

# Trimble Digital Construction

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Transforming the Way the World Works

# Agenda

- 01** Introductions
- 02** Digital Construction Strategy
- 03** Personas + Workflows
- 04** Real Customers



# 01

## Introductions

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Meet your speakers today



# Who am I?

- Piotr Strzelecki
- Field Application Supervisor in Trimble Geospatial
- Based in Warsaw, Poland
- Graduated from the Geodesy and Cartography faculty of Warsaw University of Technology... many years ago
- **Visit us at Trimble booth FIG2022**



# 02

## Digital Construction

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Trimble's Strategy





**Our technology-forward solutions deliver digital insights that solve physical world problems**





**We enable real-time data integration throughout project lifecycles to create seamless system workflows**





**Partnering with our customers, we are optimizing task productivity to transform the way the world works**







**Geospatial data serves as the foundation for digital construction**



# Why Digital Construction?

Increasing productivity is critical to deliver sustainable value

**14.5%**

Rising US  
construction costs

[US Census \[July 2022\]](#)

**9%**

Total cost of project  
rework and waste

[Navigant Construction Forum \[2012\]](#)

**\$400B**

Annual infrastructure  
savings opportunities

[McKinsey \[2013\]](#)



# Construction impacts everyone

Sustainability, Society, and the Workplace

Resources

**#1**

Consumer of  
raw materials

Housing

**200k**

People are  
added daily to  
urban areas

Workforce

**50%**

Of contractors  
are worried  
about the future  
workforce

Policy

**1.2tn**

Infrastructure  
could be added  
by 2030

Connecting over **500,000** machines and instruments in the field



Managing over **\$400B** in construction using Trimble project controls



Enabling management of over **15B sqft** of leased work space



Powering over **43M** 3D designers worldwide



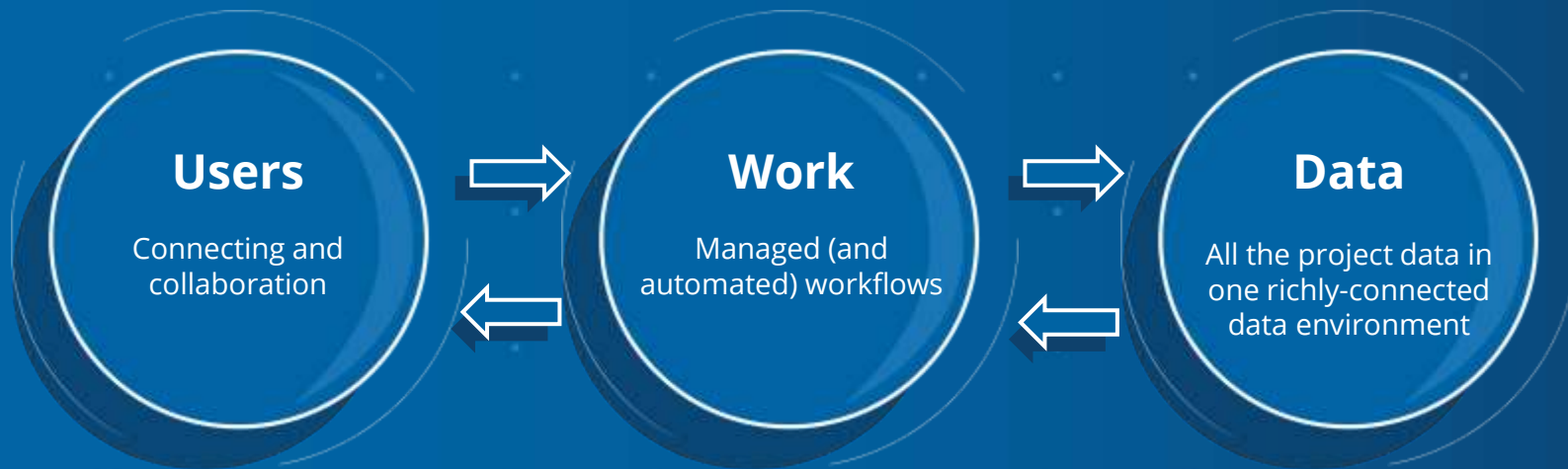
Providing over **30M** components of 3D constructible content



Hosting over **11M** Trimble Connect users and 75M+ collaborative files



# Connecting the physical and digital worlds



Everybody...



...working together



...on the same page



# Acquisitions & Partnerships

Building blocks for the future

## Key Acquisitions



## Joint Ventures



## Partnerships



03

# Personas

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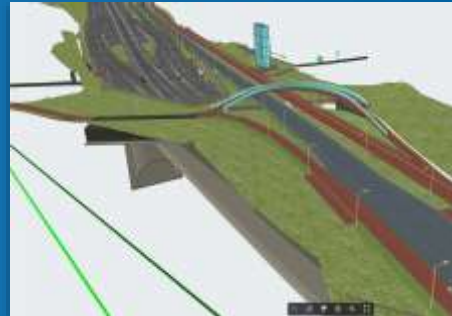
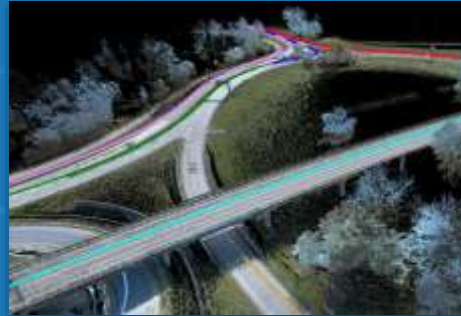
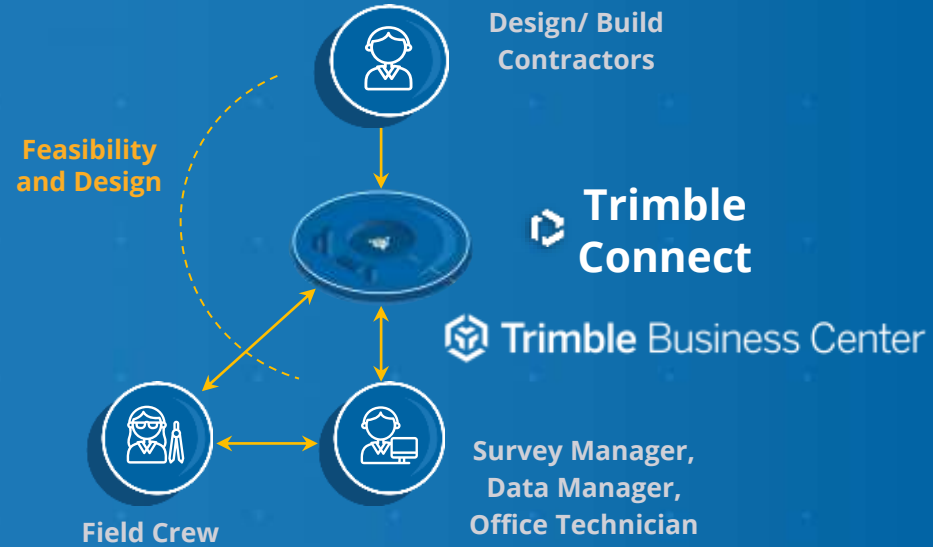
# Survey & Mapping Connected Workflows





# Physical to Digital

- High speed data capture to increase productivity without compromising on accuracy or quality
- Multiple data types (e.g. images, survey, scanning)
- Efficient and traceable results that delivers confidence you can trust
- Interoperability with CAD and GIS systems for additional data use






# Digital to Physical

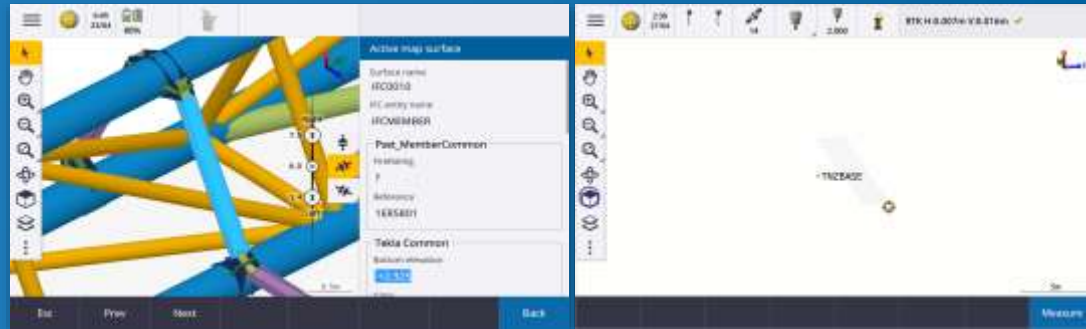
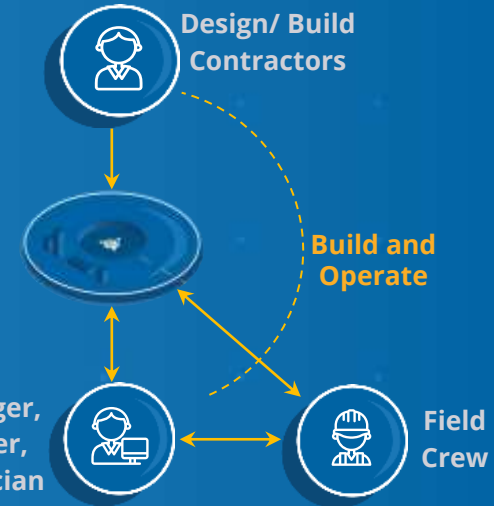
Direct use of design for field stakeout - standards-based designs (IFC, DXF, LandXML,...)

- 3D design visualization, (incl AR) increases project understanding and productivity
- Stored design attributes increase traceability throughout design to field



 Trimble Business Center  
 Trimble Connect  
 Trimble Access

Survey Manager,  
Data Manager,  
Office Technician






# Digital to Physical

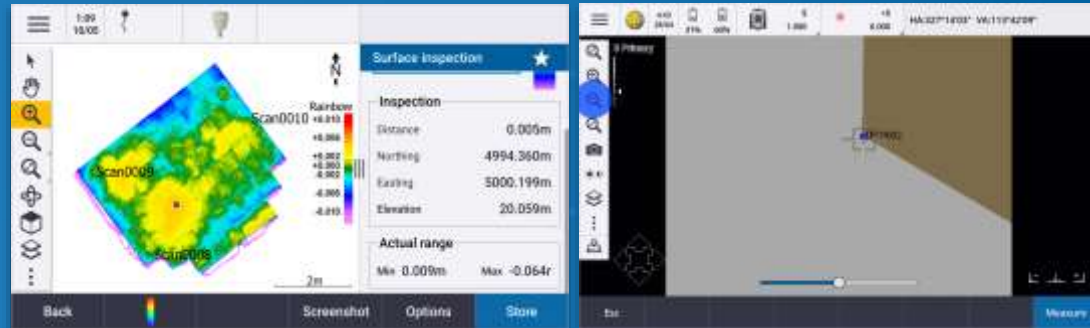
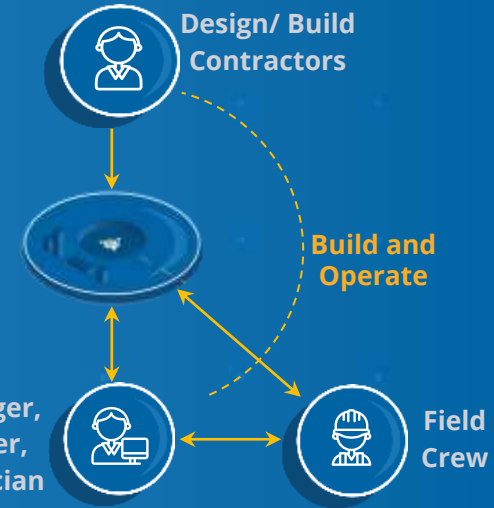
## As-built Inspection

- Direct comparison of design, or prior scans, to standards-based designs (IFC, DXF, LandXML,...)
- 3D design visualization, (incl AR) increases project understanding and productivity
- Inspection workflows integrated to Office Technician (i.e. TBC)



 Trimble Business Center  
 Trimble Connect  
 Trimble Access

Survey Manager,  
Data Manager,  
Office Technician



# 04

## Real Customers

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Pioneering digital construction  
workflows



# Winning Projects on Strength of the System and Workflows



An advertisement for ALIGN, a software solution for infrastructure projects. The background is a blue-tinted image of a tunnel with "HS2" signs. The text "ALIGN" is prominently displayed at the top in large, white, bold letters. Below it, the tagline "Shaping the future of major infrastructure" is written in white. At the bottom, there are logos for "SOUQUES TRAINING POLYVA" (in a white oval), "VolkerFitzpatrick", and "Sir Robert McALPINE".



# Digital Project Delivery Success Today

Risk reduction, improved project delivery and shared benefits

In August 2020, this Norway PPP project opened national road 3/25 Løten-Elverum after 26 months of construction.

**Total project cost was \$657M**, including operation and maintenance (incl. VAT), and was **cheaper and faster** than originally planned.



The road opened three months ahead of schedule, including **\$167M USD in shared savings** and in just over two years of construction.

“It is a record,” said Kjell Inge Davik, development director, Norwegian Public Roads Administration.

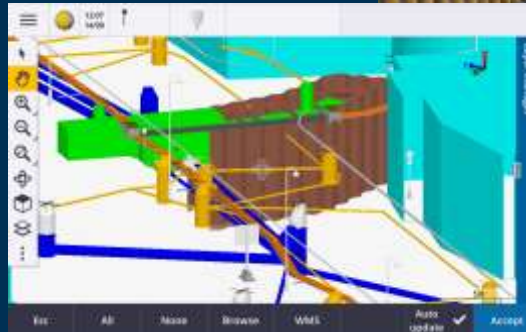


# Working with 3D BIM Models



## Project Overview

- D14 Mindemyren light railway project in Norway, Bergen
- Paperless project, all design data given as complete 3D models
- Data sent straight from CDE to Trimble Connect and synced to Trimble Access

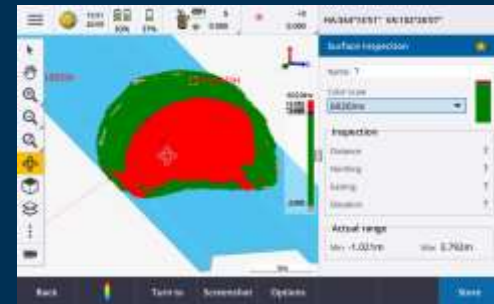


# Surface Inspection Tunnel



## Digital construction brings significant productivity gains

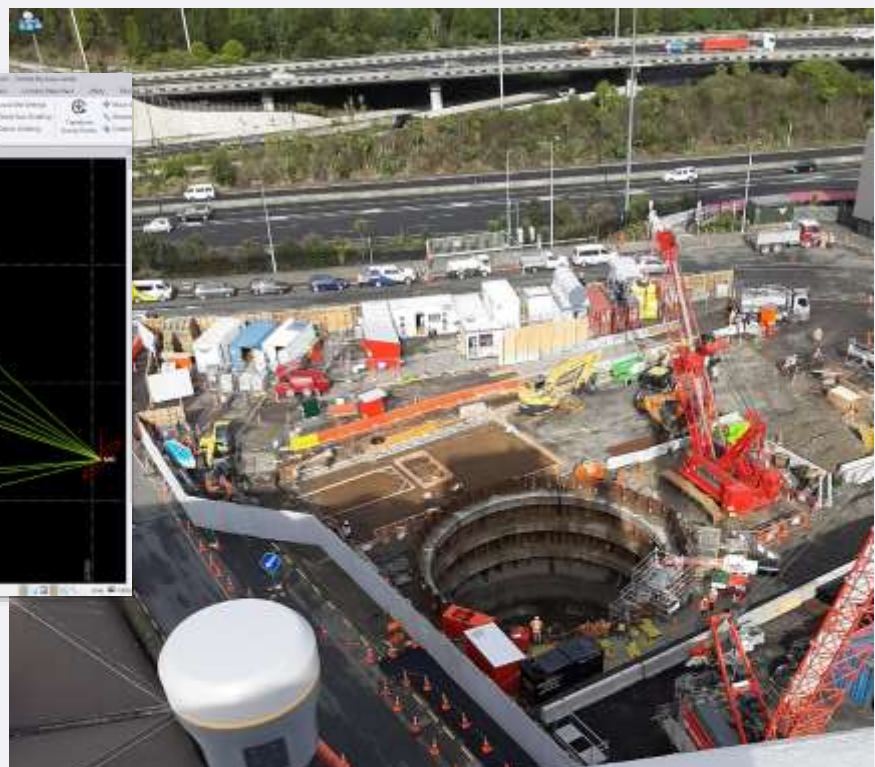
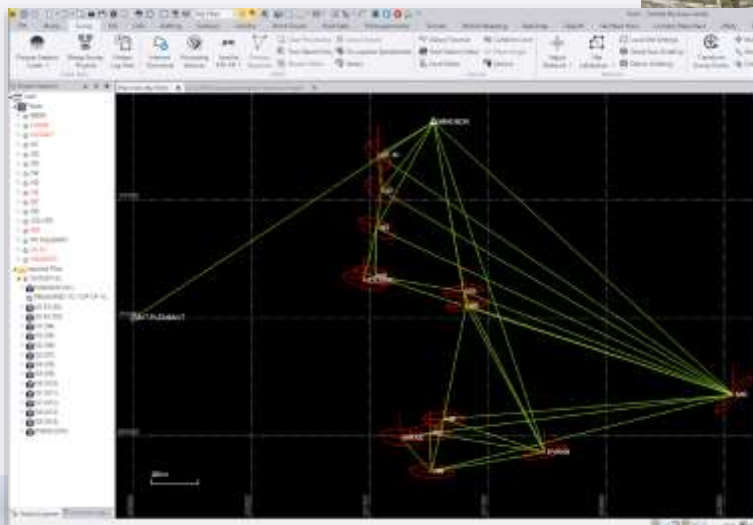
- Specialising in Tunnel, Mines and Road construction
- The whole repetitive process can be done directly in the field
- Survey Control ready in the field
- TSC7 with big screen as well as SX12 with green laser pointer
- Trimble Access can use IFC files directly in the field
- Surface inspection is very fast and flexible
- In-field reporting
- Cloud connection to the office
- TBC can handle the same data

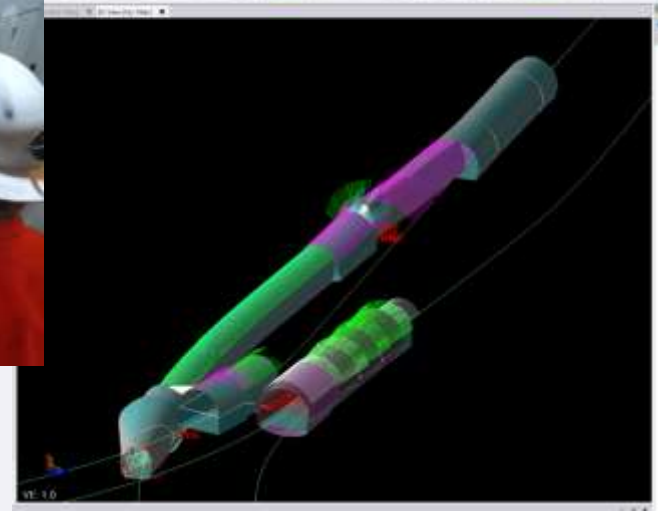




# City Rail Loop - Auckland







# Voice of the Customer

In Switzerland we now only receive IFC files as the basis for construction. We need help to generate surfaces from solid IFC files.

Martin Kriz, Strabag

**ZUBLIN STRABAG**  
TEAMS WORK.

"The use of a BIM collaboration model ensured that we had practically zero downtime caused by design errors. We could produce continuously."

*Bård Olav Aune*

*BIM Manager at Skanska Survey*

**SKANSKA**

# Voice of the Customer

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The 3D discipline models make our work day simpler and more efficient. There are almost no errors or conflicts between the disciplines in the models, from which we build the E22. Petter Bakke, Project Manager – Veidekke ASA



"BIM models contribute undoubtedly in reducing the contractor's risk. Without Novapoint design and collaboration models we wouldn't have managed to get such a good overview of the project in the short tender period"

*Arve Krogseth,  
Project Manager at Hæhre Contractor*



# Thank You

## Credits

For Questions  
or Feedback  
please contact:  
Piotr Strzelecki  
[piotr\\_strzelecki@trimble.com](mailto:piotr_strzelecki@trimble.com)



**Template slides**



# Styleguide

Version 1.1.1 updated 01.31.2022



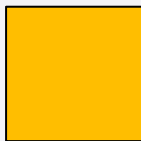
#003054



#F1F1F6



#0063A3



#FBAD26



#003054



#FFFFFF



#0063A3



#FBAD26

## Background Colors + Elements

These colors are to be used for background colors palettes.

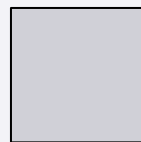
**NOTE: Yellow is to be used as minimally as possible!**



#252A2E



#585C65



#CBCDD6



#F1F1F6

## Neutral Progression

Use these for graphs or other illustrative elements

## Font Colors

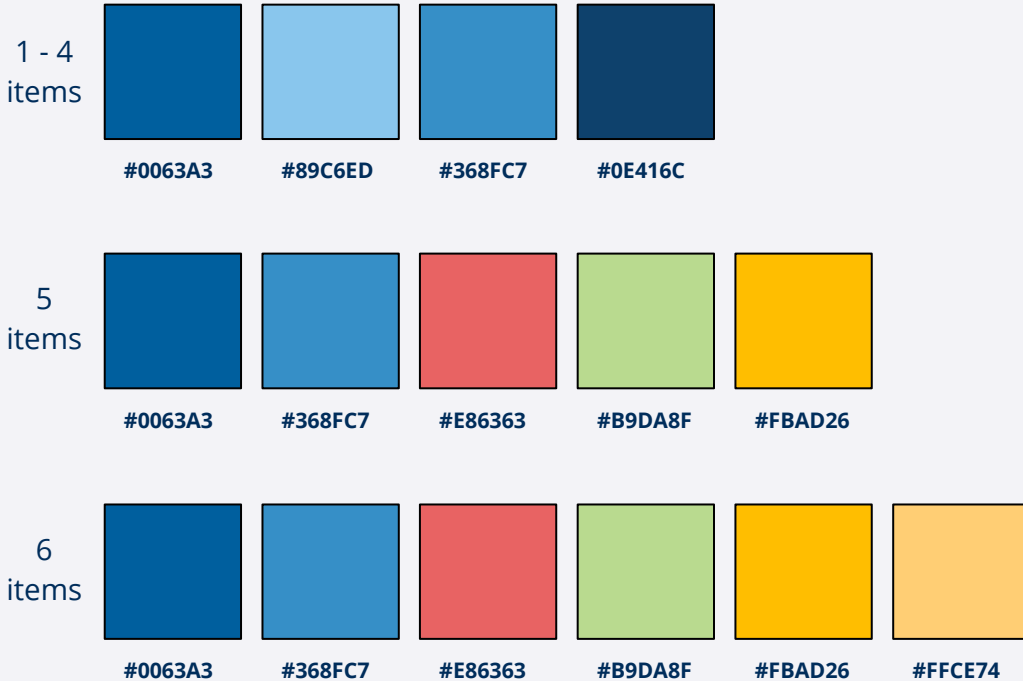
Use the fonts with the correct background for contrast. Yellow **shouldn't** be used on light gray backgrounds. The blues should only be used on lighter backgrounds.





# Data Visualization

Based on the number of data points, use the following color sequences for graphs or other illustrative elements. The sequences are designed to show a uniformity between each data point, so that no value appears more important than another. If you need to intentionally differentiate a certain data point, you may want to use a contrasting color to represent it.



7  
items



#0063A3



#368FC7



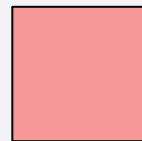
#FBAD26



#FFCE74



#E86363



#F69898



#B9DA8F

## Data Visualization

Based on the number of data points, use the following color sequences for graphs or other illustrative elements.

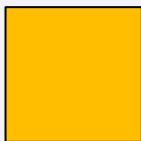
8  
items



#0063A3



#368FC7



#FBAD26



#FFCE74



#E86363



#F69898



#73B847



#B9DA8F

9  
items



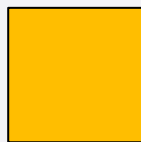
#0063A3



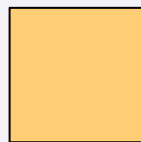
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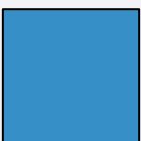


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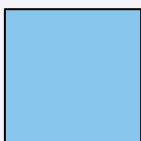
10  
items



#0063A3



#368FC7



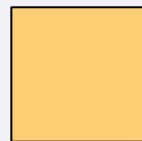
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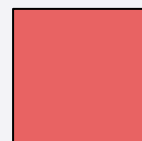
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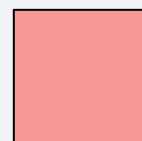
#FFD88C



#FFCE74



#E86363



#F69898



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# Resources

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## Additional resources for building presentations

### Library Updates

We will continue to [update our available resources](#) for you to build great presentations.

For example we will continue to add

- Icon Libraries
- Infographics
- Trimble - [Image library](#)
- [Stock.adobe.com](#) or [unsplash.com](#)

### Resources

If you need additional skills to help you build your presentation such as graphic design or image curation. We suggest:

- Creative Strategies Team
- Upwork.com (Enterprise Account)



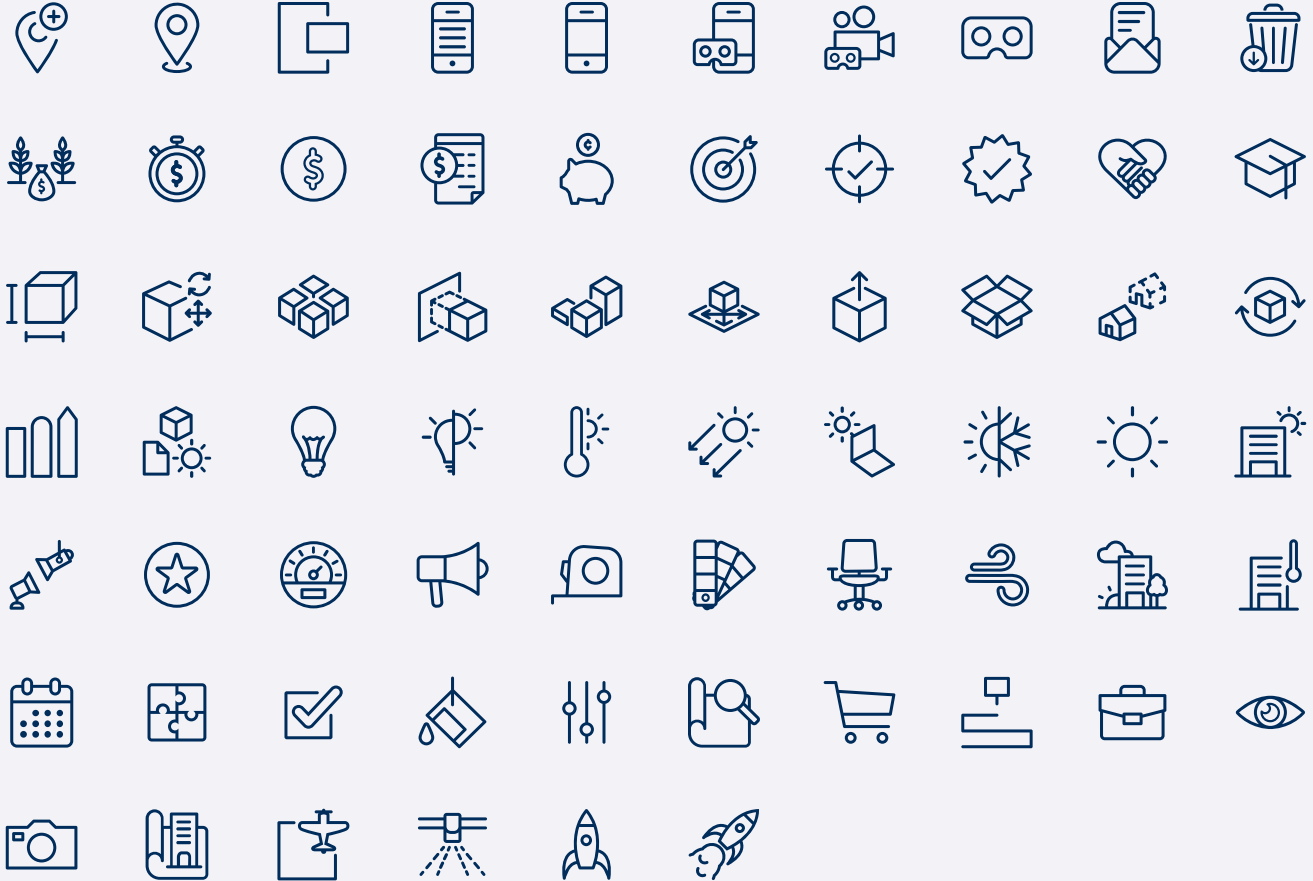
# Icons

## Business



# Icons

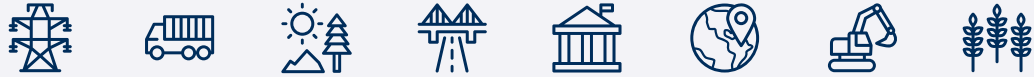
## Business



More Icons [available here](#)

# Icons

Industries

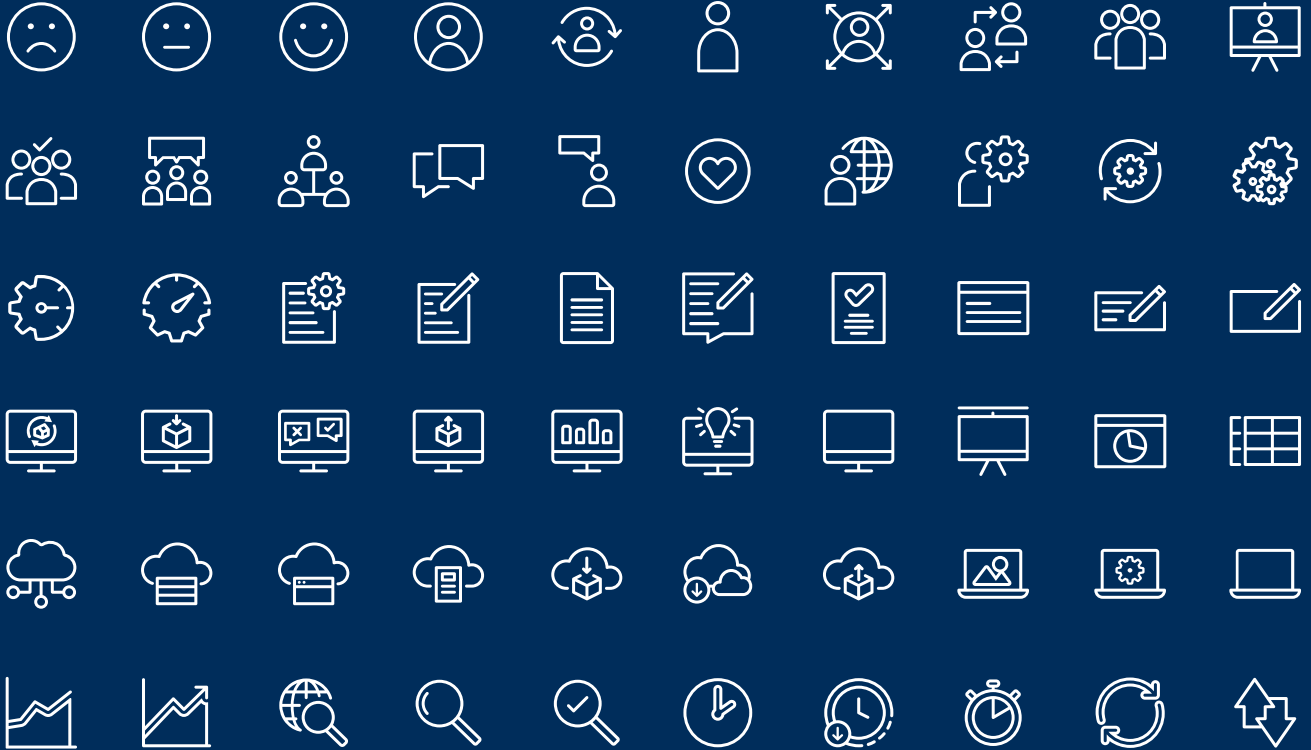


People



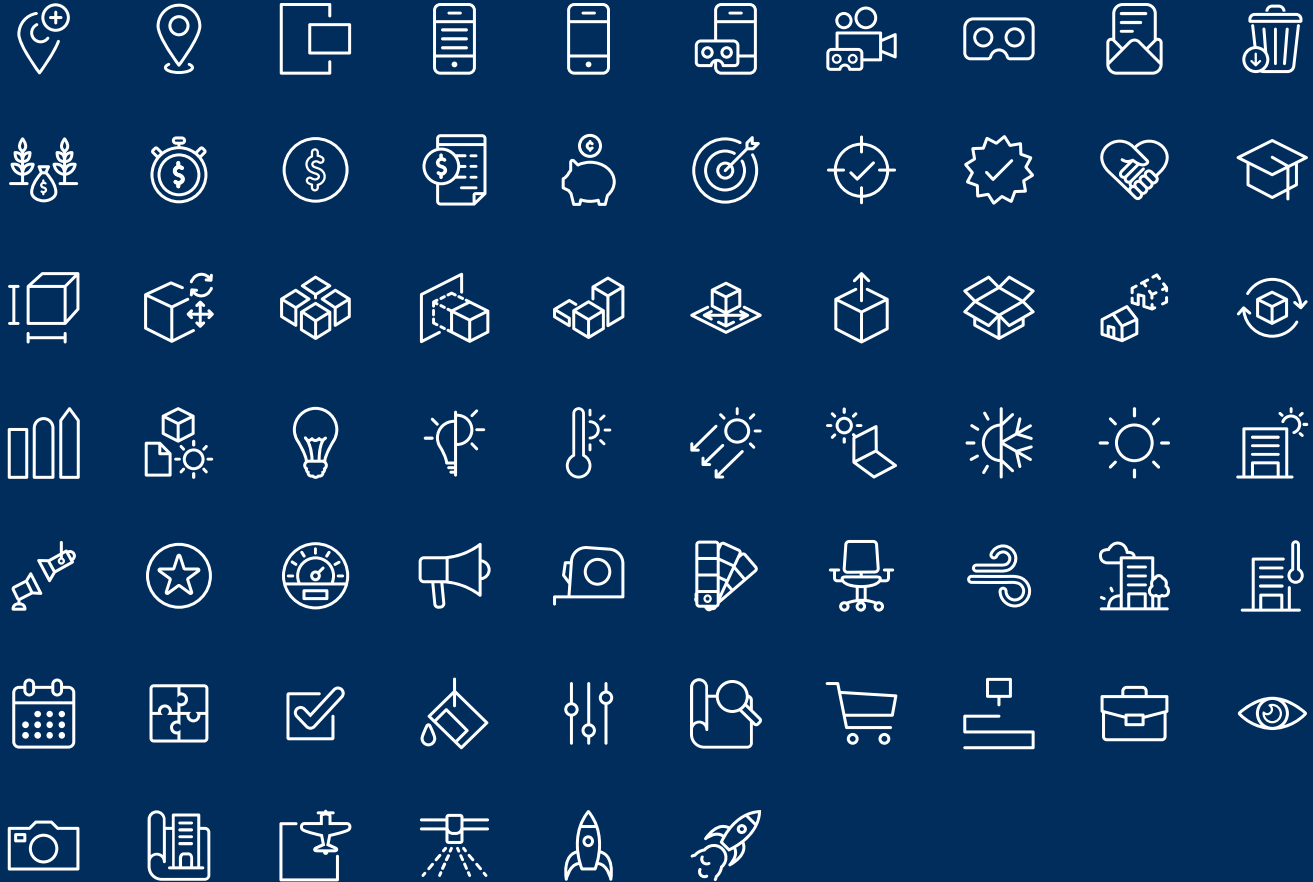
# Icons

## Business



# Icons

Business





# Icons

Industries



People

