

CS473421 – 什么是Autodesk Construction Cloud?

李嘉熹

欧特克工程建设技术顾问

Safe Harbor

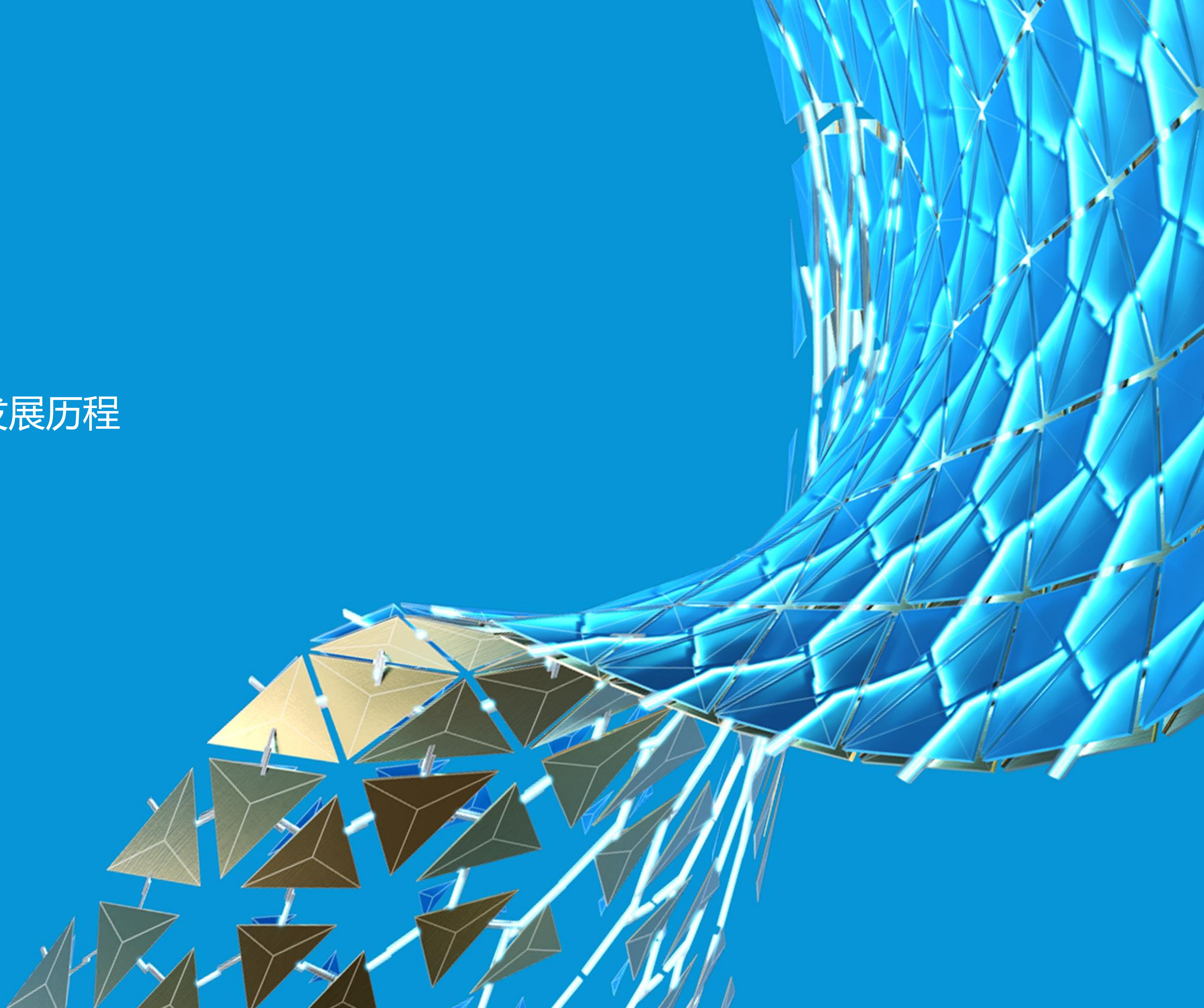
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议程

1. Autodesk在建筑行业的发展历程
2. 未来发展的方向



建筑行业 太难了

获取项目

破碎的工作流程

项目延误

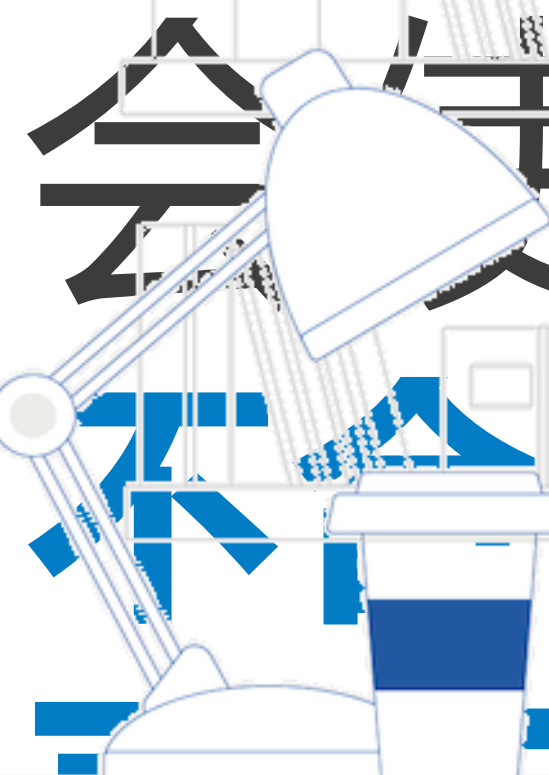
利润低

不可避免的返工

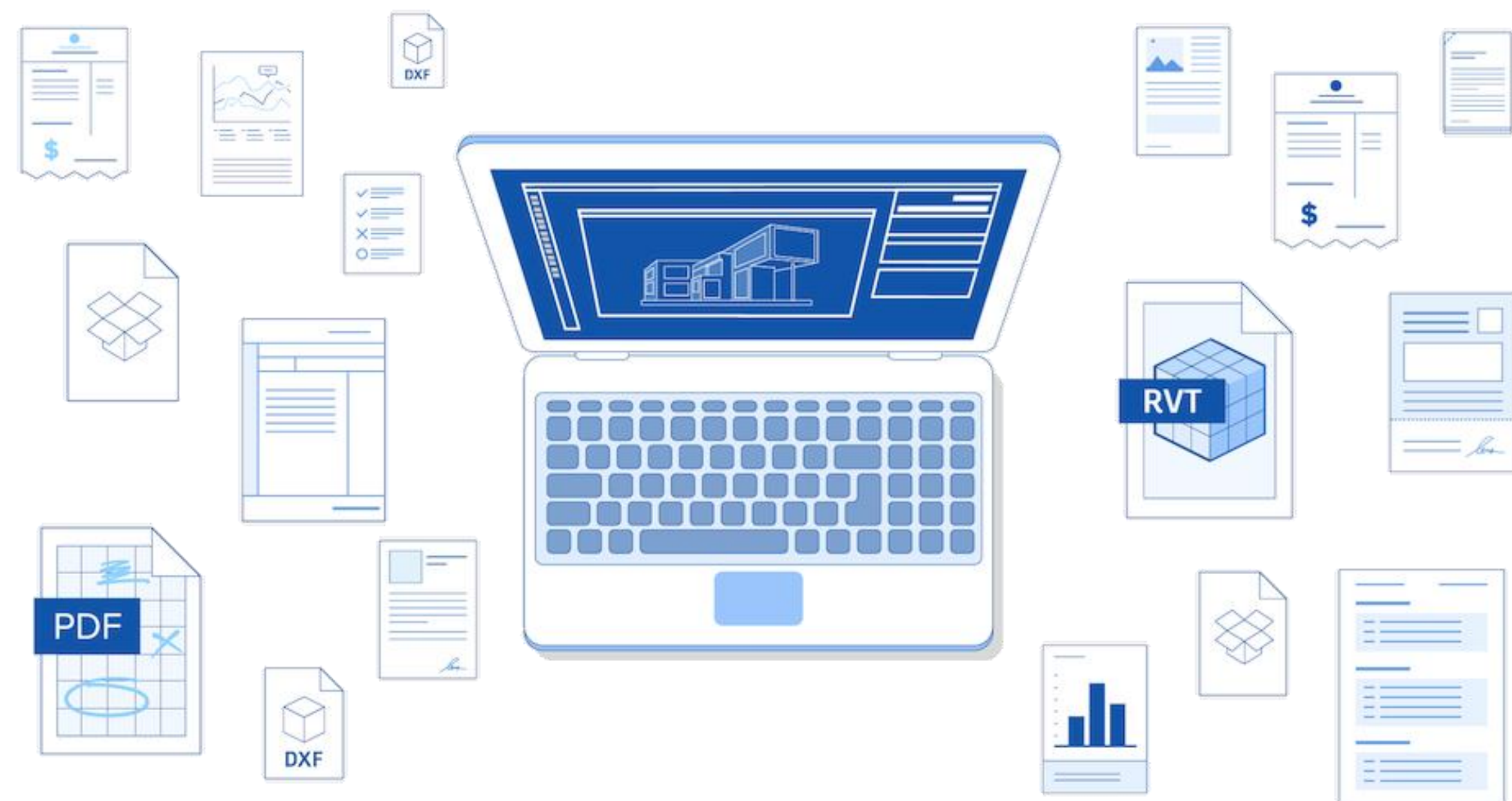
越来越复杂



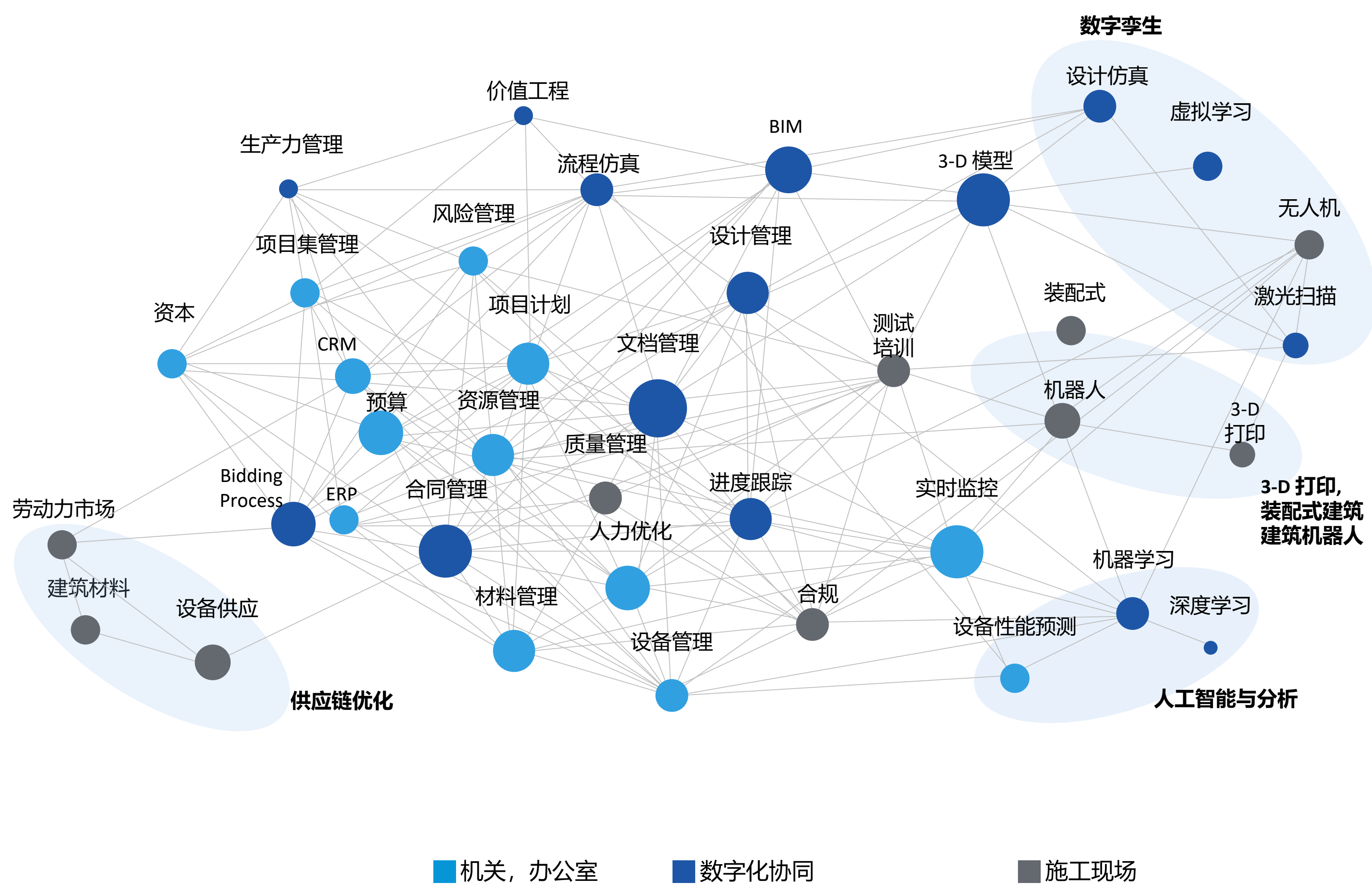
技术



技术



建筑行业技术生态



25%
施工单位使用
5个或更多应用系统

2800亿
建筑行业
每年返工费用

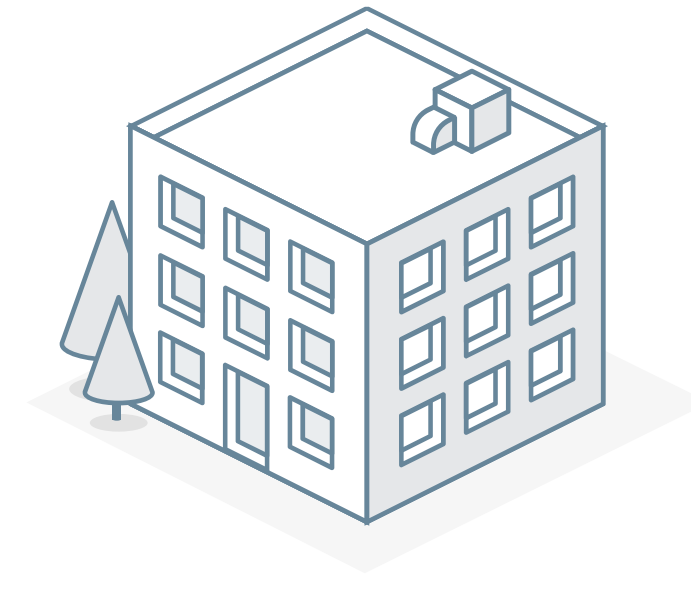
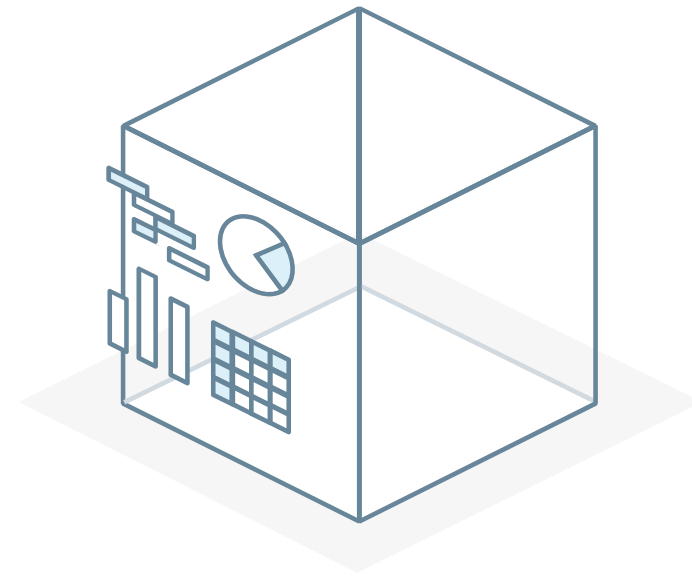
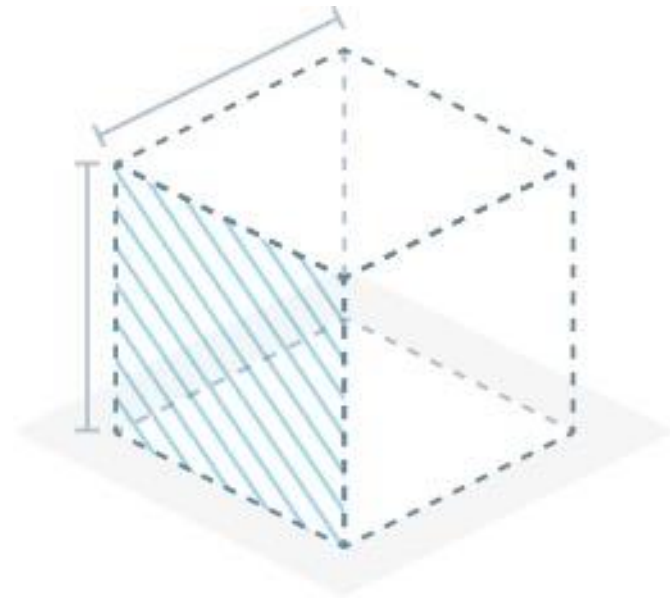
30%
的项目数据在竣工时丢失



AUTODESK CONSTRUCTION CLOUD™



AUTODESK CONSTRUCTION CLOUD™



设计

规划

建设

运维

Autodesk在建筑行业的发展历程

Autodesk在建筑行业的发展历程



设计&协同



2006



2008



2010



现场管理



2012



项目全生命周期



2014



互联建造



2016

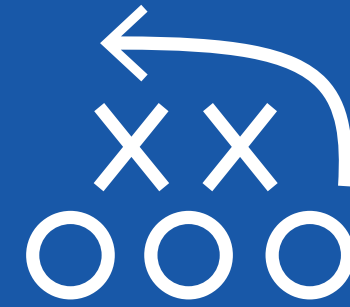


2018

发展历程中引导我们的原则



聆听客户的声音



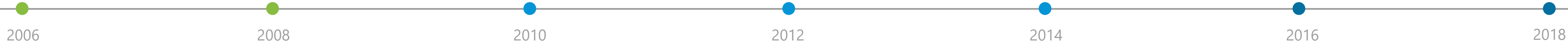
了解客户的痛点和
有效的解决方案



了解自身
的不足

Autodesk在建筑行业的发展历程

 设计&协同



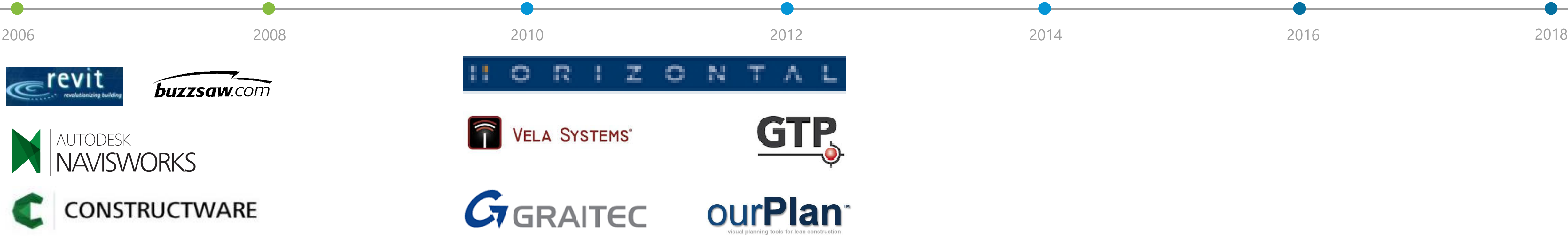
社交媒体出现



Autodesk在建筑行业的发展历程

 现场管理

 设计&协同



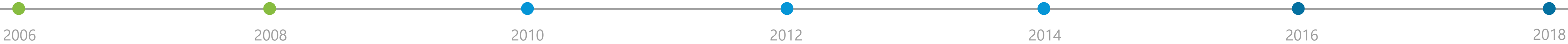


Autodesk在建筑行业的发展历程

 设计&协同

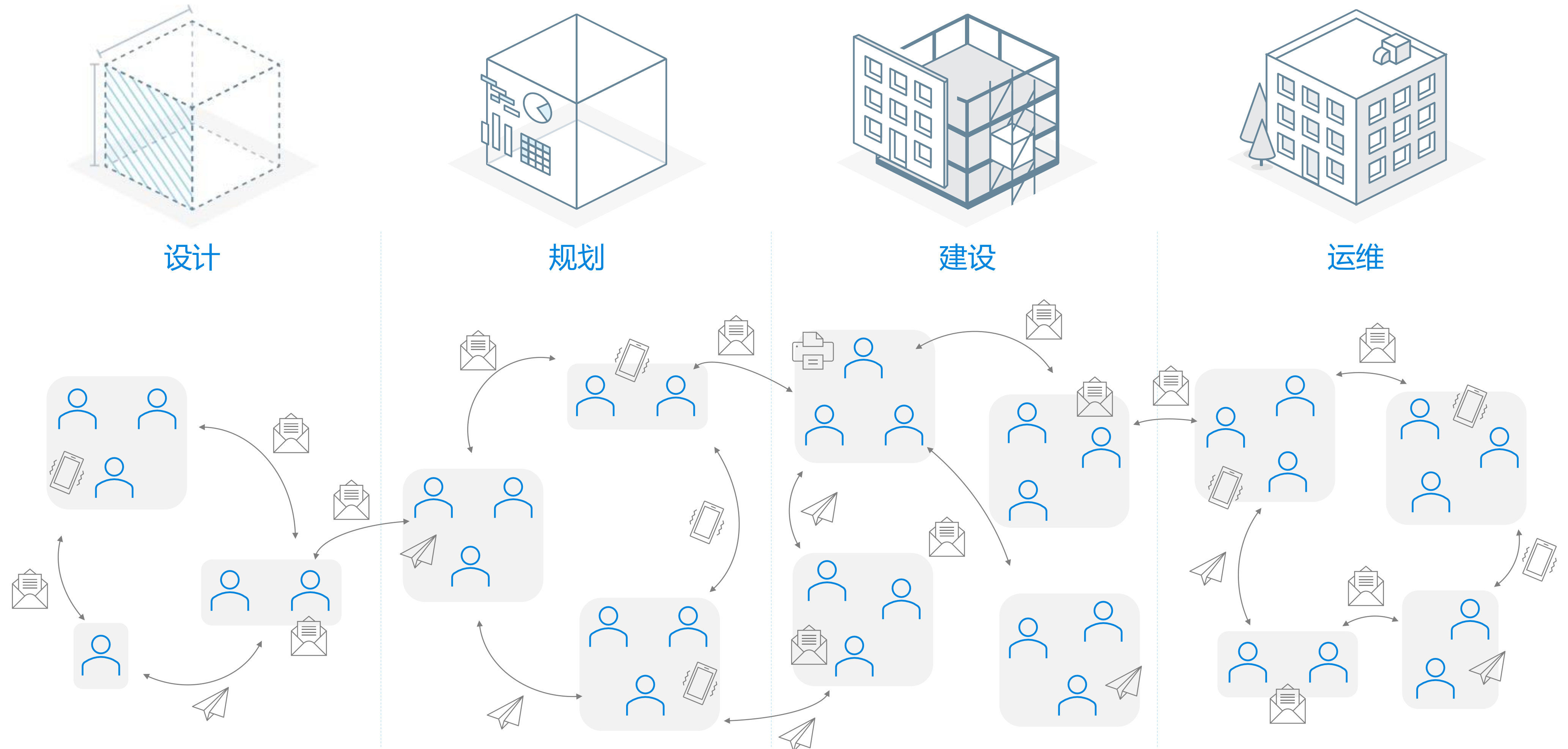
 现场管理

 项目全生命周期





施工过程是协作的，但是非常零散



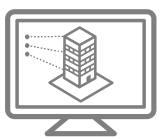
>70%的全球施工企业仍在使用的线下纸质流程

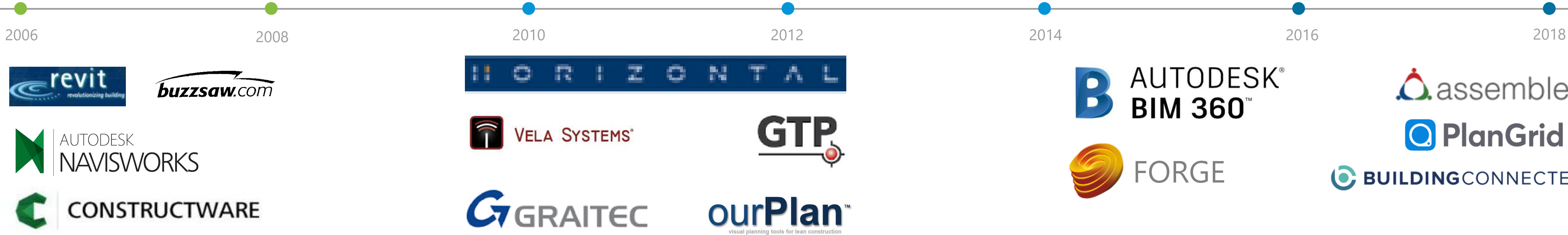
Autodesk在建筑行业的发展历程

 互联建造

 项目全生命周期

 现场管理

 设计&协同

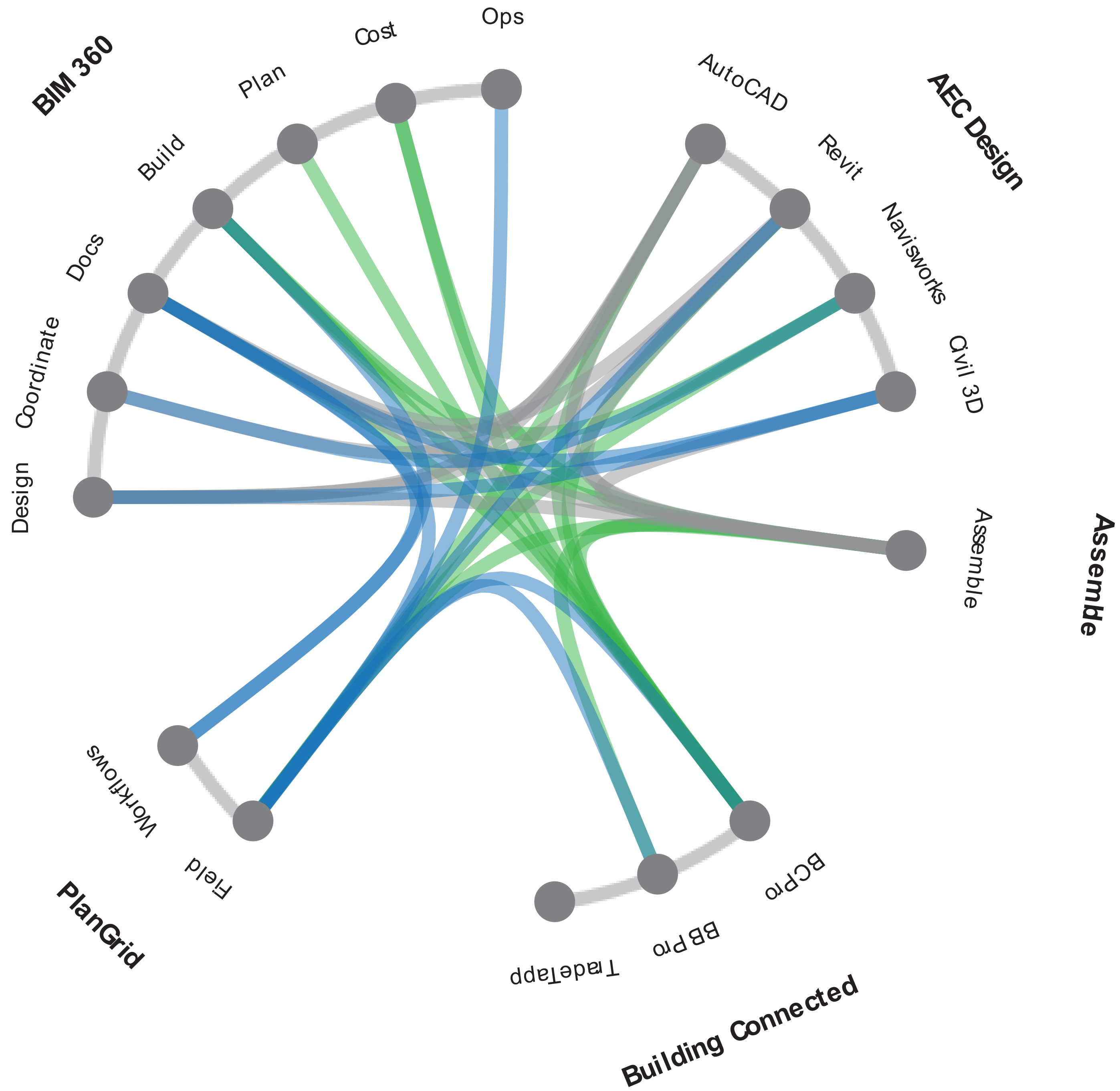


 **assemble**
AN AUTODESK COMPANY

 **BIM 360**TM

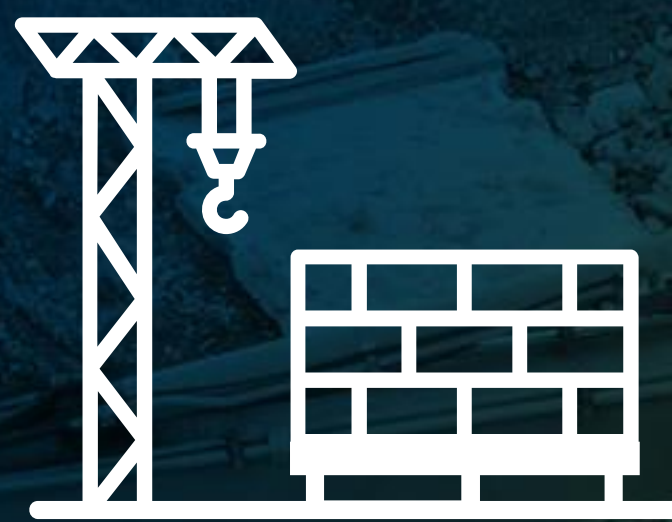
 **BUILDINGCONNECTED**
AN AUTODESK COMPANY

 **PlanGrid**
AN AUTODESK COMPANY





设计



规划



建设



运维



REVIT®



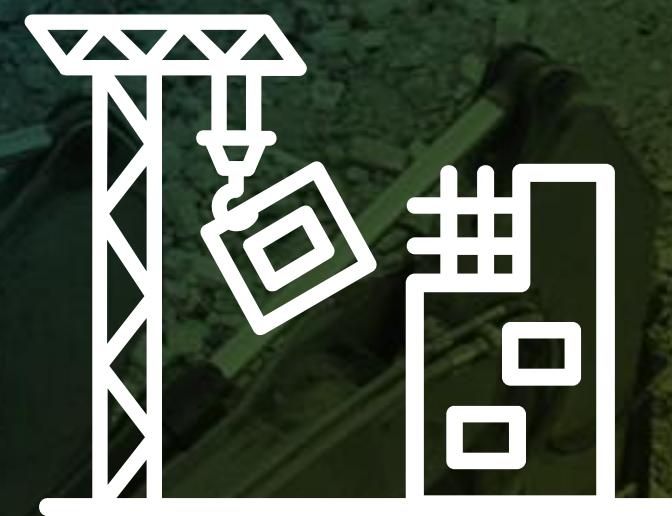
BIM 360™ DESIGN



设计



规划



建设



运维



REVIT®

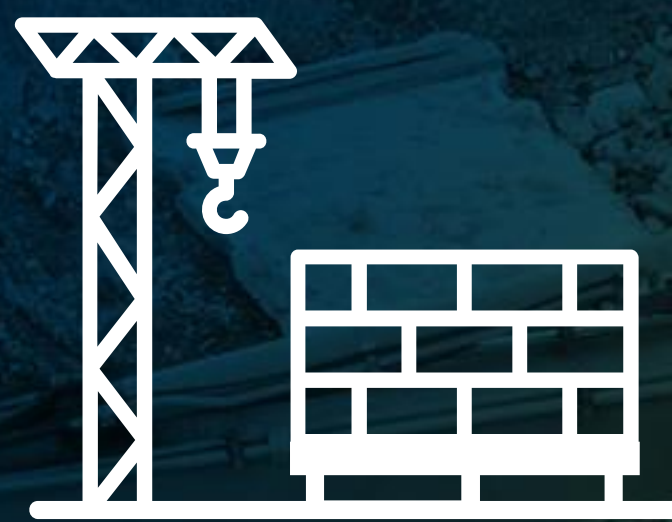


BIM 360™ 数据

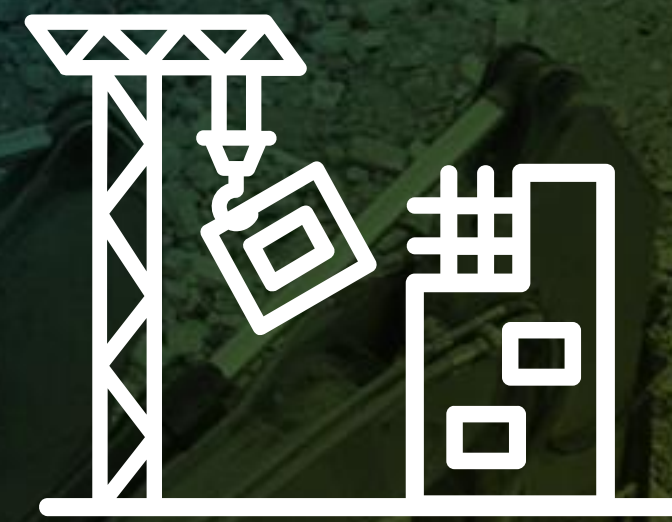




设计



规划



建设



运维

 **BUILDINGCONNECTED**
AN AUTODESK COMPANY

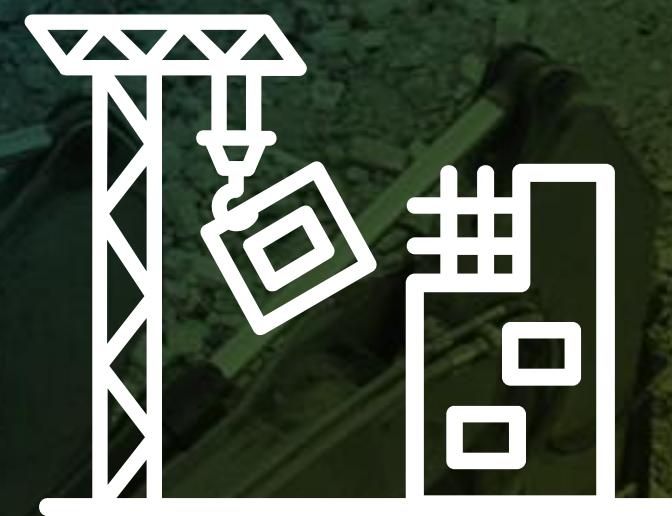
 **PlanGrid**
AN AUTODESK COMPANY



设计



规划



建设

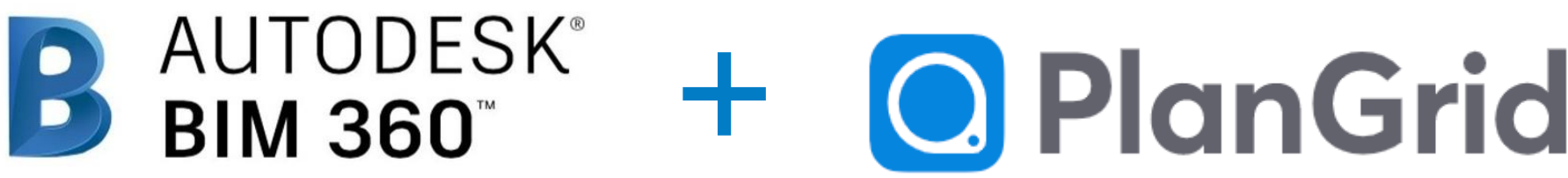


运维

 **PlanGrid**
AN AUTODESK COMPANY

 **BIM 360™ OPS**

Skanska UK 无纸化办公



SKANSKA

Site

Harpur Centre

Activity

Scaffolding to side of building

Conducted by name

Billy Tube

Signature

Date

12/1/19

Risk Assessment No.

03

Review Date

02/01/2020

Revision No.

01

Conducted by name

Signature

Date

Person Supervising Work

Danny Board

Employer

Access Scaffold

Approved by name

Signature

Date

Persons Exposed

0

Employees

4

Other Workers

0

Public/Visitors

0

Vulnerable Persons

0

Total at Risk

4

Severity

5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
	1	2	3	4	5

Likelihood

5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5
	1	2	3	4	5

Risk = Likelihood x Severity

Low

Medium

High

Likelihood

Rating 1 = Very unlikely
Rating 2 = Unlikely
Rating 3 = Likely
Rating 4 = Very likely
Rating 5 = Almost certain

Severity

Rating 1 = No injury
Rating 2 = Minor injury or illness
Rating 3 = "7 day" injury or illness
Rating 4 = Major injury or illness
Rating 5 = Fatality, disabling injury, etc

All risks must be reduced to as low as is reasonably practicable, by applying control measures that reduce the likelihood of an incident, severity of an incident, or both. Risks that are defined as 'high' after control measures have been applied, must be re-reviewed and further control measures implemented to reduce the risk to low or medium

HAZARD	1 2		3	4	5 6		7	8	9
	Factors of Harm				Factors of Harm				
	Likelihood	Severity	Risk Multiple of columns 1 x 2	CONTROL MEASURES	Likelihood	Severity	Residual risk Multiple of columns 5 x 6	Control measures implemented by (name)	Control Frequency Check Rate
Erection of scaffold - falling objects/collapse of scaffold			20	All Scaffold contractors will be members of NASC Skanska require that any scaffolding contractor contracted to work on a Skanska UK project. emolv a			5	Danny Board	Daily

AUTODESK BIM 360

United Construction > Corporate Headquarters

Document Manager

Issues

Templates

Issue #161

DETAILS

ATTACHMENTS

ACTIVITY

TD

Tom Denby

Dec 2, 10:52 AM

Attached a document from Document Library

04P_002.pdf

TD

Tom Denby

Dec 2, 11:03 AM

Attached a document from Document Library

04P_002.pdf

TD

Tom Denby

Dec 2, 11:10 AM

Attached a document from Document Library

04P_002.pdf

ID

Type

Sub-type

33

Punch List

Work to

32

Commissioning

Commis

31

Commissioning

Commis

30

Quality

Quality

27

Coordination

Clash

26

Coordination

Clash

25

Coordination

Clash

23

Coordination

Clash

Showing 1 - 16 of 16

Autodesk在建筑行业的发展历程

2020



COVID-19

人才短缺

装配式

绿色建筑

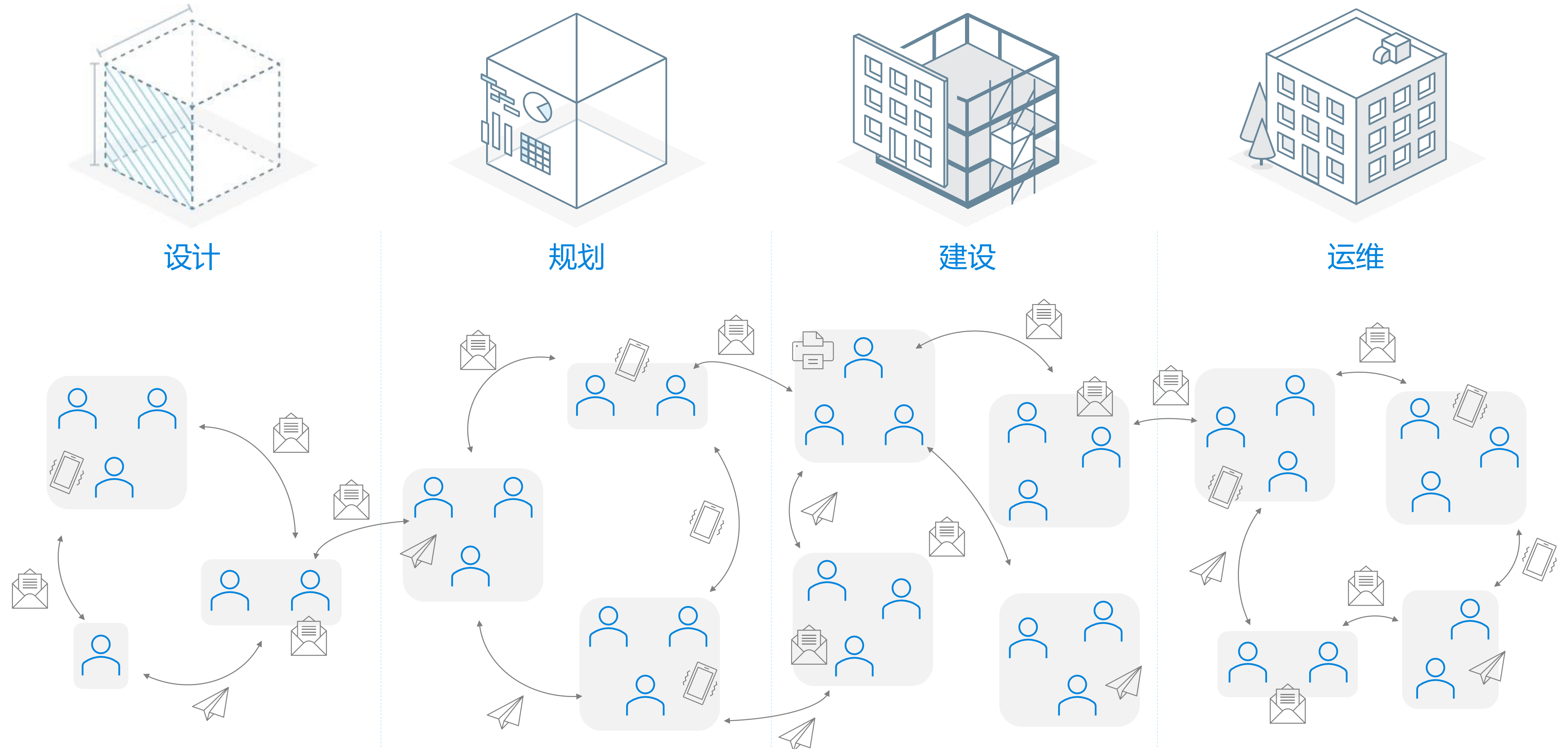
数字化

AI





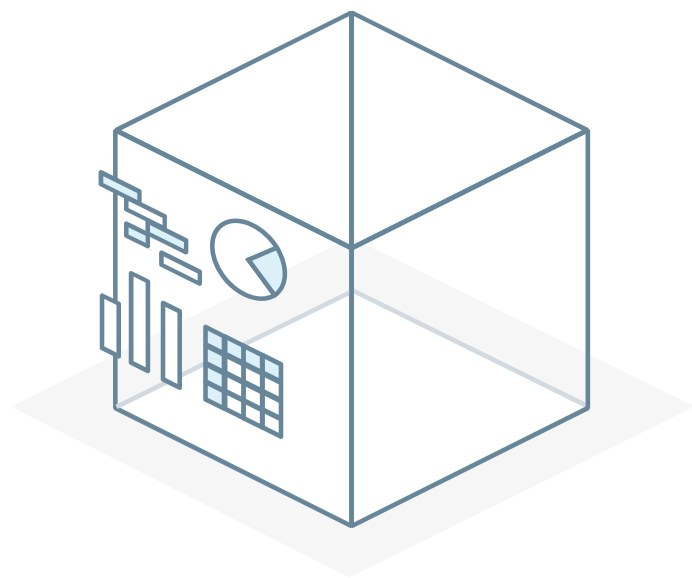
施工过程是协作的，但是非常零散



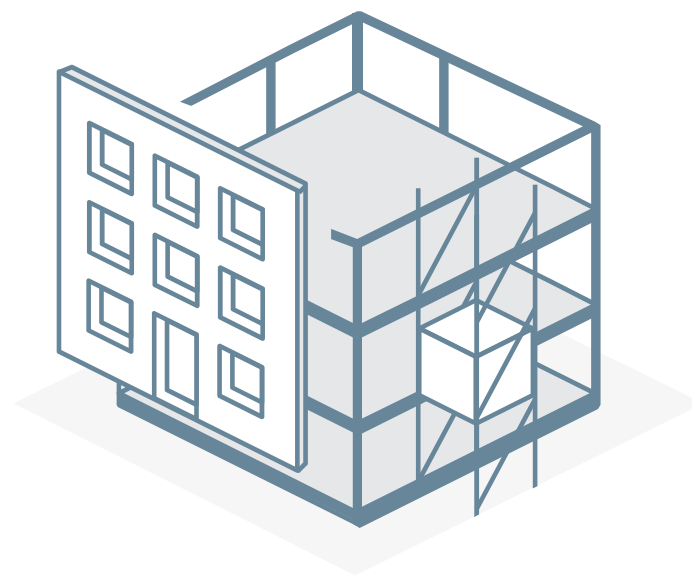
互联建造技术引领传统业务转型



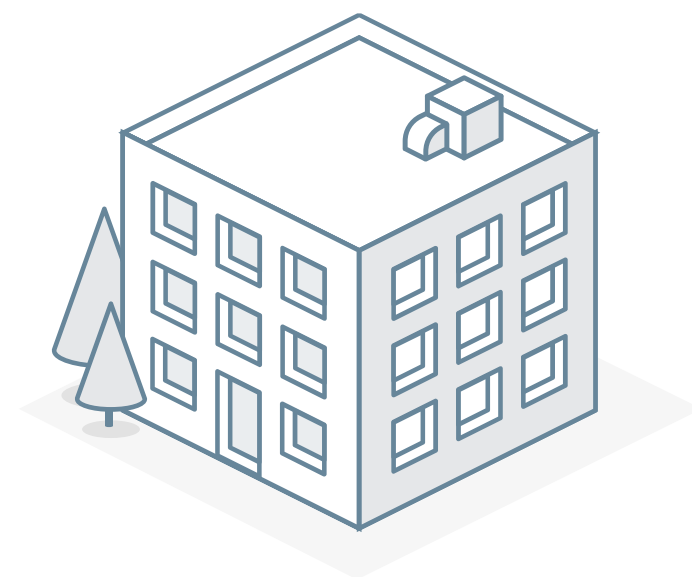
设计



规划



建设



运维

workflows

- 设计创作
- 设计协同

- 模型协同
- 模型数据定义
- 算量
- 投标管理
- 资格审定

- 项目管理
- 成本管理
- 现场协同
- 质量&安全
- 施工调试

- 设施维护
- 资产生命周期

data sharing

模型 · 图纸 · 问题 · 规范 · 工程洽商 · 成本 · 设备 · 竣工图

analysis insights

预测分析 · 绩效报表 · 应对策略

resource network

建筑商网络



ACC平台建设原则





AUTODESK CONSTRUCTION CLOUD™

设计

AUTODESK
BIM COLLABORATE

AECC 软件集

规划

AUTODESK
QUANTIFY

AUTODESK
COORDINATE

BUILDING
CONNECTED

ASSEMBLE

建设

AUTODESK
BUILD

PYPE

运维

BUILDING
OPS

AUTODESK 文档

模型 · 图纸 · 事项 · 规范 · 工程洽商 · 成本 · 设备 · 竣工图 · 照片 · 视频

分析洞察

驾驶舱 · 报表 · Construction IQ · 数据接口

管理

用户管理 · Autodesk ID · 权限管理





AUTODESK CONSTRUCTION CLOUD™

AUTODESK
COORDINATE

AUTODESK
QUANTIFY

AUTODESK
BUILD

业务	协同	算量	项目管理	成本管理	质量管理	安全管理	交付
工作流	•模型协同 •模型审核 •模型复核 •质量控制 •事项管理	•空间分析 •2D/3D 算量	•项目计划 •工程洽商 •审批流程 •会议纪要 •报表 •进度跟踪	•合同管理 •变更管理 •付款申请 •资金计划	•质量巡检 •质量检查 •派工单 •事项/任务管理	•安全巡检 •安全培训 •安全行为监测	•数据移交 •文档交付 •保修管理 •竣工检查
	文档管理 · 版本管理 · 文档审批流						
集成的数据	模型 · 图纸 · 事项 · 规范 · 工程洽商 · 成本 · 设备 · 竣工图 · 照片 · 视频						
分析洞察	驾驶舱 · 报表 · Construction IQ · 数据接口						
管理	管理主控台 · 权限 · 项目设置 · 项目模板 · 提醒设置						



统一入口

AUTODESK CONSTRUCTION CLOUD

James Taylor

Project Directory

All Projects

ACC Project Templates

Create Project

Search project name, address, organization or project code.

Project Name	Project Type	Project Code	Last Updated
SF MoMa Museum Main St, Houston, Texas	ACC	XXXXXXXXXXXX	6 hours ago
15550 Banner Behavior Health Hospital (BBHH) Main St, Scottsdale, Arizona	ACC	XXXXXXXXXXXX	Feb 10, 2019
15592-SJHMC Absorption Chiller Replacement Main St, Scottsdale, Arizona	B BIM360	XXXXXXXXXXXX	Nov 24, 2018
18600 - SOMC Vacuum Pump Replacement Main St, Phoenix, Arizona	PlanGrid	XXXXXXXXXXXX	Sept 14, 2019
19628 - ADC Tiberius - Chiller Cooler Expansion Main St, Phoenix, Arizona	ACC	XXXXXXXXXXXX	Feb 10, 2019

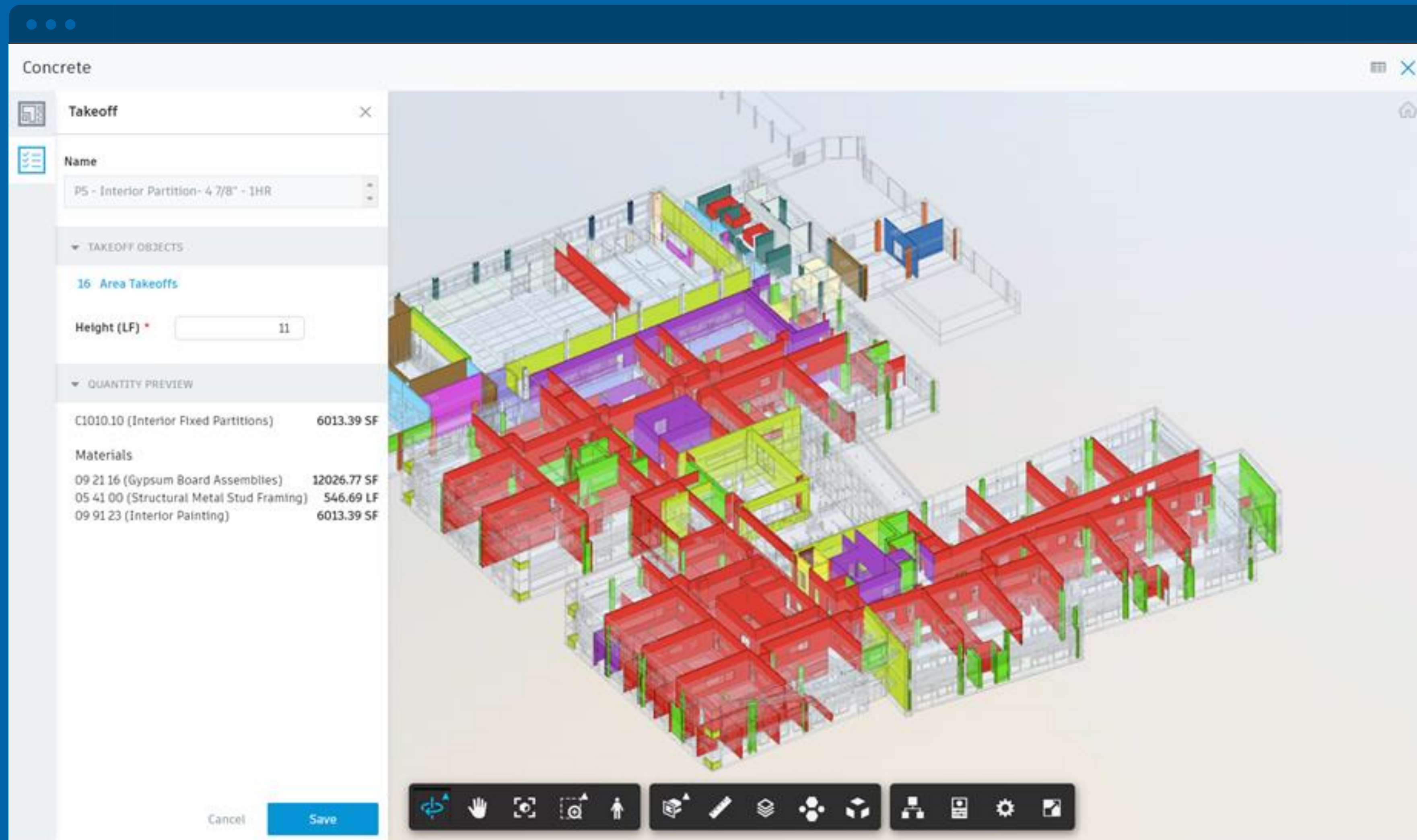
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进度跟踪

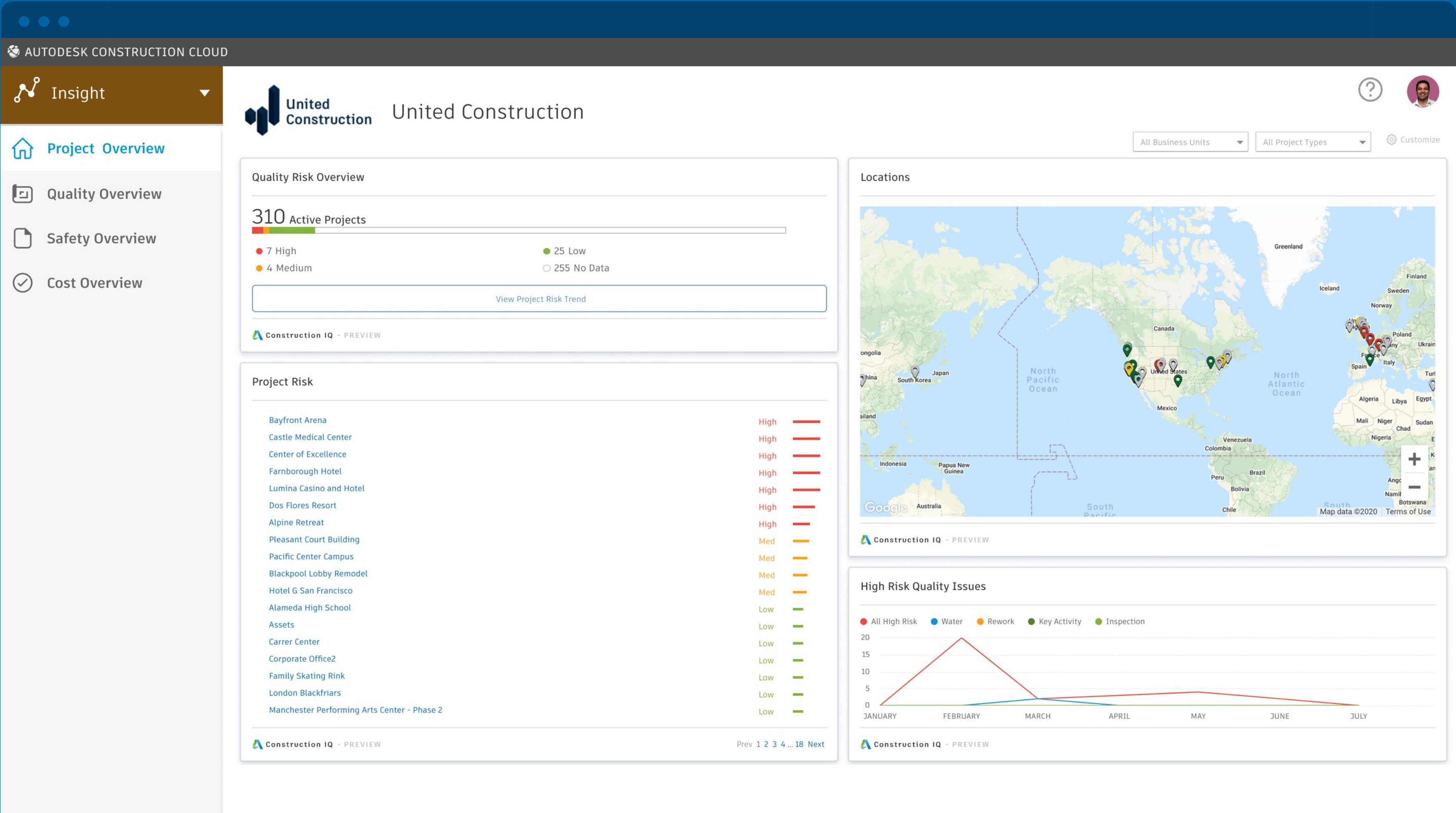
</



算量



跨项目的数据洞察



未来的发展方向



Autodesk Acquires Pype

 AUTODESK[®] + aurigo[®]



AUTODESK + | bridgit



Vermont Public House
(Construction)

Arborview Tower
Active

Essex Assisted Living
(Pre-construction)



Makenzie Thomas
Site Superintendent

Over allocated

June 1 - Aug 26		200%
Project	Role	%
Maplewood Mall	Superintendent	100
Essex Assisted Living	Superintendent	100



Status includes: **Active** Build type includes: **High-rise residential**

Project Name April July Today October

100 Victoria

Active

Sr. Project Manager



Project Coordinator



Project Engineer



Apr 1 - July 31

210 Olive St.

Aug 3 - November 31





聆听客户
的声音



发现客户的痛点
和解决方案



了解自身
的不足



BIG ROOM



PlanGrid Sheets • Revit Plug-In Fix • OCR for INTL Languages • Trim Sheet Numbering for ISO-19650	Forms • Integrate in technical bootstrap • Template Types: set, edit, filter • Native Forms: Report Validation • Native Forms: Date & dropdown menu items • Export emails migration to Notifier • Customer API: Field Report Template • Custom Forms API • Draft Awareness for Reviewers • Sequential editing in Field Reports
RFIs on Mobile (Android) • Step-Back • Create RFI from Sheet Viewer	
Site Vision • Media Thumbnails • Custom Photo Reports • Showing RFI & Field Report photos in gallery	
Submittals • Submittals to the Field - PG • Filter & Sort on Mobile • Default Watchers	
• API • Public APIs & Adding Submittals Connector to ACC Connect	
BIM 360 Docs Document Management • Public URL / Share File • Permissions API • Vector PDF Improvements	

BIM 360 Build Issues • Issue Templates • Pin Issues to Locations • Enhancements	RFIs • Edit closed RFIs • RFIs on Mobile (Android) • Modify RFI Pushpin • RFI & PCO Link • Permission Change • Improved Status Visibility • Submittal Workflow Enhancements
Cost Management • Pay Applications • Public APIs • Email Integration • History/Milestone Visibility • Public APIs ACC Connect • Cost Budget PDF Report • Supplier & Owner Access • Tracking Actual Costs • Document Generator Create PDF Report - Format • Cost Budget PDF Report - Format	
Assets • Asset Module • Link from Issues • Checklists & Create Asset from Location	
Submittals • Enhanced Submittals List Experience • Contractual Date Tracking - Phase 1 • Increased Status Visibility (web & iOS) • Submittals to the Field - BIM 360 • XLSX Export • Enhancements • Tracking Contractual Dates - Phase 2	

• Item Based Submittals Workflow • Re-Open Closed Submittal • Reduce Email Spamming	Meeting Minutes • Meeting Minutes LAUNCH • Attaching Existing Docs to a Meeting / Meeting Item • Link Issue or RFI to Meeting Item • Rich Text Editor • RFI Export Location • Zoom Integration • Description Summary / Advanced Text Editing
• RFI	
Checklists • bringing Android to parity with iOS (some also apply to iOS)	
BIM 360 Coord Issues • Multi-model	
Document Management • Improved processing error handling	
• API • Public APIs & Adding Submittals Connector to ACC Connect	
• Screenshots) • Navisworks Issues Plugin* • Clash Matrix Enhancements* • Model Viewer Enhancements*	
BIM 360 Insights	

Construction IQ • Design Risk for Executives • Safety Risk Factor Card • 2 New Reports • Card Library Enhancements • Issue Report Enhancements • Data Connector: Add RFI Workflow • Customizing ESRI Partner Card • Daily Log Report Enhancements • Add Custom Attributes Data Download, Issue / Checklist Links & Email Notifications • Power BI Template for Project Controls	Insights • ESRI Partner Card • Intelliwave Partner Card • Raken Partner Card • Project Level Document Log
• Admin • Services Page • Partner for Large Customers • Integration & Asset module integration • Visual Enhancements	
• Bidboard Connect • Bidboard ID* • Bidboard History in Projects • Bidboard Personal Items Location in Bidboard • Bidboard Performance Improvements - New Win • Bidboard Indirect costs • Autodesk ID - GA	
Bidboard Pro • Suggested groups • New bid forwarding email • Office-level trades • BC Pro x BB Pro Integration	

• Customize columns • Change opportunity request type • Faster import of bids • Enhanced search for opportunities* • Enhanced new opportunity creation* • Takeoff across sheets • Adding Color Picker	BIM 360 Plan • Linked Activities
TradeTapp • User & Project Data • TradeTapp / BC Pro - Vendor Unification * • Public Link to Share* • Record ‘Request for Corrections’ Message* • None’ Qual Status Filter* • Display ‘Contacted By’ BC User Name* • New Prequalification Fields in BC* • New ‘Reviewers’ Column* • Qualification Status Timestamp* • Enterprise Certification Expiration Date*	
Assemble Reports • Power BI Improvements	
User & Project Data • Revit Publishing Fix	
Aurigo • Aurigo / PlanGrid Integration	
* Committed Roadmap	





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