



Trimble Platinum Session

FIG Working Week 2025 - Brisbane

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*Presented at the FIG Working Week 2025,
6-10 April 2025 in Brisbane, Australia*



Presentors



Melissa Harrington

Product Manager,
Trimble Inc



Luke Johnson

Product Manager,
Trimble Inc



Ross McAtamney

Technical Consultant,
UPG



Agenda

- 01** Our local presence
- 02** Mining Portfolio
- 03** Trimble's Outreach Programmes
- 04** Reality Capture for Roads
- 05** Q & A

Trimble Distributor: The Herga Group

- Founded in 1888
- 340+ staff in 24 locations
- Trimble dealer for buildings, heavy civil, mining, geospatial, and Agriculture portfolio
- Support, servicing and customisation in-house





Enhancing Efficiency and Safety

Geospatial Information and Geotechnical
Monitoring in Mining

Presented By: Melissa Harrington and Thandinkosi G Chari

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Slide nummer 5

1

Feel free to to maintain the white themed background for the rest of our slides too if you want.

Thandie Chari; 03-04-2025



Mining Industry Challenges

Production

50M

Additional Copper tons needed to meet net zero targets by 2050

Personnel

71%

Of industry leaders publicly emphasizing that the **shortage** of talent is an obstacle to achieving the objectives.

Safety

47%

Of ICMM member location **fatalities** happen in Underground Mining



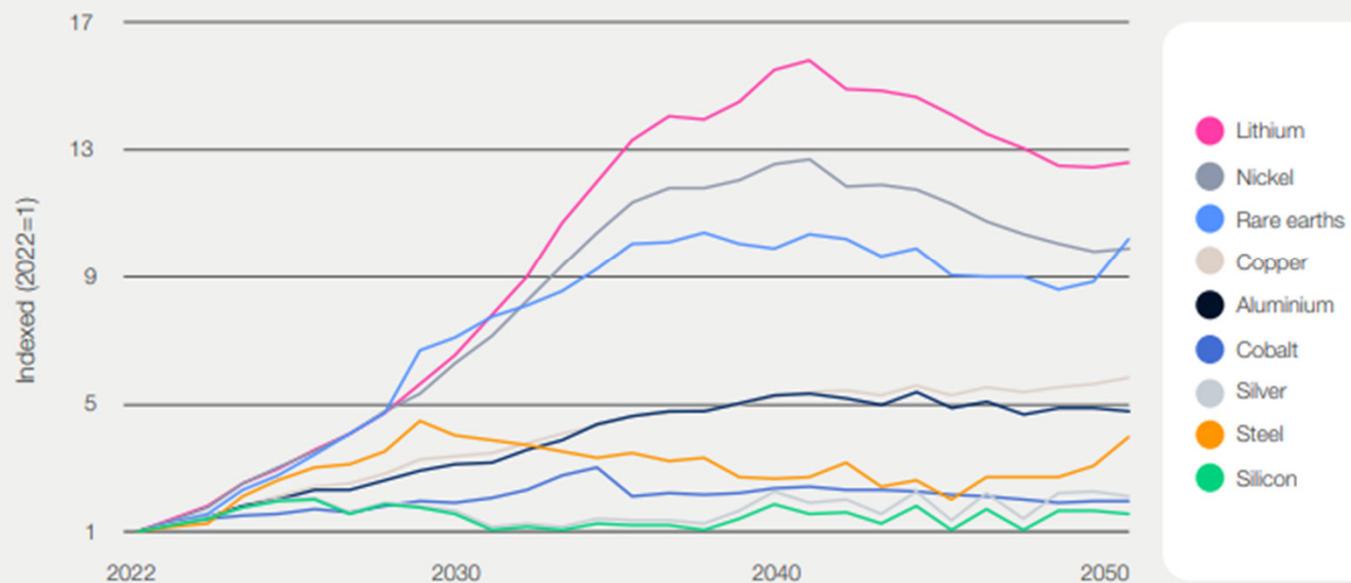
Over the next 30 years, the industry will need to mine more mineral ores than humans have mined over the last 70,000 years, to meet the exponential demand for minerals critical to the energy transition.

- Ey.com



Mining Industry Challenges

Growth in demand for metals used for clean energy transition under BloombergNEF's Net Zero Scenario



Source: BloombergNEF, 2022.



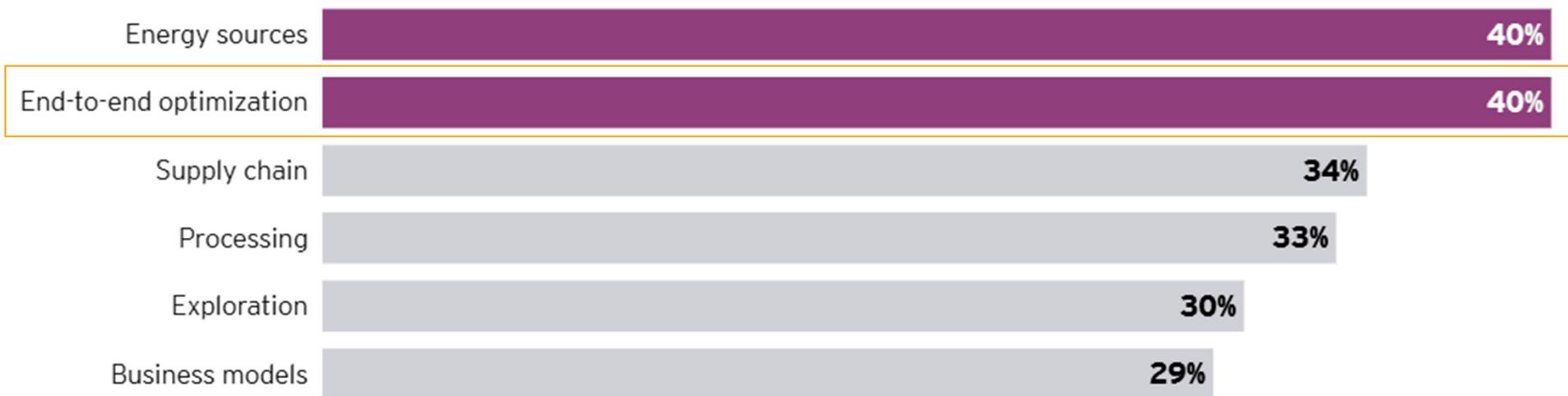
By 2029, more than half the current workforce will be retired and replaced (~221,000 workers) creating a skill and knowledge gap the industry may be challenged to accommodate. Finding and retaining skilled labor is likely to be a lasting problem for mining companies.

- smenet.org (US)



Mining Industry Challenges

Miners believe lower-risk innovation will have the greatest impact by 2030

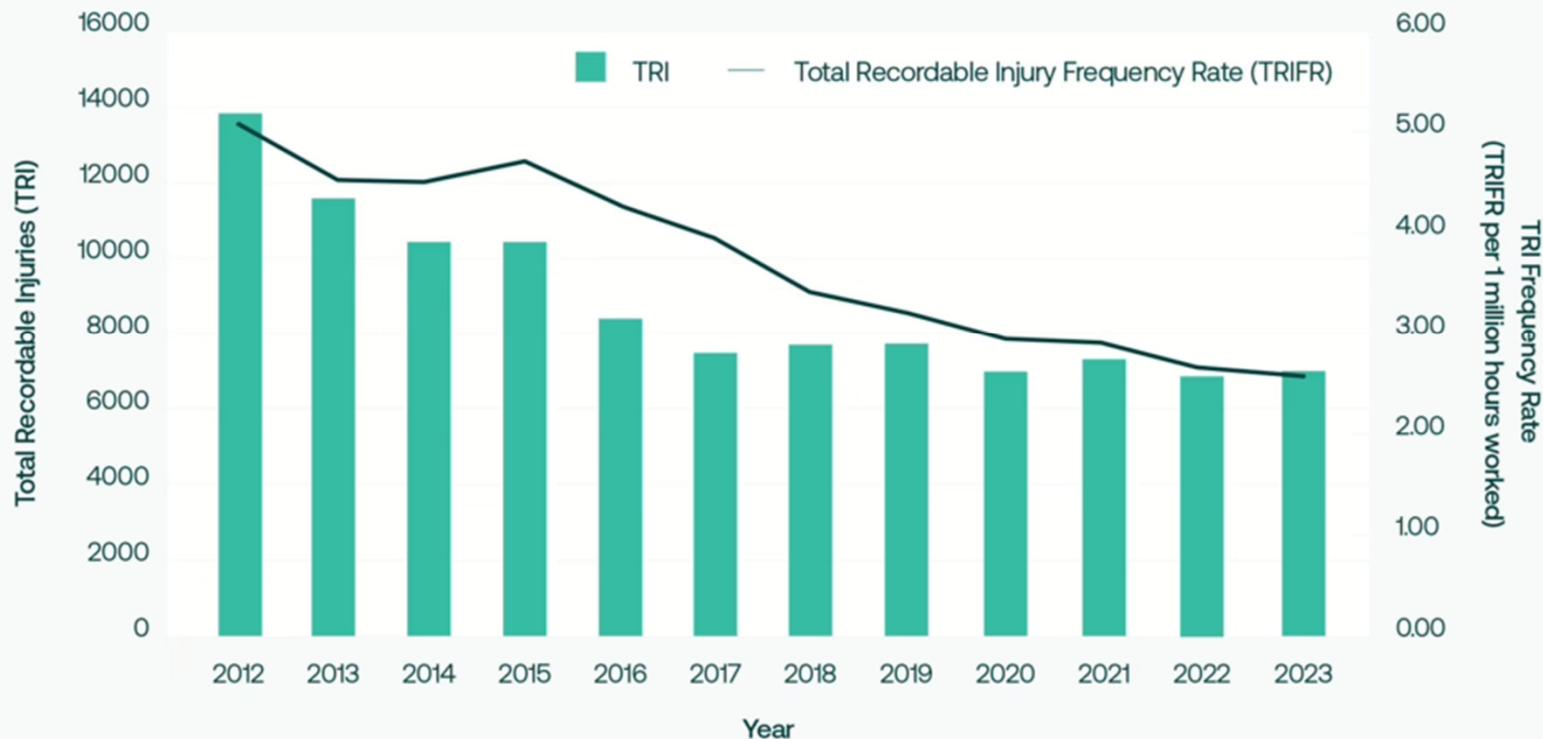


Note: Respondents could choose more than one option
Source: EY Business Risks and Opportunities Study 2025



Mining Industry Challenges

Graph 10: ICMM Member Total Recordable Injuries and Frequency Rate (2012-2023)





Challenges

- Focus on minimizing environmental impact and ensuring compliance with regulations.
- Pressure to improve efficiency, safety, and sustainability while enhancing operations and reducing risks.
- Challenges in current mining practices, including siloed data collection and monitoring affecting decision-making and response times





Trimble's Solution

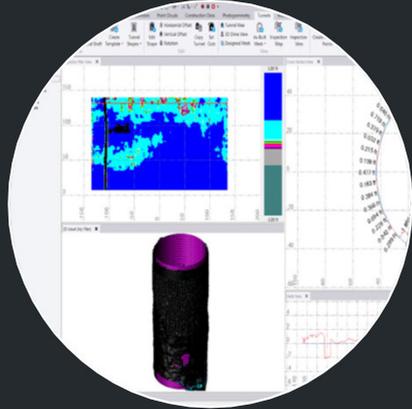
The Modern Mine

- Integrated geospatial and geotechnical tools for better decision-making and safer operations.





The power of Geospatial data in mining



Design

Trimble Business Center vertical shaft design & inspection tools



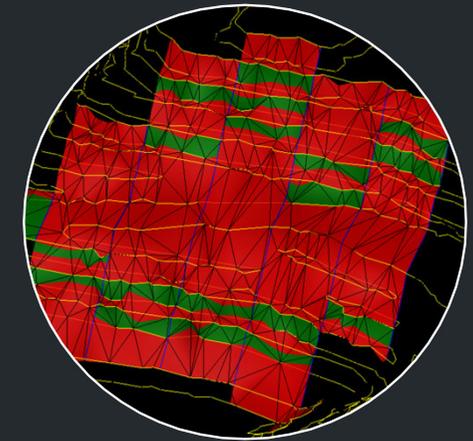
Survey

Daily Mine Surveying Tasks



Monitoring

Trimble-Worldsensing structural monitoring solution.



Daily Operations

Trimble Business Center slope conformance reporting

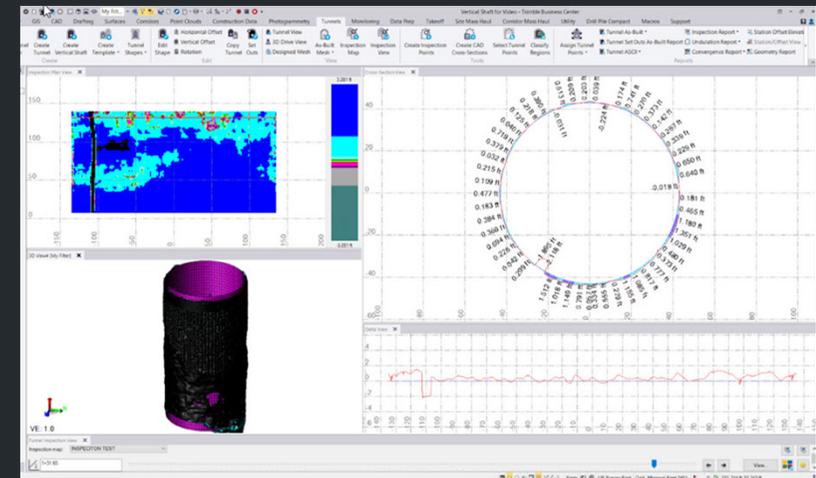


Trimble Business Center

Office Software

Design, data processing and reporting:

- Automated point cloud classification for underground structures
- Enhanced tools for vertical shaft & tunnel designs
- Conformance reporting
- Connected workflows





Trimble Access & Mines

Field Software designed for surveyors with streamlined workflows for mine surveyors:

- Flexible Data Preparation & Support
- Topographical Surveys and Measure Codes Workflows
- Underground specific workflows for autostake out of centreline and gradelines and blastholes.
- Customised reporting





Trimble T4D

Monitoring Software

Trimble 4D Control (T4D) is a software solution designed for automated movement detection and monitoring.

- Real-time monitoring and alerts
- Comprehensive data management
- Improved safety and collaboration





Worldsensing Collaboration

Trimble and Worldsensing introduced a new solution combining Trimble 4D Control™ (T4D) software with Worldsensing's GNSS Meter for long-term 3D monitoring.

- GNSS Meter with RTK technology for precise 3D surface movement measurements.
- Wireless IoT for cost-effective, low-maintenance deployment.
- Real-time data processing and automated alerts when movement exceeds thresholds.





GroundProbe Collaboration

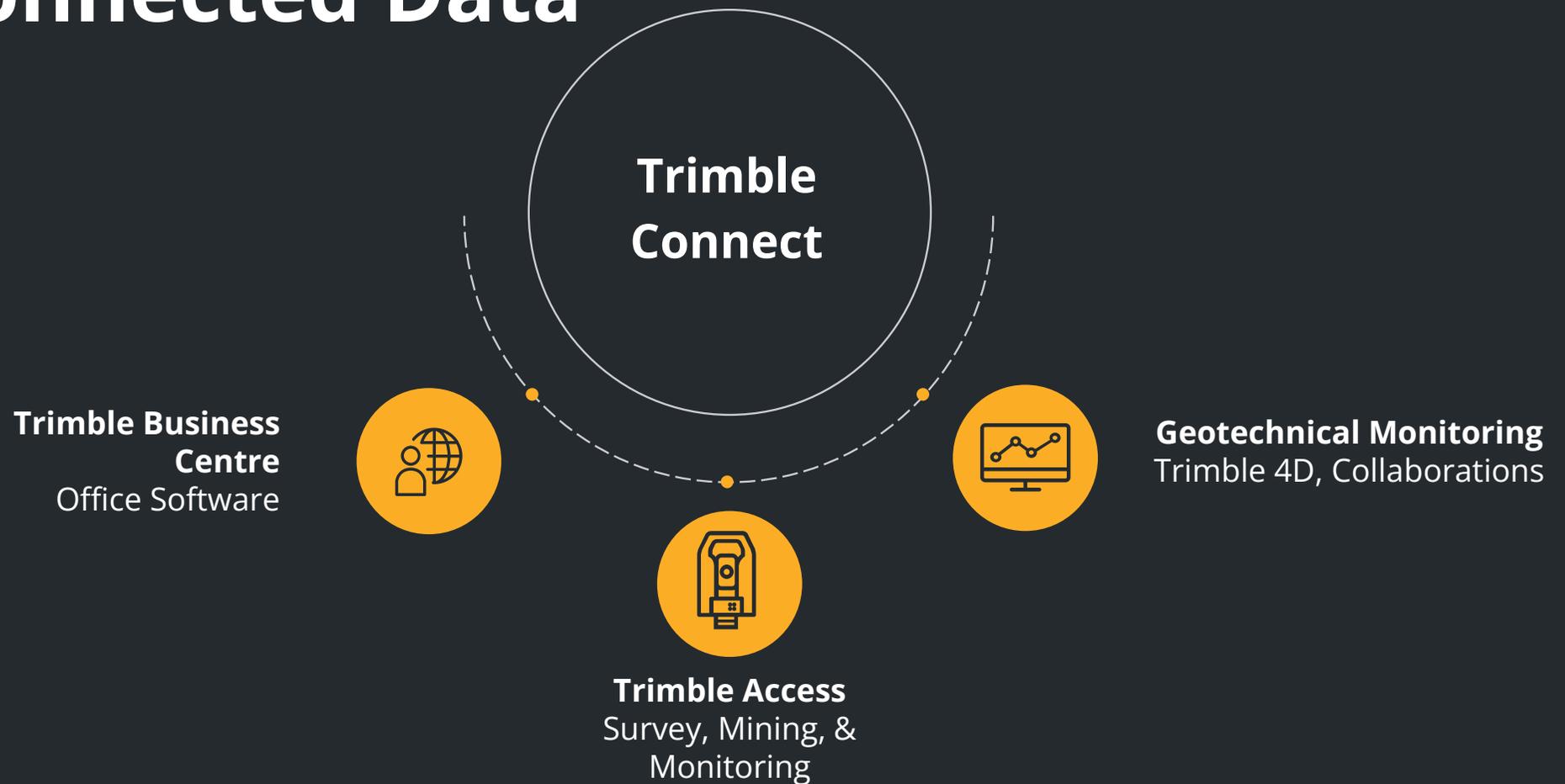
Trimble and GroundProbe have partnered to offer a complete slope stability monitoring solution for the mining industry.

- Trimble Total Stations, Scanners and Software compliment GroundProbe's geohazard sensors.
- Trimble's 4D Control™ and GroundProbe's MonitorIQ®





Connected Data





Equipping the Future

Trimble's Role in Empowering the Next Generation of Surveyors

Presented By: Luke Johnson

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Geospatial data is constantly evolving

Technology

From: Single Point Measurement

To: Reality Capture

More data, more often, more insights, smarter decisions



Workflows

From: Field work & report services

To: Data collection & management

The changing role of the Geospatial professional



Customers

From: Predominantly survey services Co's

To: Distributed customer demographics

Industry's, roles and company/corporation sizing

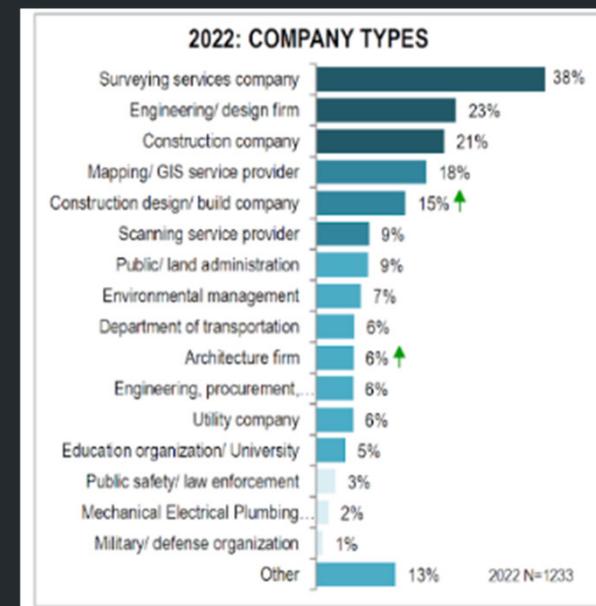
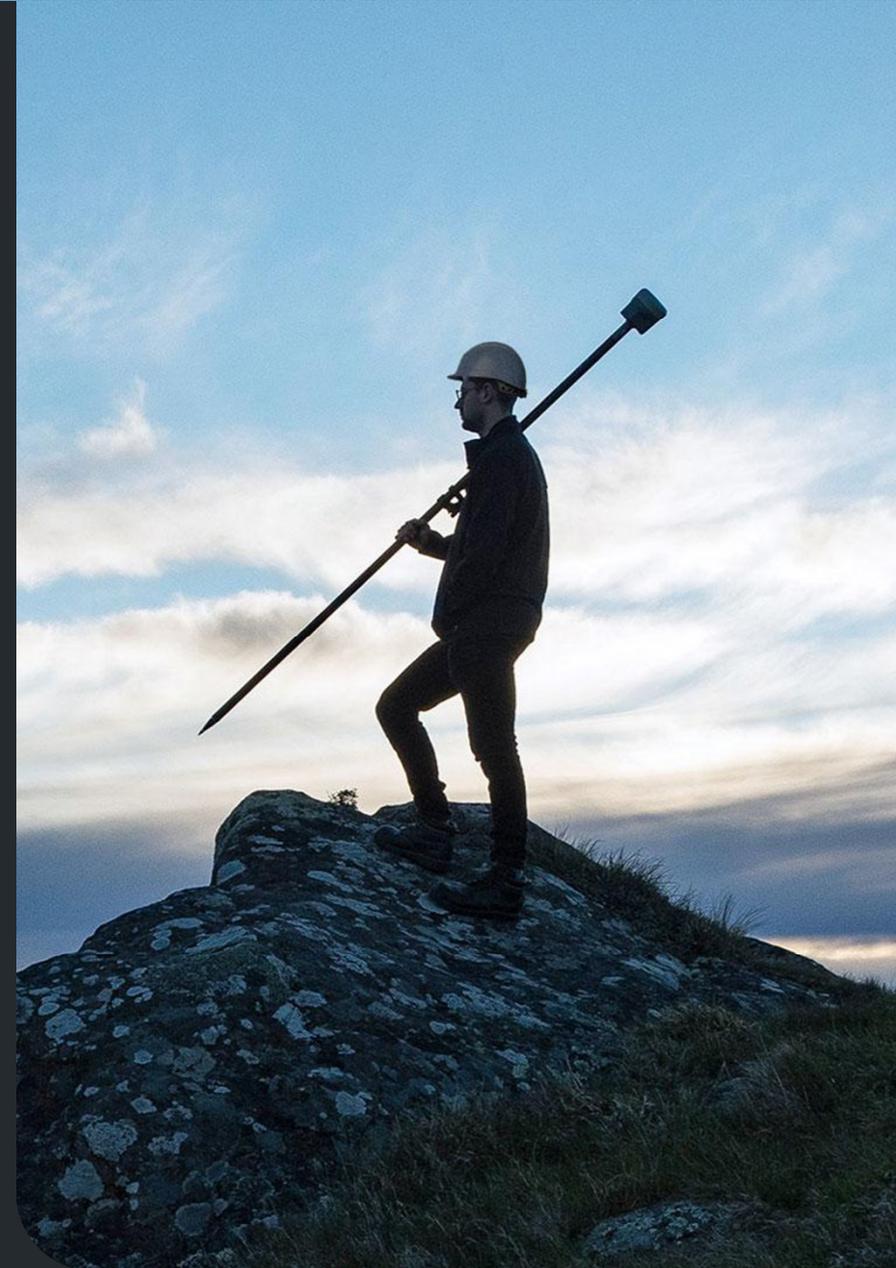




FIG Young Surveyors

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People



Melissa Harrington

Former Chair FIG
Young Surveyors



Stephanie Michaud

FIG Young Surveyors
Member



Markus Koper

Trimble FIG
Representative

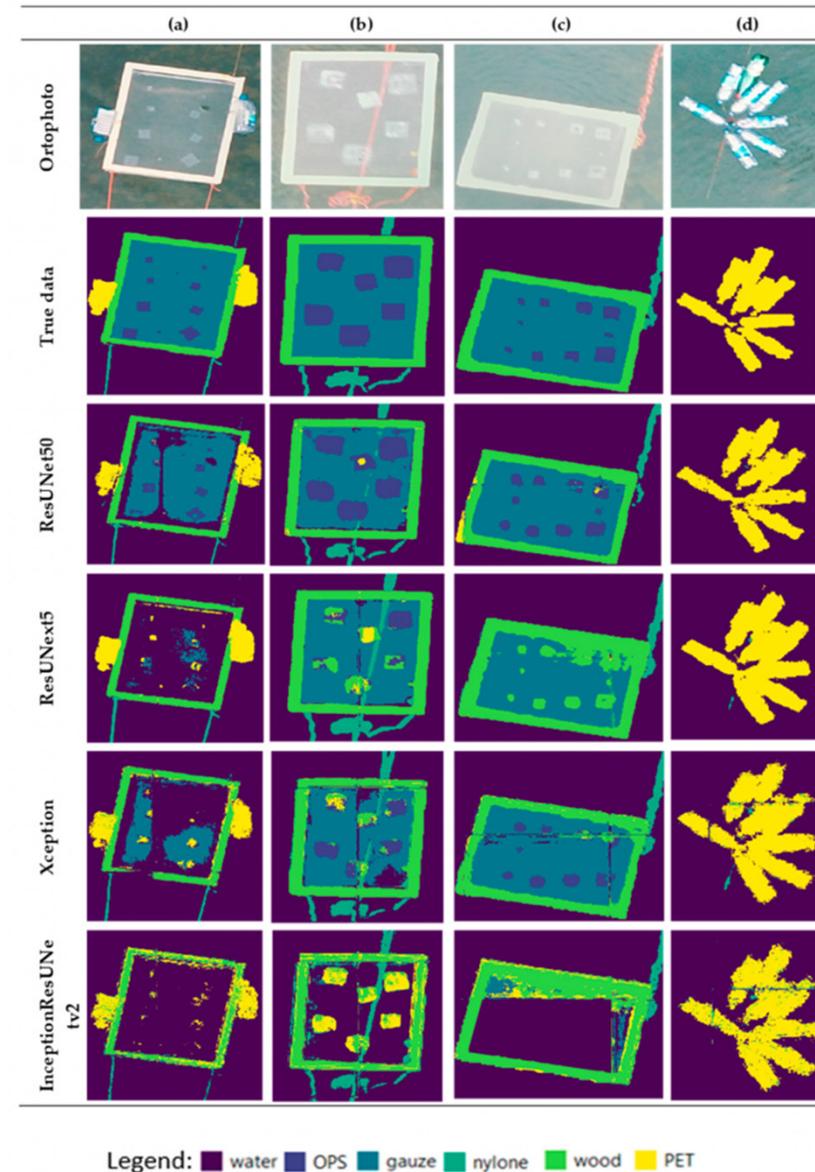


Mapping the plastic

FIG developed a plastic mapping solution, based on deep learning algorithms in conjunction with UAV-captured imagery, aimed at dealing with the problem before it reaches the ocean.

Trimble Provided

- Ecognition office software
- GNSS and Field Software
- Technical training and support





Volunteer community surveyor program

Volunteer community surveyor program:

- Grants to Young Surveyors for in country deployment
- Catalyst GNSS receivers
- Penmap field software

In-Country Deployment opportunity

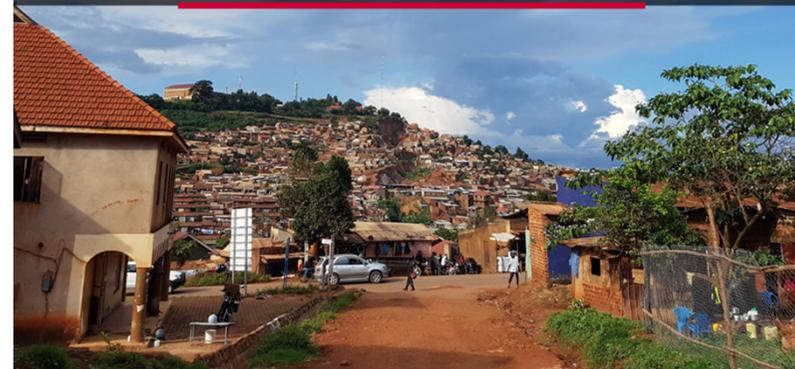
ARE YOU A YOUNG SURVEYOR IN
**UGANDA OR
KENYA?**

Apply to be a Volunteer
Community Surveyor today!

DEPLOYMENT: 1 MARCH - MAY 2021.
APPLICATIONS CLOSE 28 FEBRUARY 2021.

Volunteer
Community
Surveyor
Program

YOUNG SURVEYORS



Volunteer Community Surveyor Program

A partnership between UN-Habitat GLTN and the Young Surveyors Network of the International Federation of Surveyors



Trimble Foundation Fund

Our philanthropic efforts to shape a sustainable future where people and planet thrive





The Trimble Foundation

Foundation at-a-glance

- **8 years.** Founded in 2017, the Trimble Foundation is 8 years old, but Trimble's history of giving goes back much farther
- **Voluntary.** The Foundation is run by employees who commit to volunteering their time and talents
- **Impact.** We ground our efforts in a commitment to achieving meaningful, long-term outcomes
- **Partnership.** Our partners are at the center of how we deliver impact





Trimble Foundation Fund



Disaster Response & Climate Resilience

covering disaster responses and climate change adaptation and mitigation efforts



Access to Education & Economic Opportunity

increasing access to quality education and pathways to fulfilling careers



Scaling Sustainable Industry Practices

projects that scale sustainable industry practices

Access to Education & Economic Opportunity



Women Changemakers for Education

- Supports women in Ghana who are changemakers in their communities.
- Provide mentoring, training and microgrants.
- Since 2019, they have trained 10 fellows, who have impacted 72,000 people!
- The impact of Foundation funding has been felt through being able to double the number of women mentored and international recognition of work undertaken.



Shine Dewovo and Millicent Adjei



TRANSPORTATION & CONSTRUCTION | GIRL™

They are focused on increasing gender representation by exposing young girls to career opportunities in the transportation, construction and geospatial industries.

- Relationship entails sponsoring career fairs (with 1200 school-age girls attending).
- Summer career day at Trimble.
- Growth in scholarships and internships in targeted industries.





Disaster & Climate Resilience

Supporting communities impacted by natural disasters with the help of organizations focused on disaster recovery, rebuilding efforts and building resiliency to drive a sustainable future



- The HALO Trust is the world's largest humanitarian mine clearance organization
- Foundation partner since 2022
- Impacts for Ukraine
 - since Trimble and HALO started their partnership, the program has more than tripled, growing from 400 staff to over 1300.
 - HALO is planning on growing to over 1500 staff by the end of 2025.



Cooperation with armed and military forces



Mapping

Halo Trust has Mapped over 7,083 landmines in 8 months.

“ Halo Trust is Mapping faster than ever and this makes a big difference for many in this world”-

Luan Juapi



Women in GIS Project

Hired and trained NON-GIS specialist.

Recruitment is complete

- Two-Ukraine
- One-Sri Lanka
- One-Zimbabwe
- One- Yemen

Program fully Operational in Ukraine



DA2

Ukraine and Angola have also been using DA2's to map roads that are safe or unsafe for our field teams to use or avoid.

“Saving Lives, Without the DA2 this would not have been possible.”



Halo's Target

Aim is to use Trimble GNSS receivers to map landmines and other explosive ordnance devices across all HALO programs.

Women in GIS for Demining

- Trimble Foundation funds HALO Trust's "Women in GIS for Demining" initiative.
 - Initiative trains women in disadvantaged areas to become GIS specialists.
 - Goal: Build local capacity to clear landmines from conflict-affected areas.
 - Three-year grant (2024-2027) funds 11 women in 7 countries.
 - Countries include Sri Lanka, Ukraine, Yemen, and Zimbabwe.
-





Trimble Technology Labs

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Preparing the next generation of industry professionals

Trimble Technology Labs (TTLs) help educate the next generation by teaching students with the latest tools. We provide the latest from the Trimble product portfolio to our TTL partner institutions, allowing students to learn on the same platforms they will need to use in their careers.



Issues with Preparing the Workforce

- Limited 1-1 experiential learning opportunities
- Limited access to technologies





Auckland Tech Lab

Involving other industries

- Engineering students are now using Trimble technology and equipment in their projects.
- The lab has also been instrumental in getting geospatial technology to other areas of the University outside the traditional engineering areas.



Engineers Without Borders USA



Trimble

- Aligned impact and engagement strategy based on Trimble Technology Lab (TTL) program footprint and the Trimble Foundation and Sustainability strategies
- Align funding to have an impact on EWB-USA chapter work while continuing to advance EWB-USA HQ thematic opportunities, including climate resiliency and disaster impact

EWB-USA

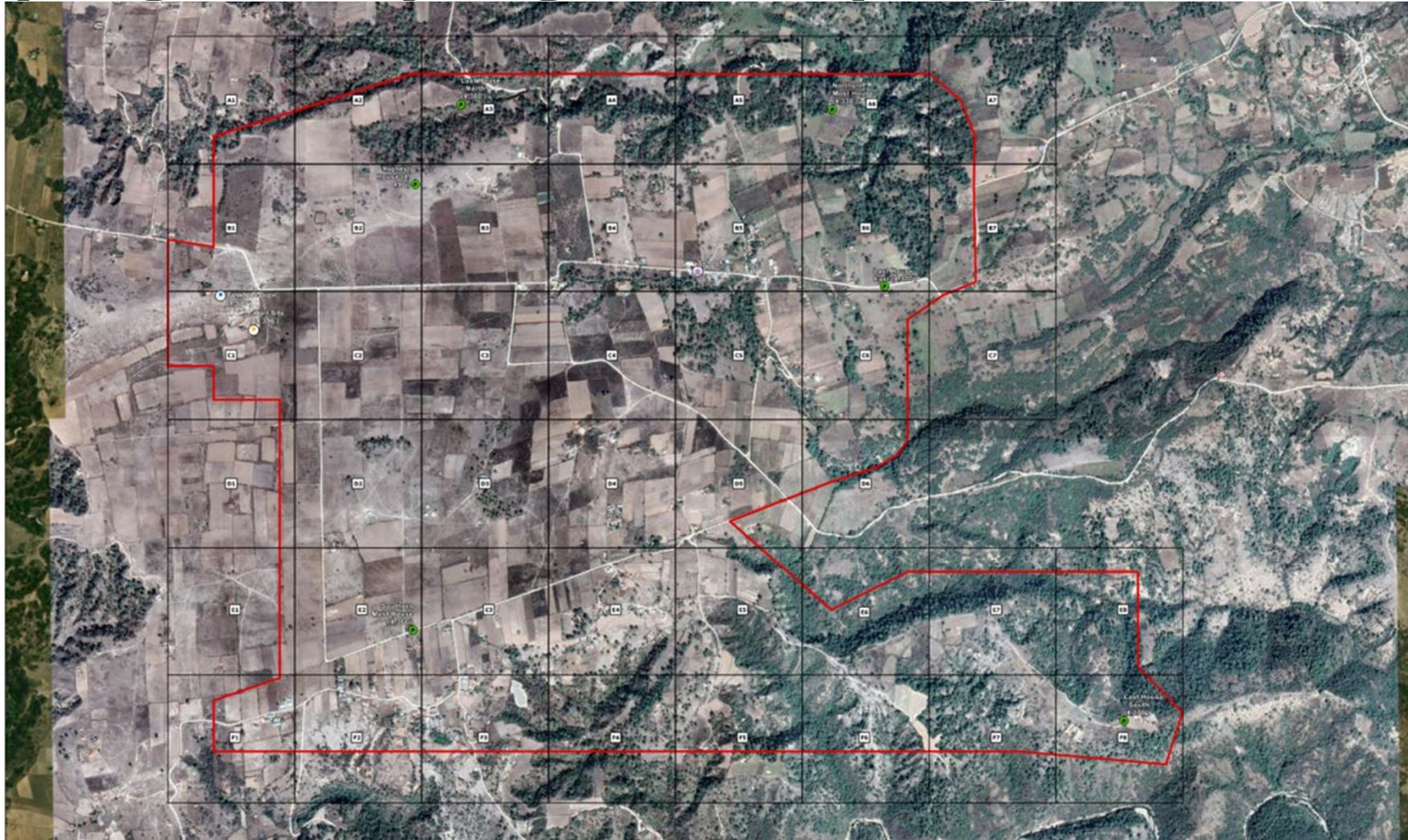
- Partner with Trimble to support the need to embed climate resiliency in all projects
- Work to impact EWB-USA chapter work while advancing thematic opportunities around climate resiliency, disaster response, and STEM education

Connect & Scale - Foundation, Sustainability, EDU, TTLs and Geospatial





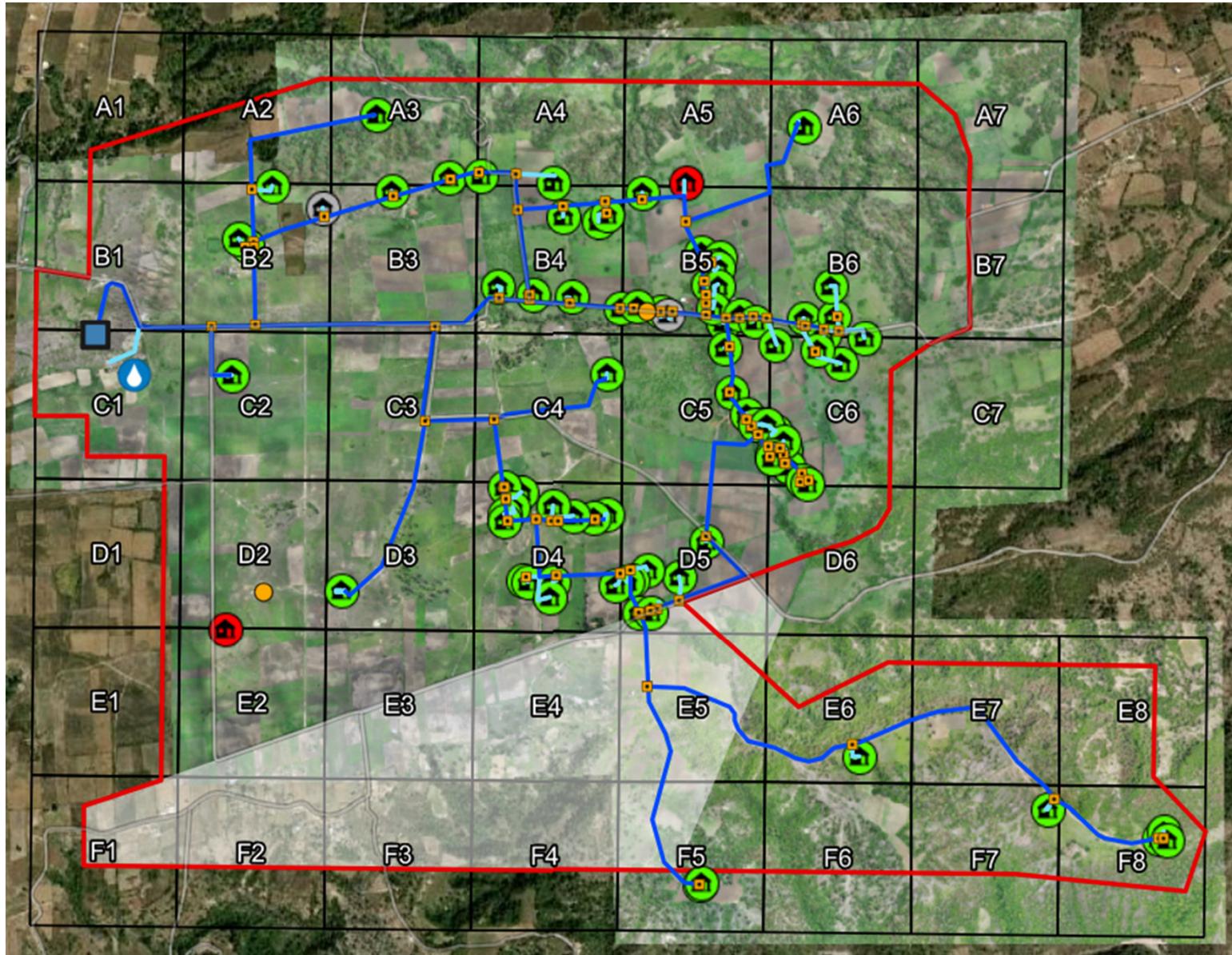
Mapping Pilot program in progress

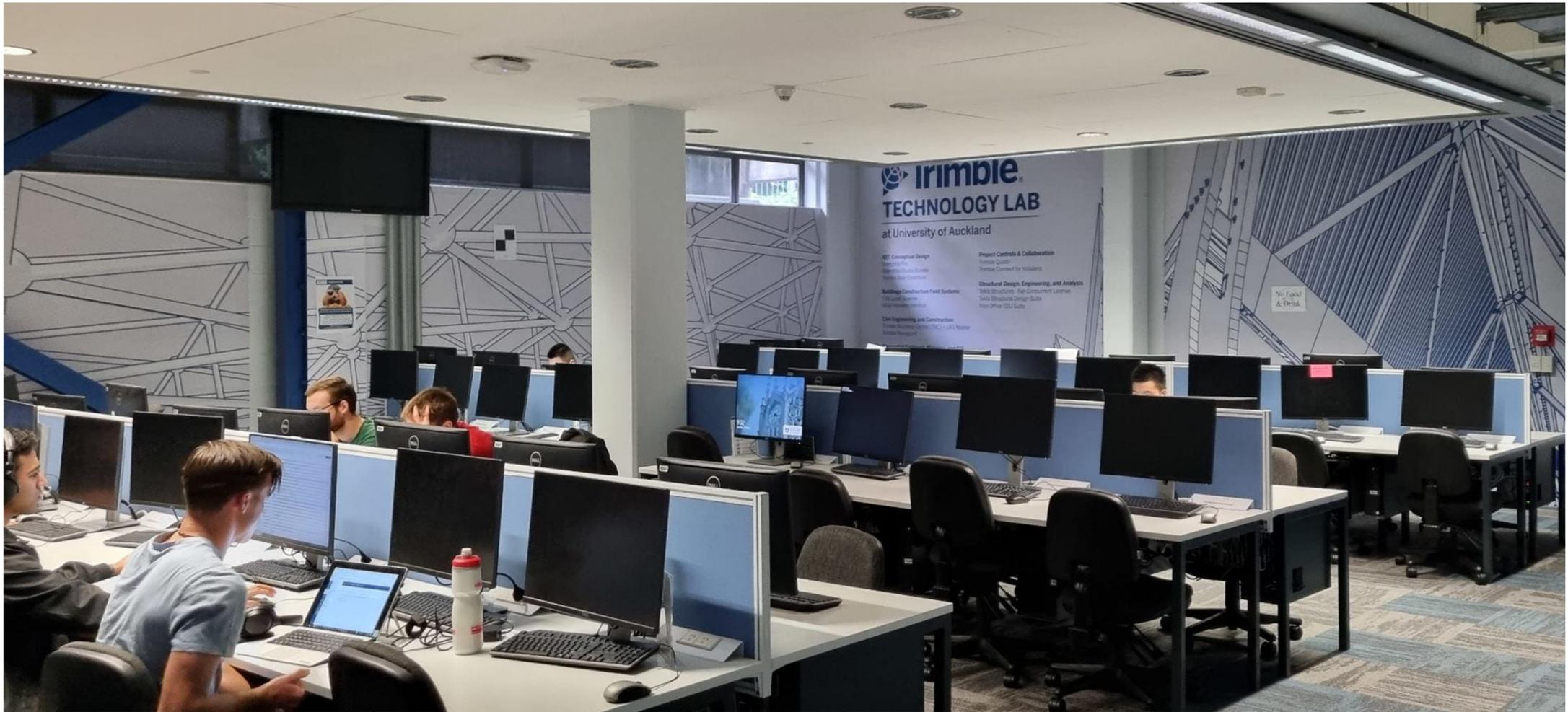




Mapping Pilot program in progress







Irimble
TECHNOLOGY LAB
at University of Auckland

AEC Conceptual Design
Conceptual Design
University of Auckland
New Zealand Foundation

Buildings Construction Field Systems
The Auckland University
of Technology

Civil Engineering and Construction
The Auckland University
of Technology

Project Controls & Collaboration
Project Controls
Contract for Hire

Structural Design, Engineering, and Analysis
The Auckland University
of Technology

No Food
& Drink