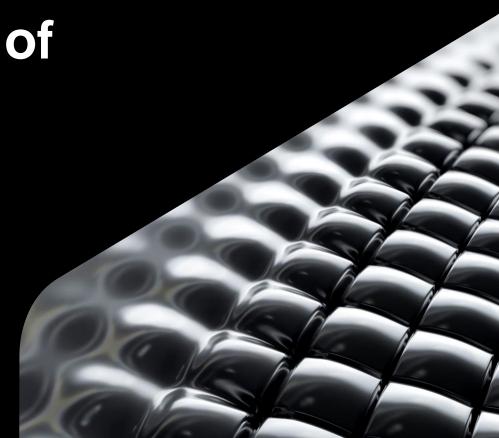


The Intersection of Infrastructure & Technology

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Vice President
Topcon Positioning Systems





Introductions...









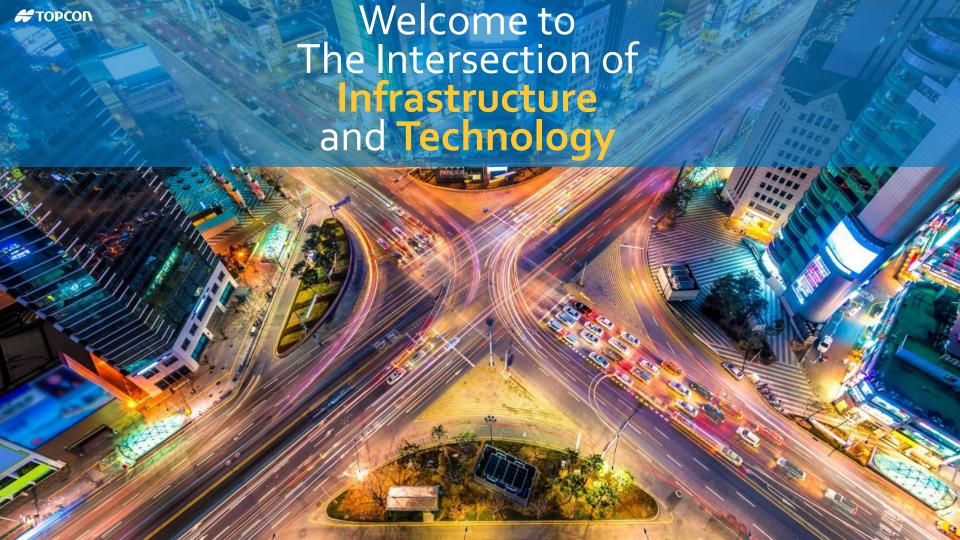


















Sources:

United Nations Department of Economic and Social Affairs, World Population Prospects 2022

United States Census Bureau, International Population
Data Tables, 2022

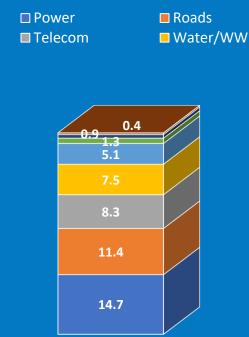
The infrastructure demand



Today, the world invests **\$2.5 Trillion** a year in infrastructure. Estimates place the real **demand** at **over \$3.3 Trillion**.



Infrastructure requirements of expanding population:



McKinsey Global Institute:

"To keep pace with population growth demands, the world needs to invest \$3.3 trillion in economic infrastructure annually from 2016-2030, totaling over \$49 trillion dollars."



That would leave a \$12 trillion dollar shortfall.

At current investment levels, \$2.5 trillion annually, that investment totals \$37.5 trillion.





According to the Commercial Construction Index, produced by the USG Corporation and the U.S. Chamber of Commerce, which surveys contractors each quarter to gauge sentiment and measure the health of the construction sector:

94% 62%

of all major infrastructure project stakeholders reported **difficulty** in **finding skilled workers**. 91%

of the respondents reported concern over the technical capability of existing workers.











Golden Gate Bridge vs New Bay Bridge



The Golden Gate Bridge

Construction began in January 1933, and opened just over 4 years later in May 1937.

The cost at the time was \$27 million, or **\$1.5 billion** in today's dollars.

The new eastern span of the San Francisco Bay Bridge

Construction began in June 2002 and stretched to over 11 years opening in September 2013.

The cost exploded over the life of the project to over **\$6.4 billion** dollars.





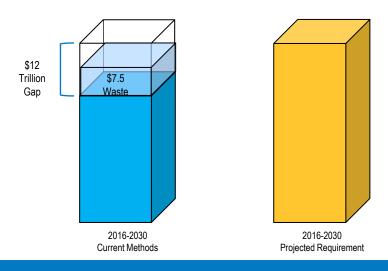
20%

of all construction expense is considered waste.

- Poor planning
- Wrong and/or excess materials
- > Rework
- Poor communication



The Global Infrastructure Gap



The gap between what can be done today with current investment and methods, versus what the population growth will demand will be filled by advanced technology providing:

- Greatly improved efficiencies
- Step-function productivity gains
- Reduction in waste & rework
- ➤ New, innovative materials & methods

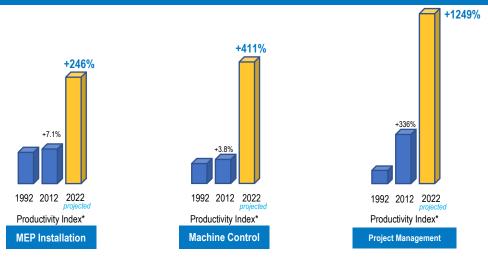




The AEC community finds itself right in the center of this intersection.



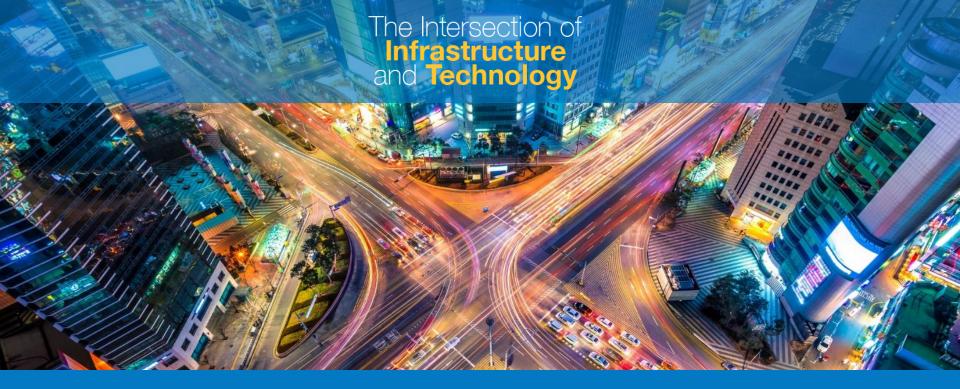
GeoSpatial Technology Advancing Productivity



*McKinsey Global Institute Analysis, Construction Productivity Index 2022, Pegged 1964

Many traditional building & construction technologies and methods have remained stagnant for years, until the past few years when many geospatial technology advancements have made a significant impact.





Modern positioning, measurement, and data connectivity technology is going to allow us to gather, analyze, and share enormous amounts of data in real time.



The technology of today, combined with the advancements of tomorrow will help meet global demands with innovative solutions that allow you to work smarter and faster to create sustainable infrastructure.



WHAT is passing through the intersection?





WHO is passing through the intersection?



















But the intersection is a very busy place...

How do I know what solution is right for me? Can my people learn and adopt new workflows? What kind of ROI can I reasonably expect?

Navigating the Sea of Technology Advancements



WHY JOBSITE CONNECTIVITY IS MUCH EASIER SAID THAN DONE September 01, 2022





Ubiquitous connectivity will expand industry capabilities and speed technology adoption. The possibilities it enables are endless.



"Wouldn't it be great if all entities on a jobsite – including the general contractor, subs, designers, owners, equipment vendors and material suppliers – were working in sync with the data that shifts with each condition change, progress report, change order, telematics warning, and machine inspection? That the right people got the right information at the right time to make informed decisions?

This one-dashboard vision is much, much easier said than done."



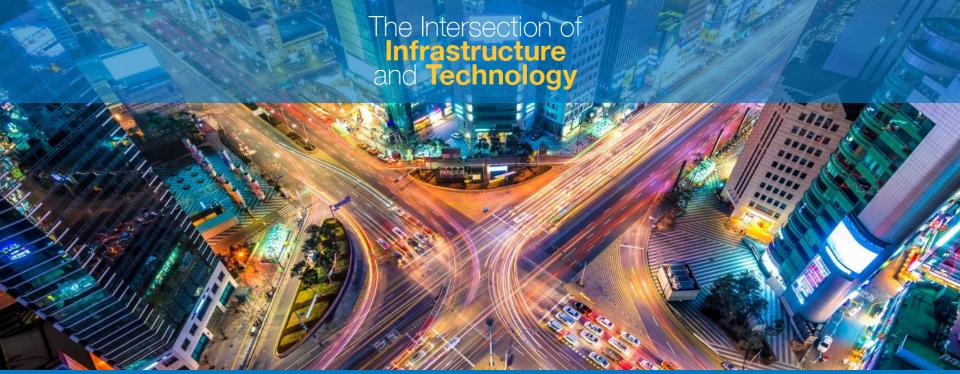
The Goal: Deliver the Complete Digital Jobsite



Find an Autodesk Solutions Partner that's right for you.



What capabilities do I need today, and what can wait?
What parts of a complete solution exist, and what needs to be added?
What data do I need to flow to Who, in What format, and How?
What training, support, and on-going business outcome consultations are available?



Welcome to the intersection of **Infrastructure** and **Technology**, and welcome to **AU 2022!**

The task to navigate this fast-paced world is daunting, but you're in the right place!





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