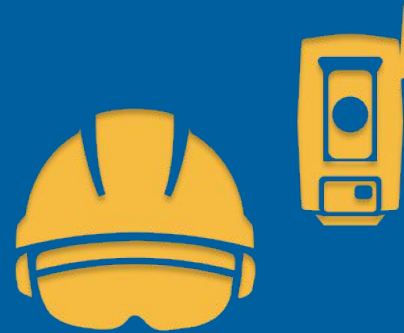


Adapting to Crisis through Innovation

Jordan Lawver

May 15, 2021

FIG Young Surveyors Conference



Jordan Lawver

Senior Business Area Manager, XR Tech



- Family background in residential construction
- B.Sc. Geomatics Engineering, The Ohio State University
- M.Sc. Computer Vision & Photogrammetry, The Ohio State University
- NASA and DoD funded research at OSU (Spirit, Opportunity, LRO, USAFRL)
- Joined Trimble Leadership Development Program in 2013 (Denver, Colorado)
- Joined Trimble Mixed Reality Program when launched in 2015
- Today oversee all Trimble XR software & hardware **innovation** tech



“In a customer and market focused view, innovation is never ‘disruptive’. Innovation itself is an essential, vital, and fundamentally positive force. It’s only disruptive to ossified incumbents who have failed to adapt and themselves innovate.”

Dr. Peter Large

“Strategy, Innovation, and the Art of Navigation”





2'6"

Process - Complex projects, generally unique

85%	92%	63%	4%	14%
Projects Exceed Budget	Projects Exceed Schedule	Projects Have Quality Deficiencies	Average Profit Margin in AEC Firms	Project Capital in Rework

People - Skilled Labor is a Top Priority

90%	30%
Face Talent Shortages	Decrease in Workers Less than 24 Years Old





1997

Christchurch, NZ

Trimble patents one of the world's first augmented reality headset systems

“The distinction between invention and innovation is that the former demonstrates that an idea can work, while the latter makes it available in such a way that it can actually be put to work.”

Construction Tech Innovation



Field Layout



Robotic 3D Capture



Mixed Reality



Site IoT



Why is innovation important?



Project inefficiency
Poor process
Rework

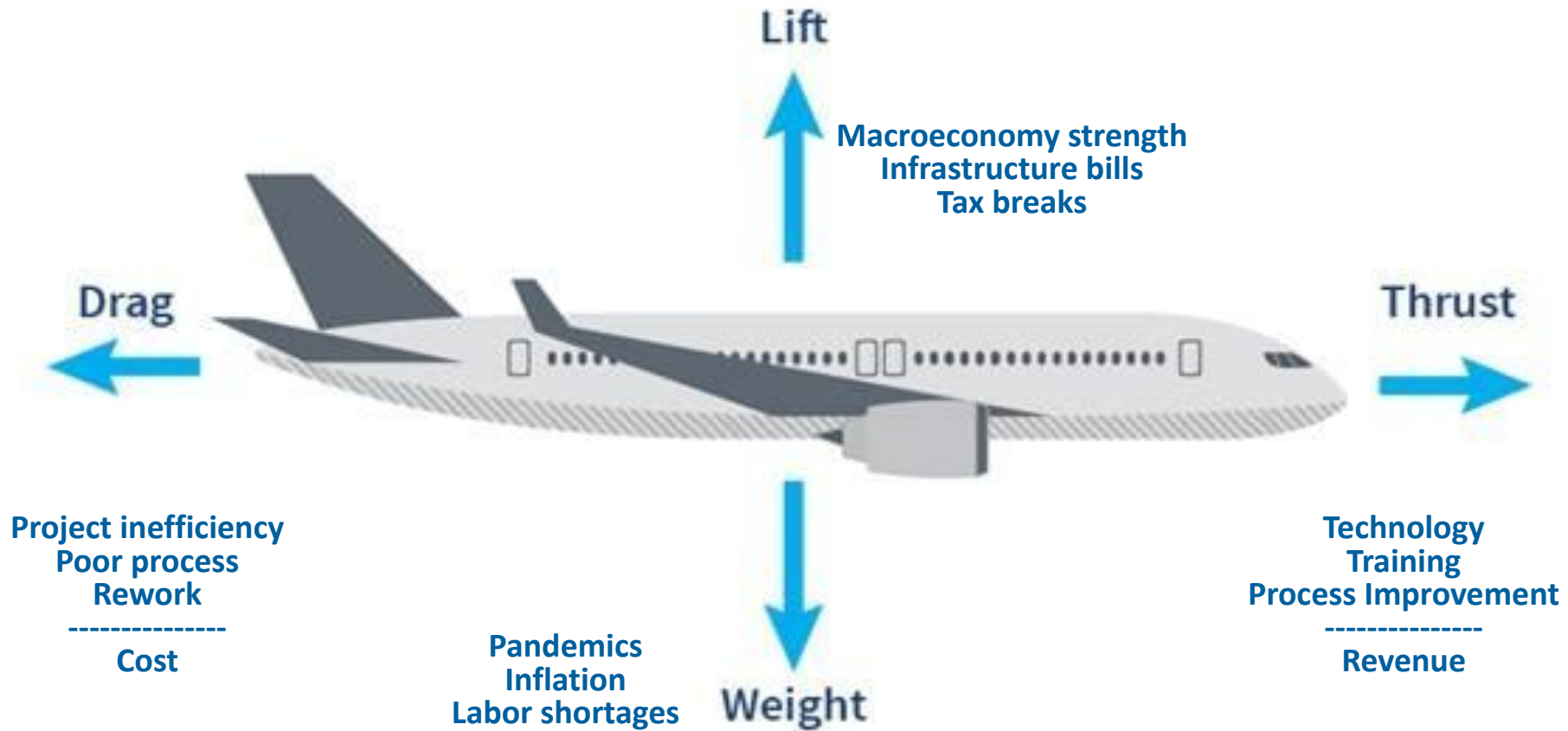
Cost

Technology
Training
Process Improvement

Revenue

$$\text{Profit Margin} = (\text{Thrust}) - (\text{Drag})$$





$$\text{Profit Margin} = (\text{Thrust} + \text{Lift}) - (\text{Drag} + \text{Weight})$$



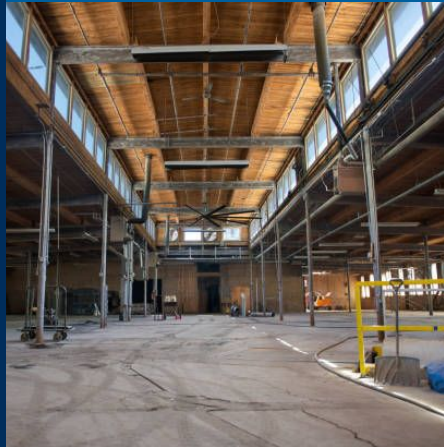
COVID-19 and Construction

Can't travel to the jobsite?

Subject matter experts
unable to travel to solve
critical issues



Worker shortages, reduced
capacity allowed onsite



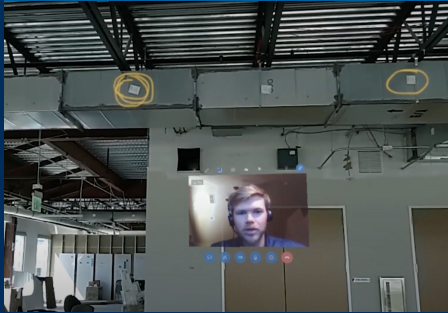
PPE requirements,
temperature checks,
contact tracing



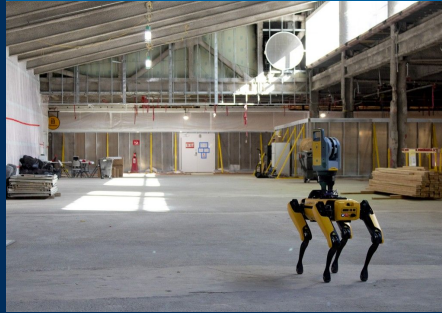
COVID-19 and Construction

Can't travel to the jobsite?

Collaborate
Remotely



Automate
Data Collection



Ensure Worker
Safety



When life gives you tailwinds...

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Infrastructure Bill Would Have “Profound Effect” on Construction Activity, Building Materials

A multiyear federal infrastructure investment bill could boost construction spending by 2% and drive prices and volumes for cement and aggregates higher.

February 4, 2021 | By [Becky Schultz](#) Source Moody's Investors Service

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