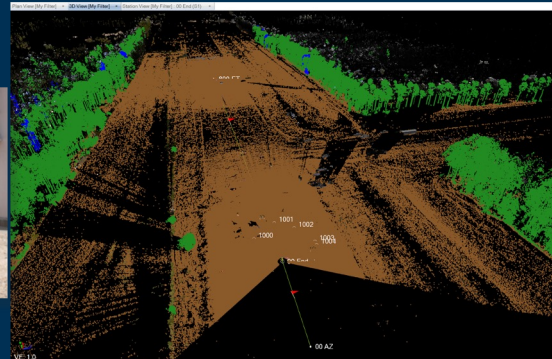


# Ecosystem



Trimble Access on  
Windows Controllers

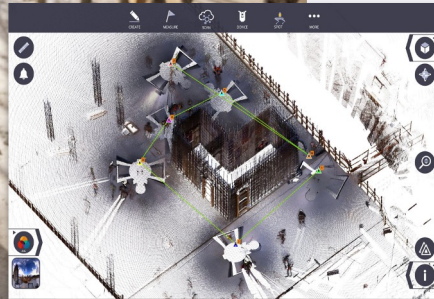
Trimble Business Center  
office software





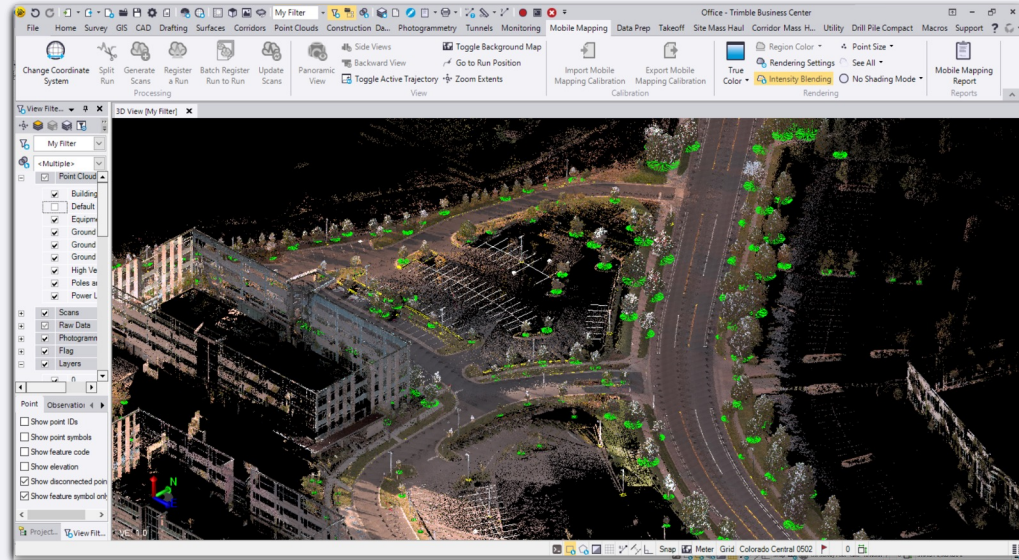
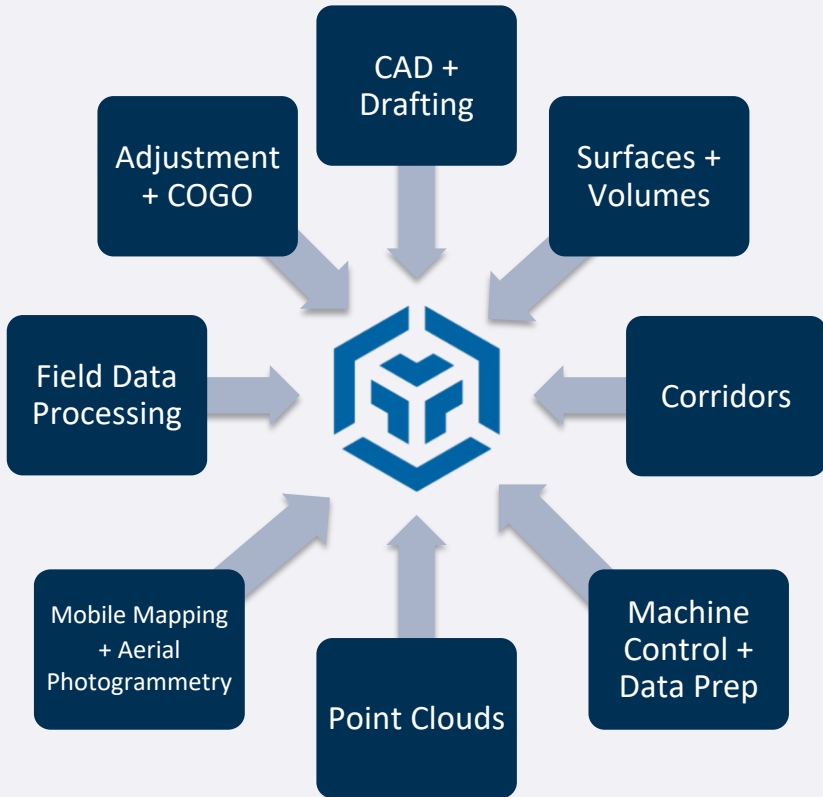
# Vision

- Combining autonomy, GNSS & robotics to work collaboratively with humans
- Perform dirty, dull and dangerous tasks
- Improve safety, quality and speed of construction





# Workflows with Trimble Business Center





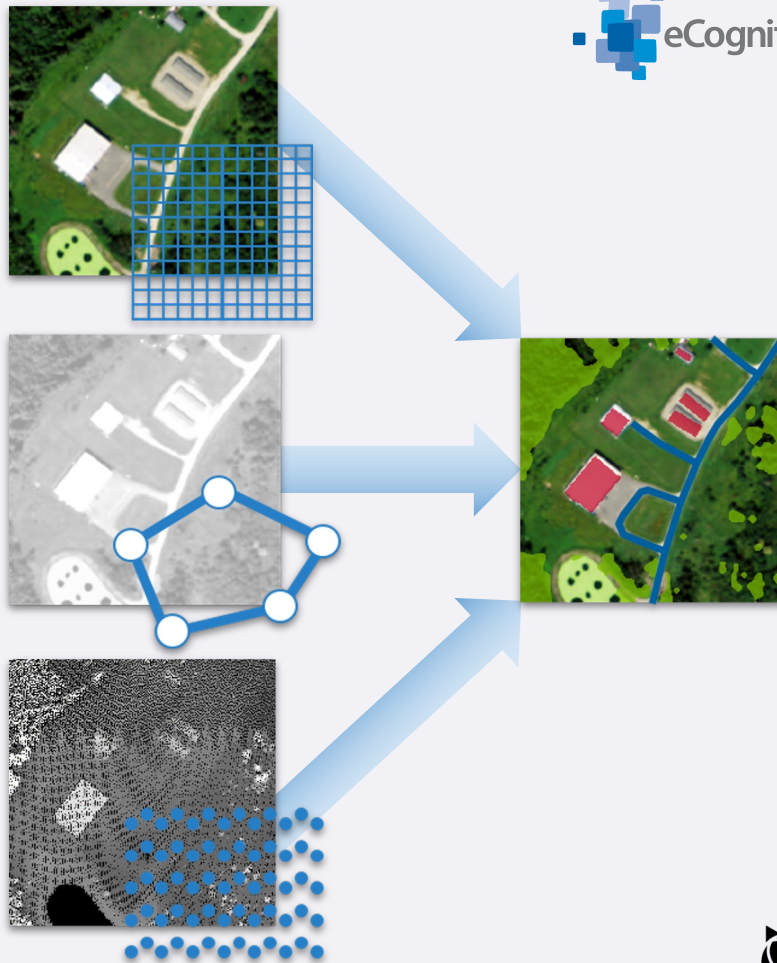
**Where we are headed**

# Data Fusion



## Full Data Potential

The ability to fuse & analyze a variety of geospatial data, such as images, point clouds & GIS-vectors within a **single project** environment is a unique feature that allows for the development of **powerful** workflows.





# Machine Learning - Demonstration (I)

Example: classification of thematic map objects

Step 1 – sample patch generation



Non-targets



Targets

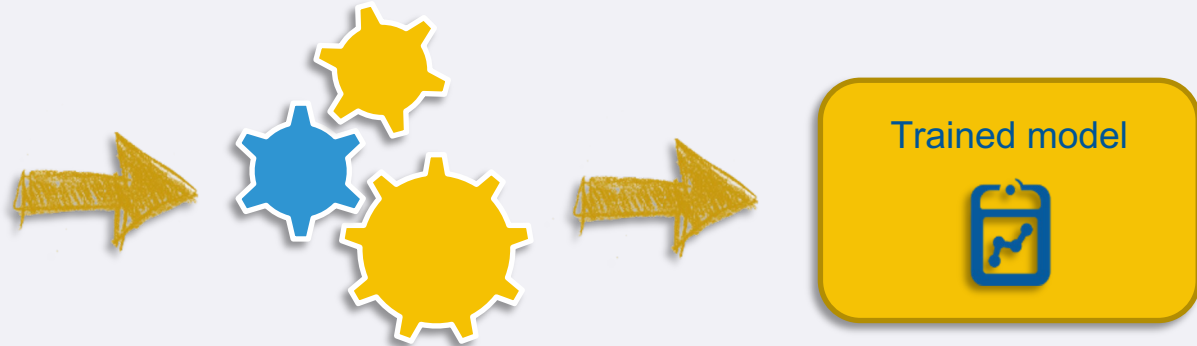
# Machine Learning - Demonstration (II)

Example: classification of thematic map objects

Step 2 – train model



Samples patches





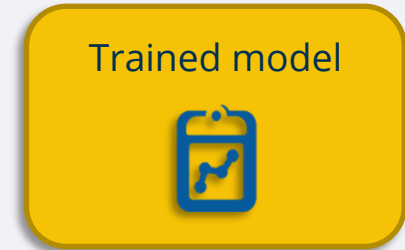
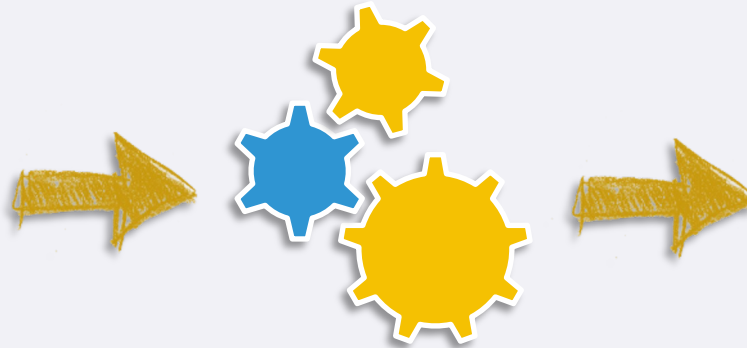
# Machine Learning for Mine Detection



# Machine Learning - Demonstration (II)

## Mine Model Potential

Step 2 – train model

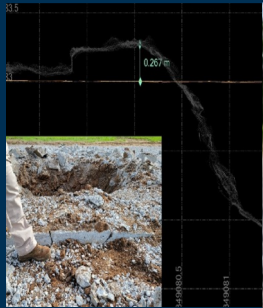
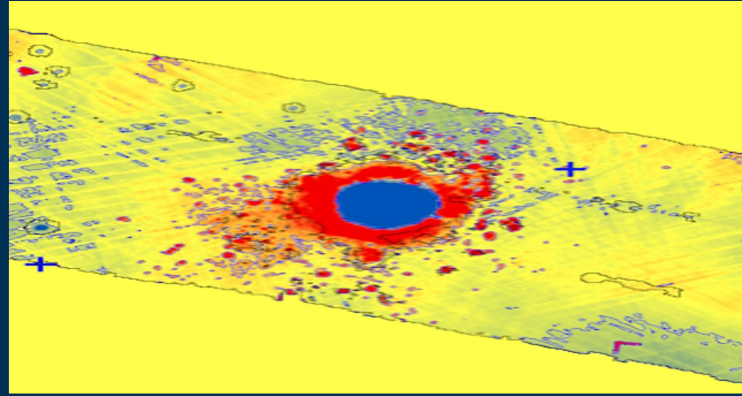


shutterstock.com - 214602915





# Runway Damage Assessment



# Machine Control ERACC II Equipment

(Enhanced Rapid Airfield Construction Capability)

- **650 machines** with installation A kits only (DEUCE, D6K, 613 Scrapers, 120M)
- **325 Machines** with Complete 2D/3D Grade Control Systems
  - Components can be moved to Machines with Installation kits
- **35 NET** Trainings at Fort Custer, MI
  - 33 ESC Units Trained
  - 34 ECC Units Trained
  - 305 12N's trained
- 91+ Units have ERACC II Equipment
- **Trimble one day, no-charge, sustainment training offered to all Units-14 completed in FY22**

CAT 120M



CAT D6K



CAT DEUCE



CAT 613 Scrapper





Fort Bragg – Sicily Drop Zone Project

# Benefits of Grade Control



Completes Missions **30% to 50%** faster



Reduces number of machines needed on site



Enhances soldier safety



Reduces fuel consumption by up to **45%\***

\*Caterpillar Road Construction Productivity Study





**Thank You!**

