AUTODESK. UNIVERSITY

From Design to Construction-The new era of Cloud connected data

Speaker: **Shashwat Bhardwaj**

Technical Support Specialist

Autodesk Inc.

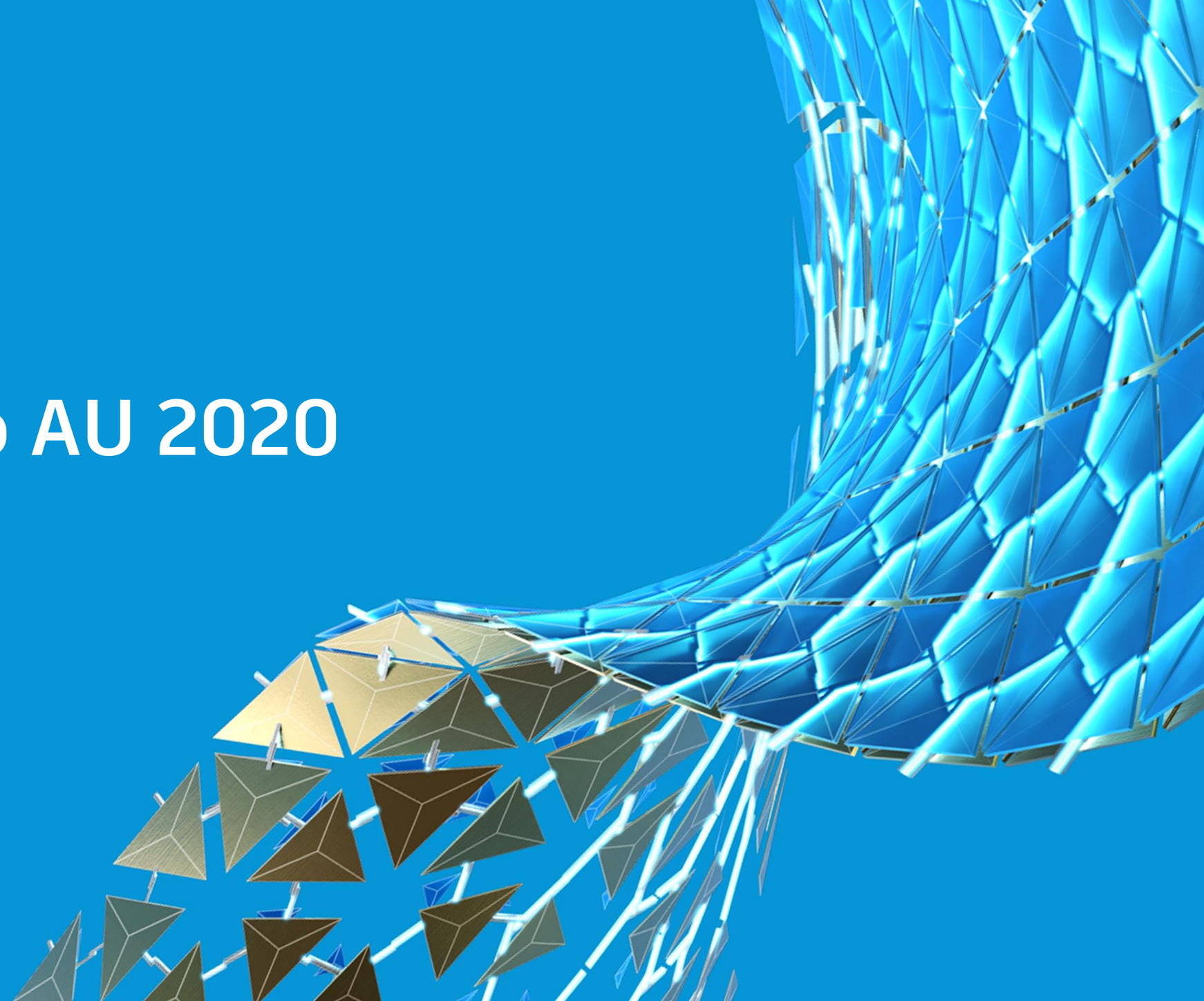
Co-Speaker: **Shruti Gupta**

Technical Support Specialist

Autodesk Inc.



Welcome to AU 2020



About the speaker



Shashwat Bhardwaj

Civil Engineer - MNIT Jaipur

LinkedIn

- **BIM 360 and Revit QA lead for APAC – Global Product Support Organization at Autodesk**
- **Worked on Power Plant design- Tata Consulting Engineers**
- **I like driving and off-roading on my bike.**
- **You will find me with my camera taking pictures or cooking on my off days.**

About the co-speaker



Shruti Gupta

Civil Engineer - MNIT Jaipur

LinkedIn

- **Technical Support Specialist- Global Product Support at Autodesk**
- **Structural Design and Detailing in my previous roles**
- **Brought up in various cities within India due to an army background, which makes me highly adaptable.**
- **Passionate about travelling and reading**

From Design to Construction-The new era of Cloud connected data

LEARNING OBJECTIVES

- **BIM 360 Design workflow**
- **Integration of Design and Construction**
- **Understanding of Autodesk Forge**
- **Future of cloud technology**

Rules of Engagement

- The hands-on lab class is scheduled for 90 minutes, you can pause the video whenever you want more time for engagement.
- Download the handout and dataset from the class page.
- Check the class page for the live Q & A session.
- Do not forget to fill out the survey before you leave AU

Design..Construction.. and Humans..

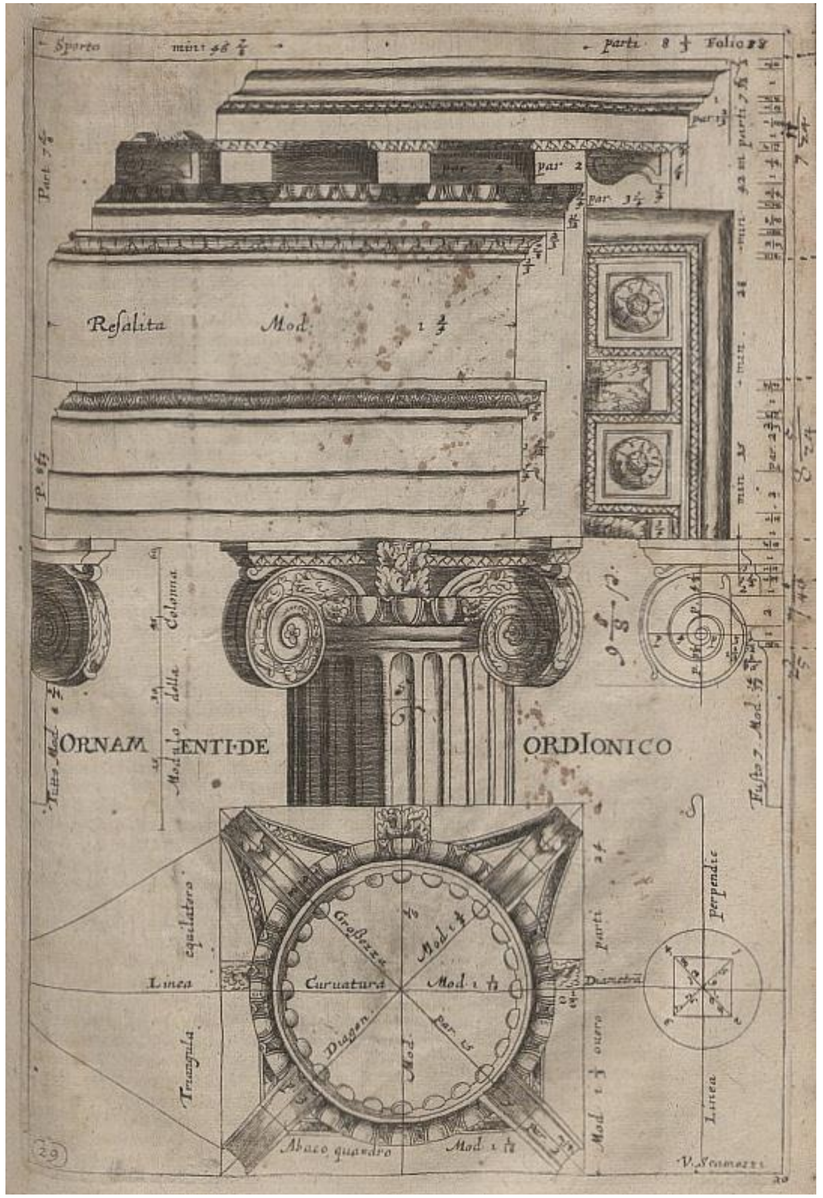
Stone Age



Evolution of Drawings

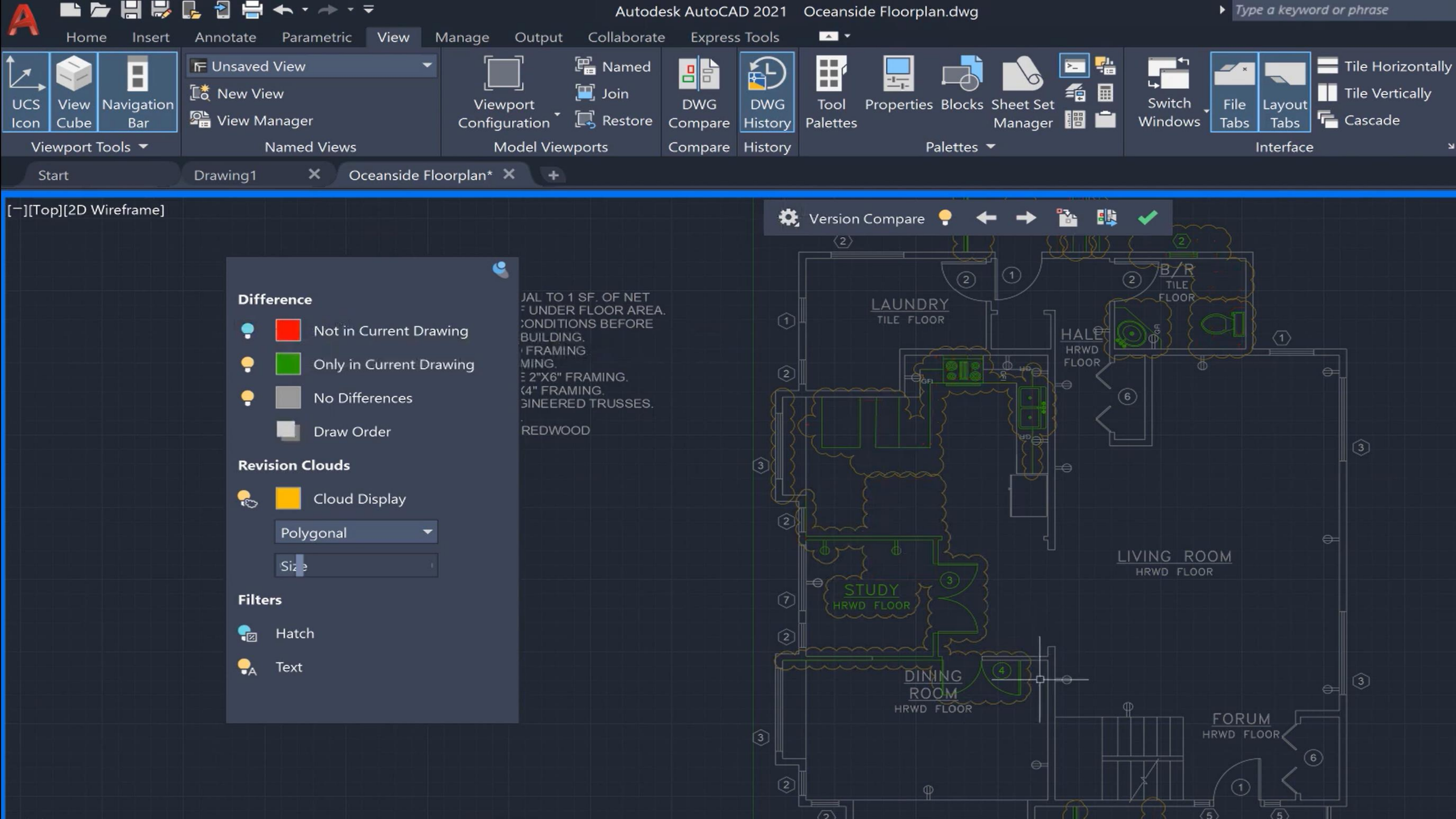


Evolution of Drawings





ERA OF 2 Dimensional CAD - 1980s


Autodesk AutoCAD 2021
Oceanside Floorplan.dwg
Type a keyword or phrase
Home
Insert
Annotate
Parametric
View
Manage
Output
Collaborate
Express Tools
UCS Icon
View Cube
Navigation Bar
Viewport Tools
Unsaved View
New View
View Manager
Named Views
Viewport Configuration
Named
Join
Restore
Model Viewports
DWG Compare
Compare
DWG History
History
Tool Palettes
Properties
Blocks
Sheet Set Manager
Palettes
Switch Windows
File Tabs
Layout Tabs
Tile Horizontally
Tile Vertically
Cascade
Interface
Start
Drawing1
Oceanside Floorplan*
[−][Top][2D Wireframe]
Version Compare
Difference
Not in Current Drawing
Only in Current Drawing
No Differences
Draw Order
Revision Clouds
Cloud Display
Polygonal
Size
Filters
Hatch
Text
UAL TO 1 SF. OF NET
UNDER FLOOR AREA.
CONDITIONS BEFORE
BUILDING.
FRAMING
MING.
2"X6" FRAMING.
4" FRAMING.
GINEERED TRUSSES.
REDWOOD
LAUNDRY
TILE FLOOR
B/R
TILE
FLOOR
HALL
HRWD
FLOOR
LIVING ROOM
HRWD FLOOR
STUDY
HRWD FLOOR
DINING
ROOM
HRWD FLOOR
FORUM
HRWD FLOOR

Building Information Modelling – 2000

Autodesk Revit 2021.1 - Seaport-Civic-Center_ALL_MEP_21_whiteb - 3D View: 3D Arch Building - Campus

File | Architecture | Structure | Steel | Precast | Systems | Insert | Annotate | Analyze | Massing & Site | Collaborate | View | Manage | Add-Ins | BIM Interoperability Tools | Modify

Modify | Materials | Object Styles | Snaps | Project Information | Project Parameters | Shared Parameters | Global Parameters | Transfer Project Standards | Purge Unused | Project Units | Additional Settings | Design Options | Main Model | Create Study | Explore Outcomes | Manage Links

Select | Settings | Project Location | Design Options | Generative Design | Manage Project

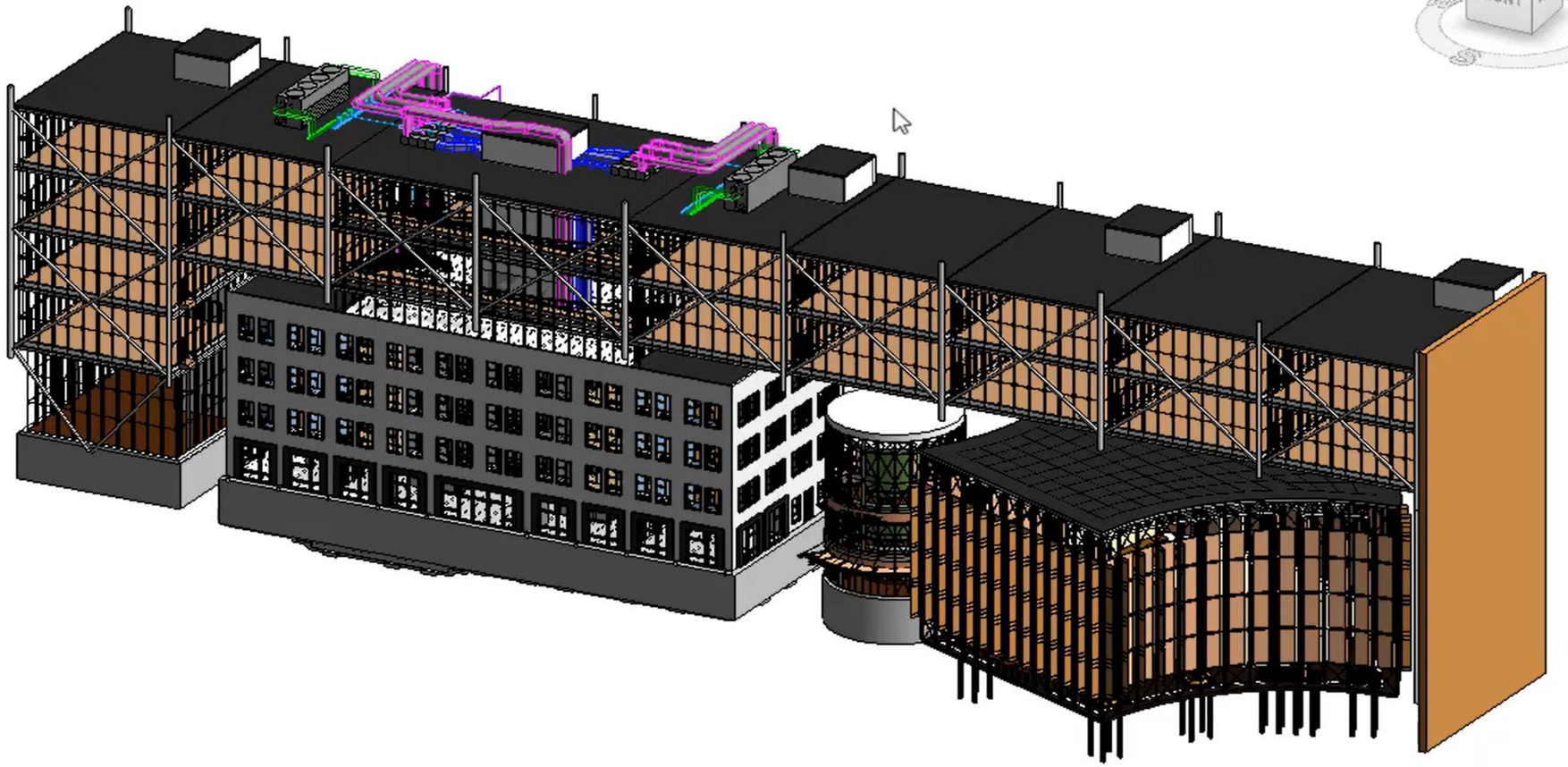
Properties

3D View

3D View: 3D Arch Building - Cam | Edit Type

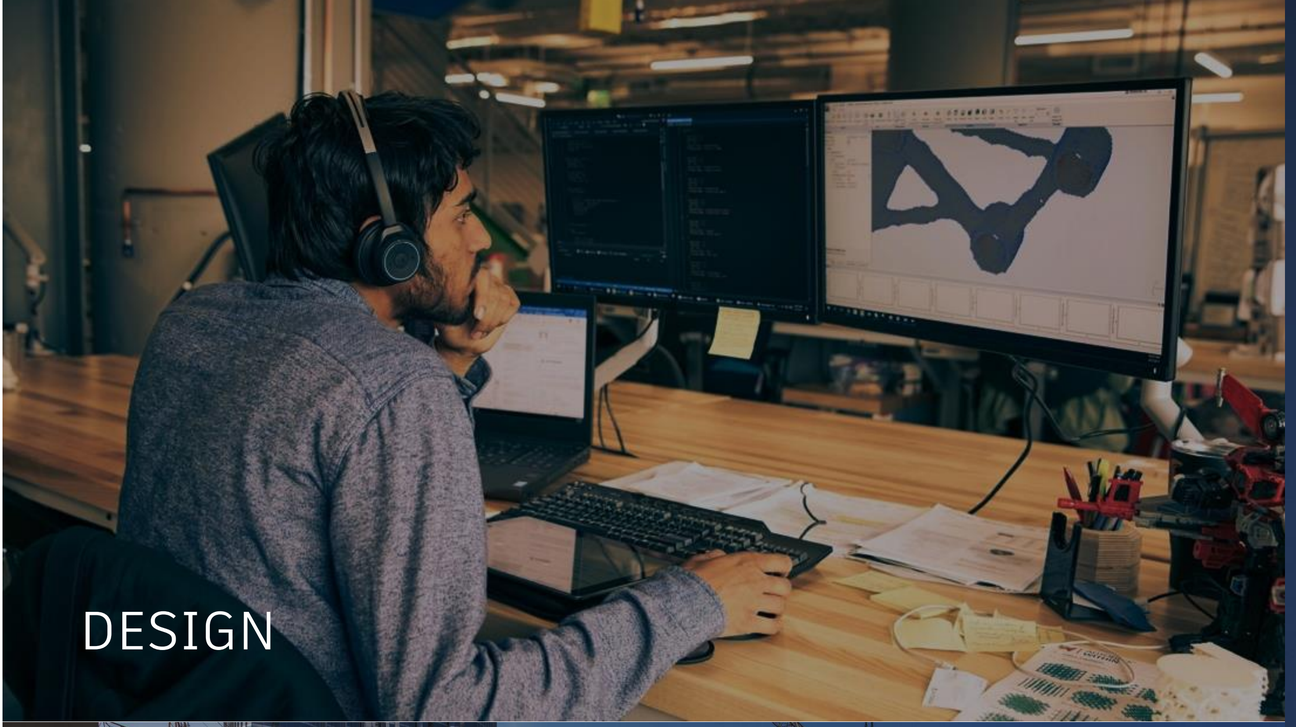
Graphics	
View Scale	3/4" = 1'-0"
Scale Value 1:	16
Detail Level	Fine
Parts Visibility	Show Both
Visibility/Graphics O...	Edit...
Graphic Display Opt...	Edit...
Discipline	Architectural
Show Hidden Lines	By Discipline
Default Analysis Dis...	None
Sub-Discipline	3D Views
Sun Path	
Extents	
Crop View	
Crop Region Visible	
Annotation Crop	
Far Clip Active	
Far Clip Offset	1000' 0"
Scope Box	None
Section Box	
Camera	
Rendering Settings	Edit...
Locked Orientation	
Projection Mode	Orthographic

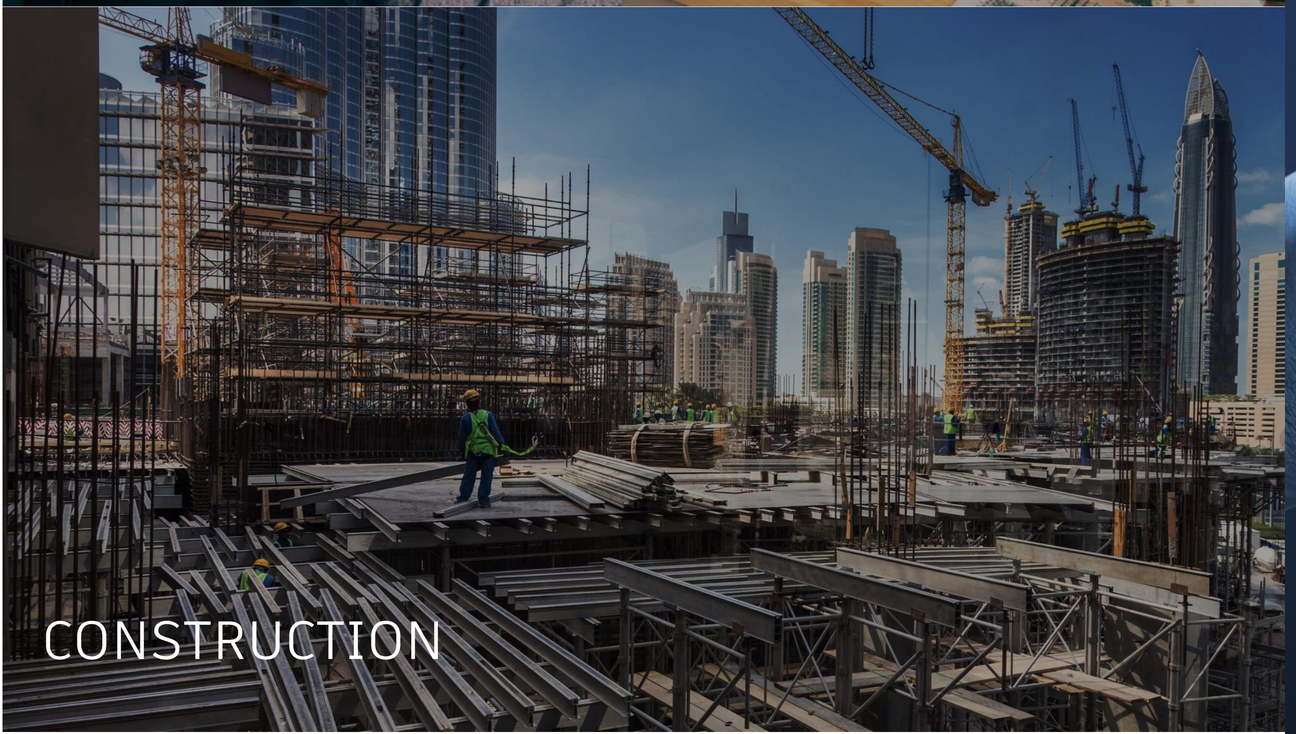
3D Arch Building - Campus




BIM 360 GLUE
2220211 - Amsterdam Olympic Hotel
LOD300 - Basismodel

What’s Next?


DESIGN


CONSTRUCTION

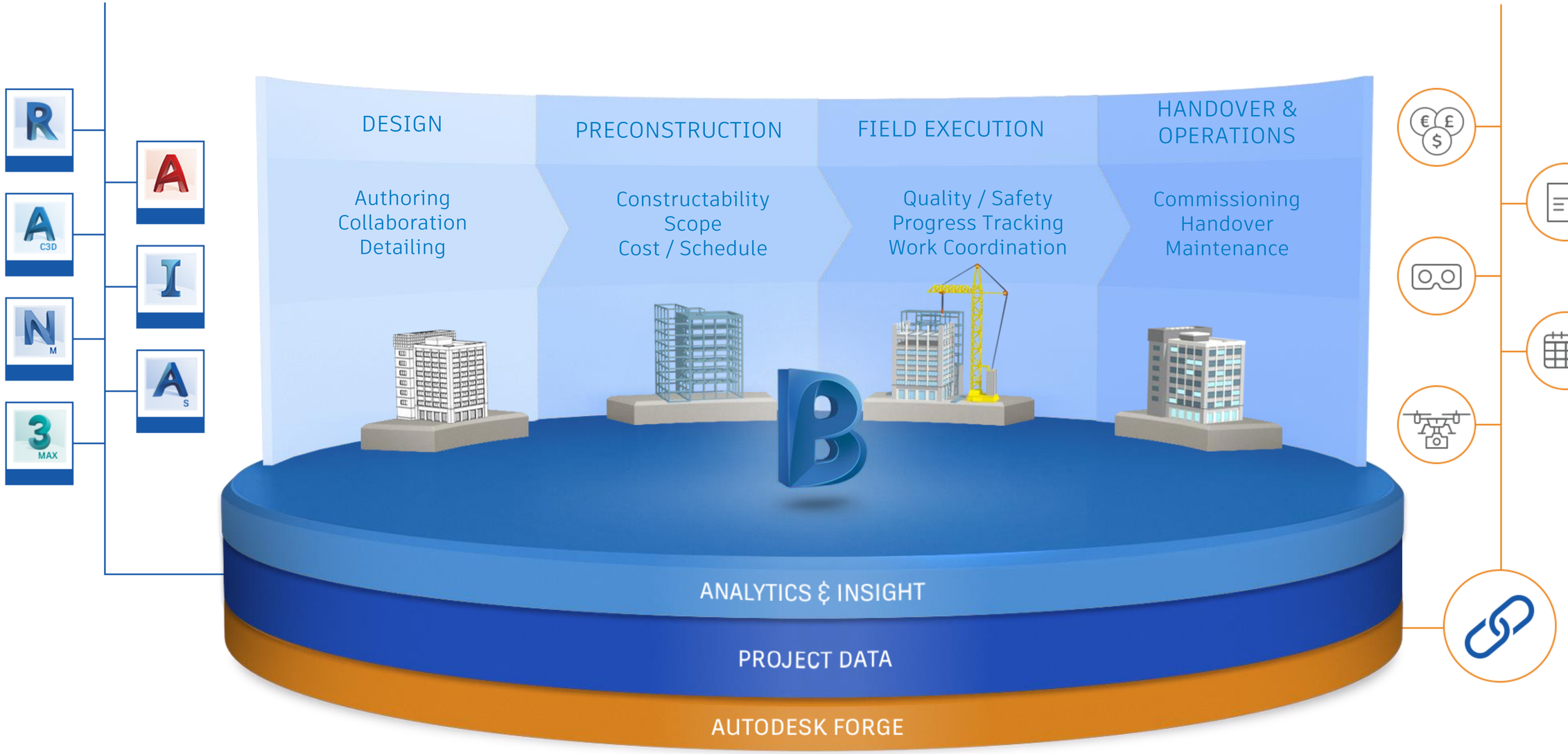


Cloud Connected Data



AUTODESK® **ARCHITECTURE, ENGINEERING & CONSTRUCTION COLLECTION**

3RD PARTY APPLICATIONS



ADMINSTRATION

Learning Objective 1 – ‘BIM 360 Design Workflow’

- Creating BIM 360 project and setting up teams
- Collaborating Revit model with BIM 360
- Using BIM 360 Design workflow to share/ consume data from other teams.

Services/ products we will use:



Revit



BIM 360

Learning Objective 2- ‘Integration of Design and Construction’

- Use of BIM 360 Field Management to create checklists and issues
- Overview of Construction IQ which uses this data to manage risk and improve performance.
- Use of Data Connector to import the BIM 360 data to Power BI for data analysis.

Services/ products we will use:

BIM 360

POWER BI

Learning Objective 3 – ‘Understanding of Autodesk Forge’

- Creating a Forge application and integrating it with BIM 360 Account.
- Understanding of Forge API’s.
- Live demonstration of BIM 360 data extraction using Authentication and Data Management Forge APIs.

Services/ products we will use:

AUTODESK FORGE®

POSTMAN

Learning Objective 3 – ‘Understanding of Autodesk Forge’

- **Creating a Forge application and integrating it with BIM 360 Account.**
- **Understanding of Forge API’s.**
- **Live demonstration of BIM 360 data extraction using Authentication and Data Management Forge APIs.**

Services/ products we will use:

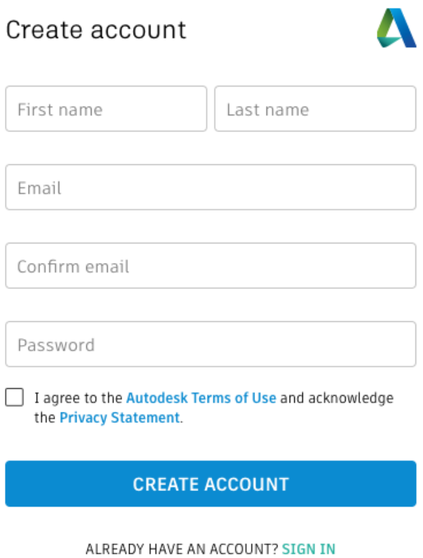


AUTODESK FORGE®

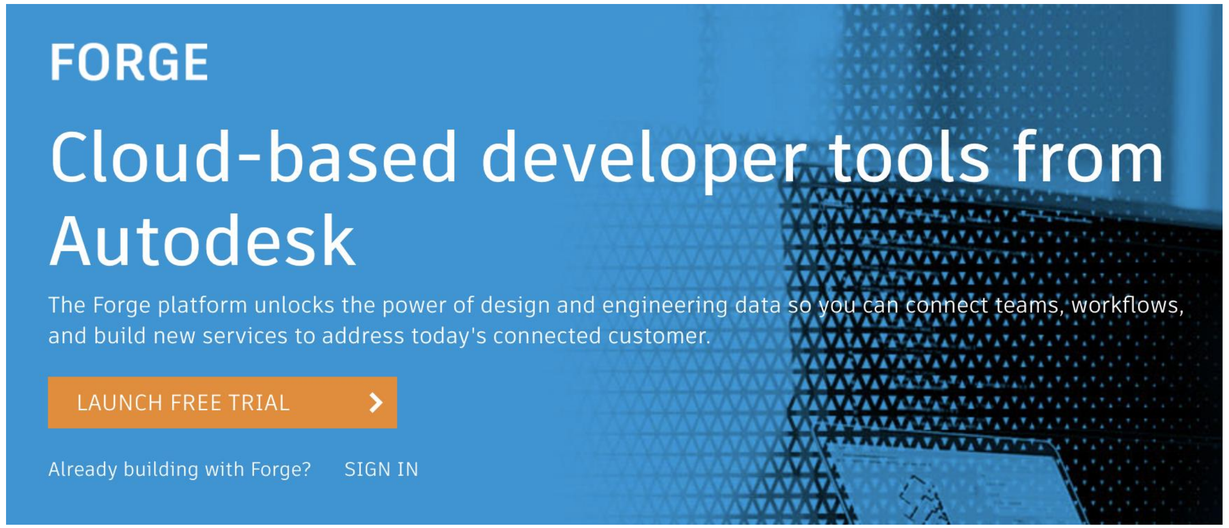
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Autodesk Id & Forge Account

AUTODESK ID
single account used to access all Autodesk services



FORGE ACCOUNT
account used to manage Forge apps



FORGE APPS

FORGE APP
unique pair of API keys

APIs

APIs this app will be able to access.

BIM 360 API | Data Management API | Model Derivative API | Webhooks API

App information (Created on 10 Dec 2019)

Basic information about your app.

Client ID	GWtfCQzICmFSwATznGqZ3L0BRefloccs
Client Secret	●●●●●●●●●●●●●● REGENERATE
App Name	My First App
Description	This is my first Forge app
CallBack URL	https://www.getpostman.com/oauth2/callback

FORGE APP
a unique app per application

My Apps

Personal

My First App
Created 10 Dec 2019
This is my first Forge app

My second app
Created 31 May 2019
My second app

AUTODESK® FORGE

Learning Objective 3 – ‘Understanding of Autodesk Forge’

- Creating a Forge application and integrating it with BIM 360 Account.
- **Understanding of Forge API’s.**
- Live demonstration of BIM 360 data extraction using Authentication and Data Management Forge APIs.

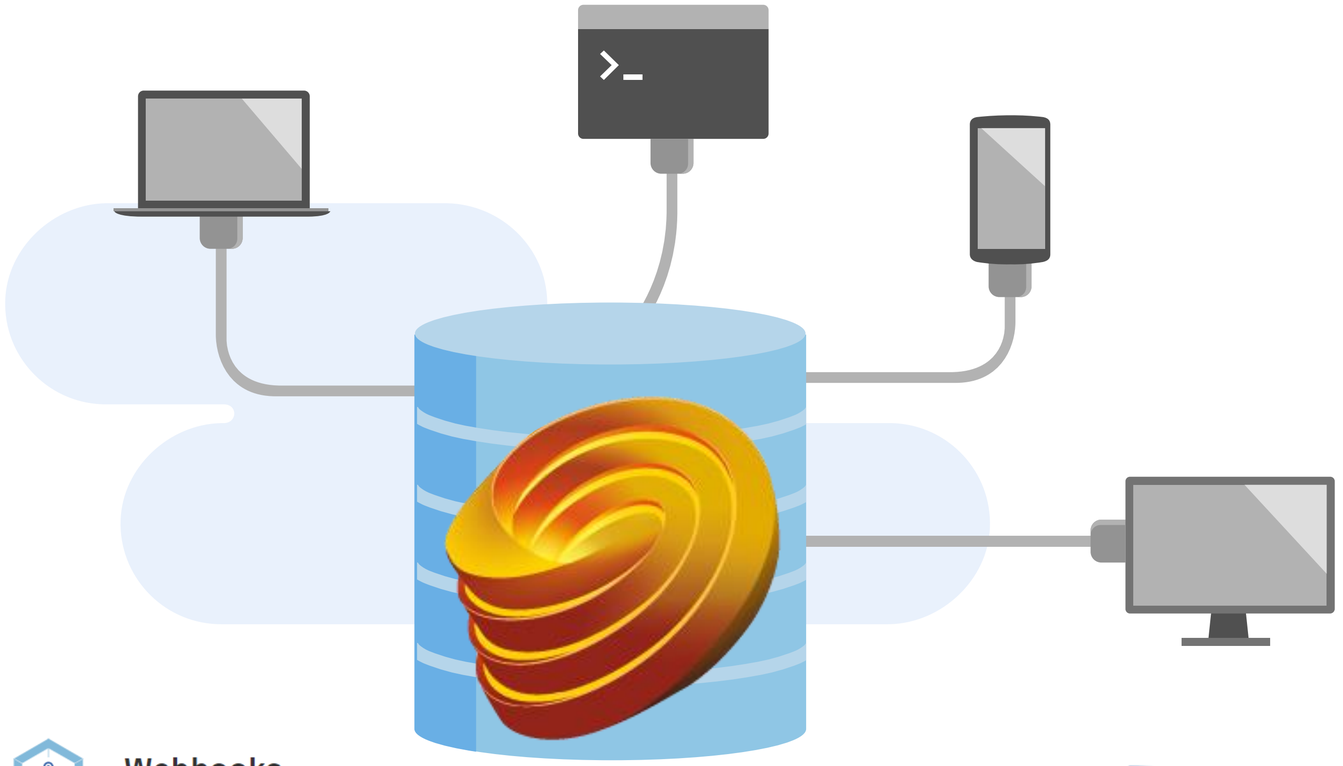
Services/ products we will use:

AUTODESK FORGE®

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Introduction to Forge

Forge Application Programming Interface (API) allows web applications to communicate with one another



Authentication (OAuth)

Data Management API

Design Automation API

Webhooks

Forge Platform

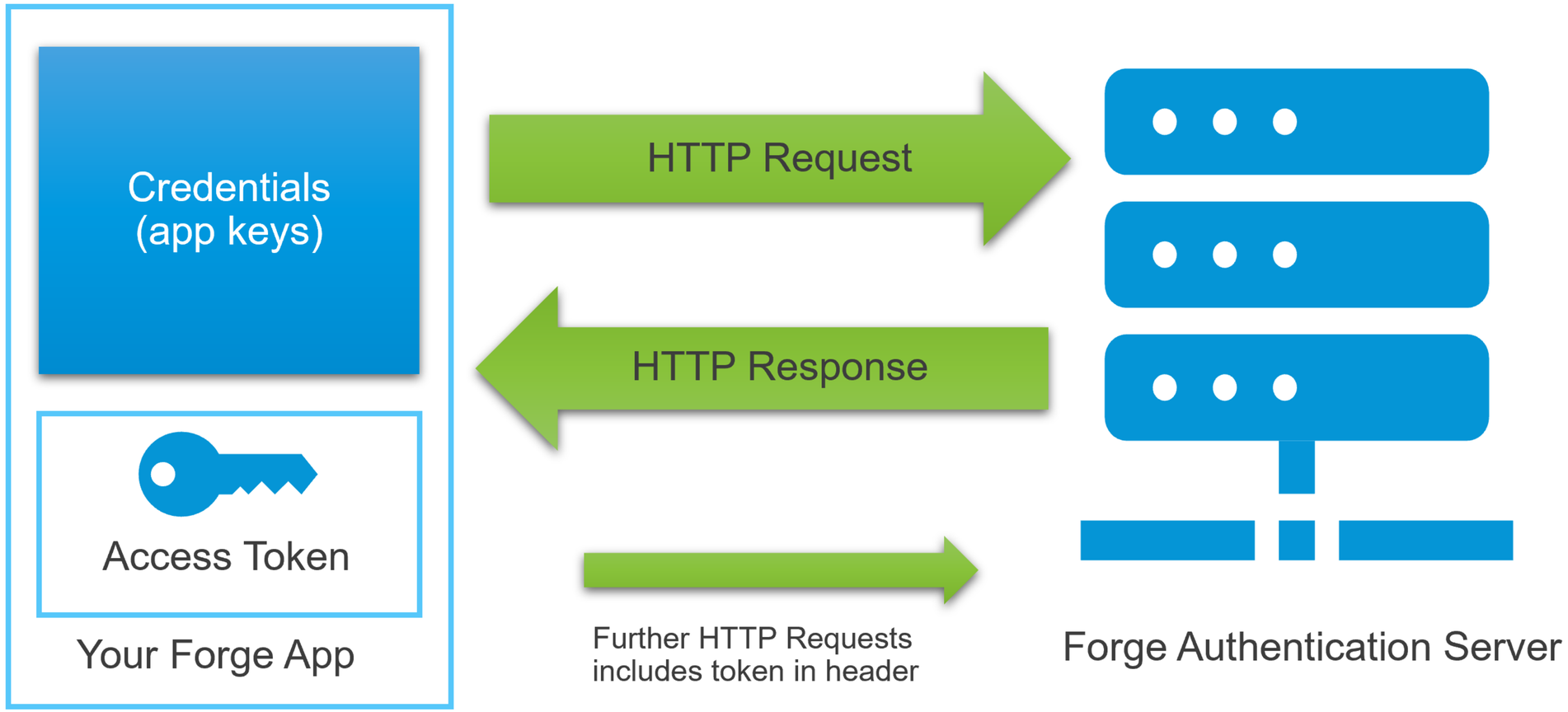
Model Derivative API

Viewer

Reality Capture API

BIM 360 API

Authentication



Learning Objective 3 – ‘Understanding of Autodesk Forge’

- Creating a Forge application and integrating it with BIM 360 Account.
- Understanding of Forge API’s.
- **Live demonstration of BIM 360 data extraction using Authentication and Data Management Forge APIs.**

Services/ products we will use:

AUTODESK FORGE®

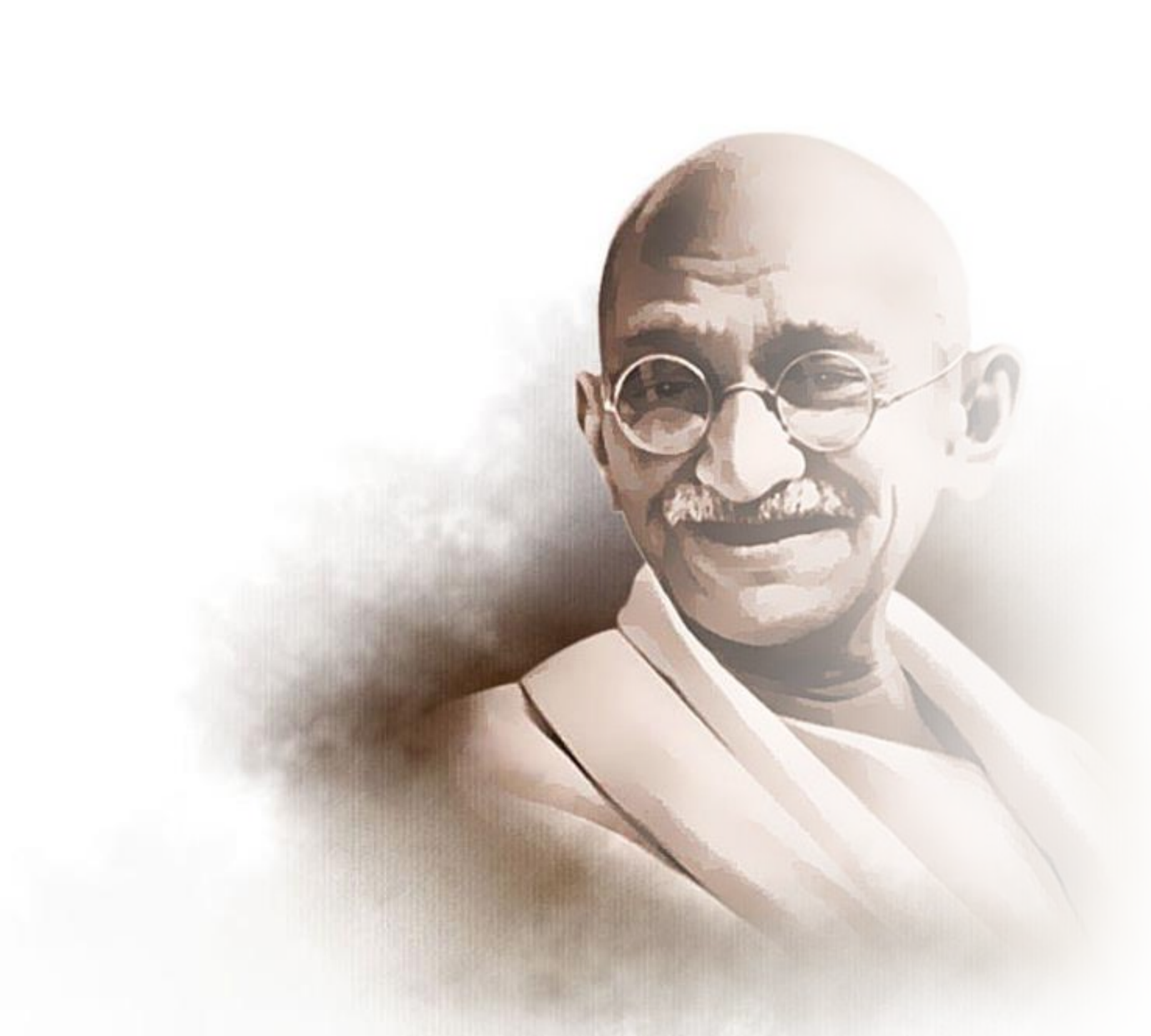
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Publishing Cloud Workshared Model To BIM 360 Using Forge

- ❑ Capture the access token using Two-Legged Authentication
- ❑ Find the Hub ID for the BIM 360 Account
- ❑ Find the Project ID
- ❑ Find the Folder ID
- ❑ Find the Item ID of the Cloud Workshared Model
- ❑ Publish the Latest Version of the Model to BIM 360 Docs
- ❑ Verify the Model Has Finished Publishing

Learning Objective 4 – ‘Future of cloud technology’

- How would you like to use the learnings from this class in your upcoming projects?
- What are your thoughts around using this technology more efficiently?
- Do you feel this change exciting?
- What are the challenges the recent innovations have removed? (an experience which you want to share).



The future depends on what you do today

-Mahatma Gandhi

Thank you!!



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