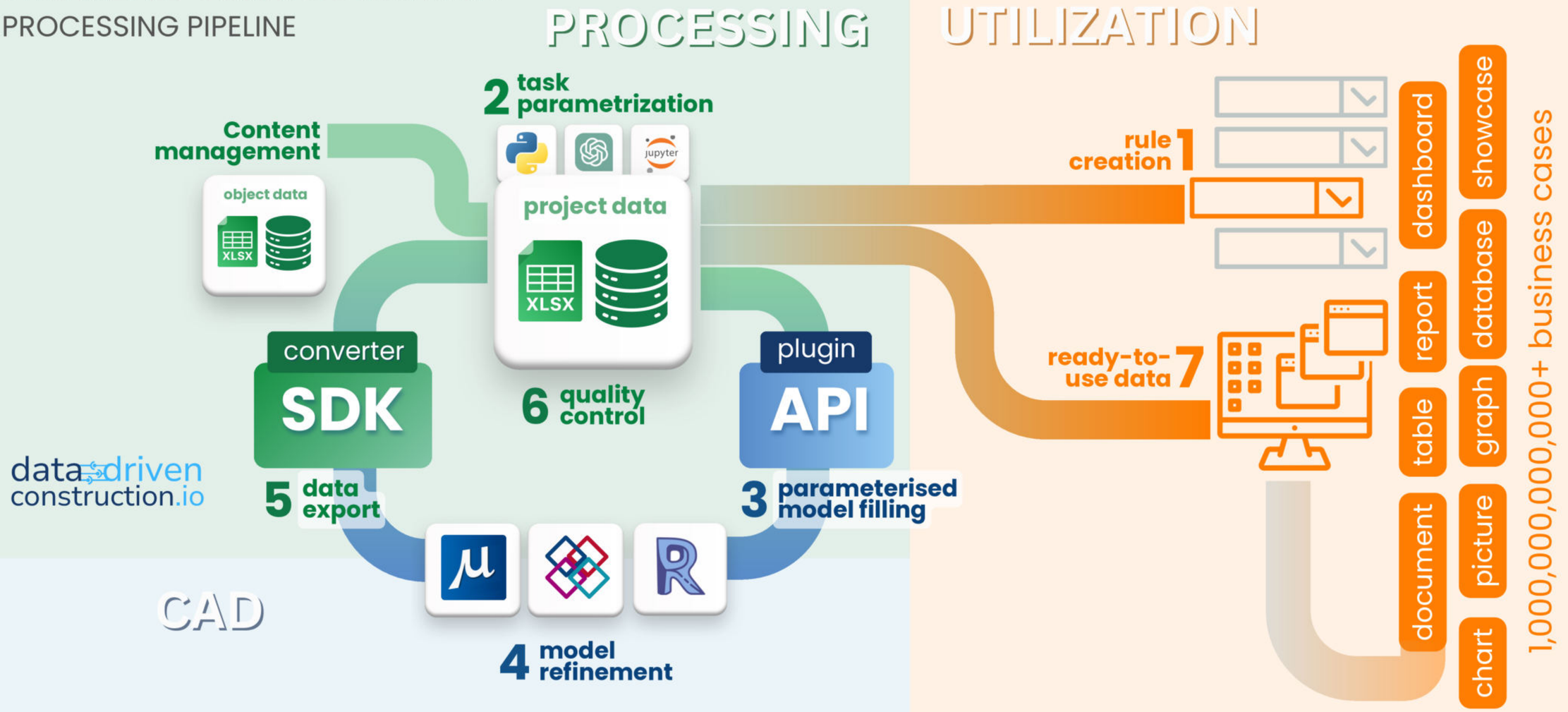
LLM CHAT
data driven
construction.io
mining | visualization | analytics | automation

STREAMLINED CONSTRUCTION DATA PROCESSING PIPELINE



In the long term, construction companies, which today dominate the market by setting price and service quality standards, may lose their role as the key intermediary between the customer and their construction project.

DataDrivenConstruction enables seamless automation and customization for any data-driven scenarios in your company. From CAD models to actionable insights, we transform your data into business value. Simplify processes, enhance efficiency, and let us tailor solutions to fit your unique needs.

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DATA > SOFTWARE

The future of construction is **data-centric**

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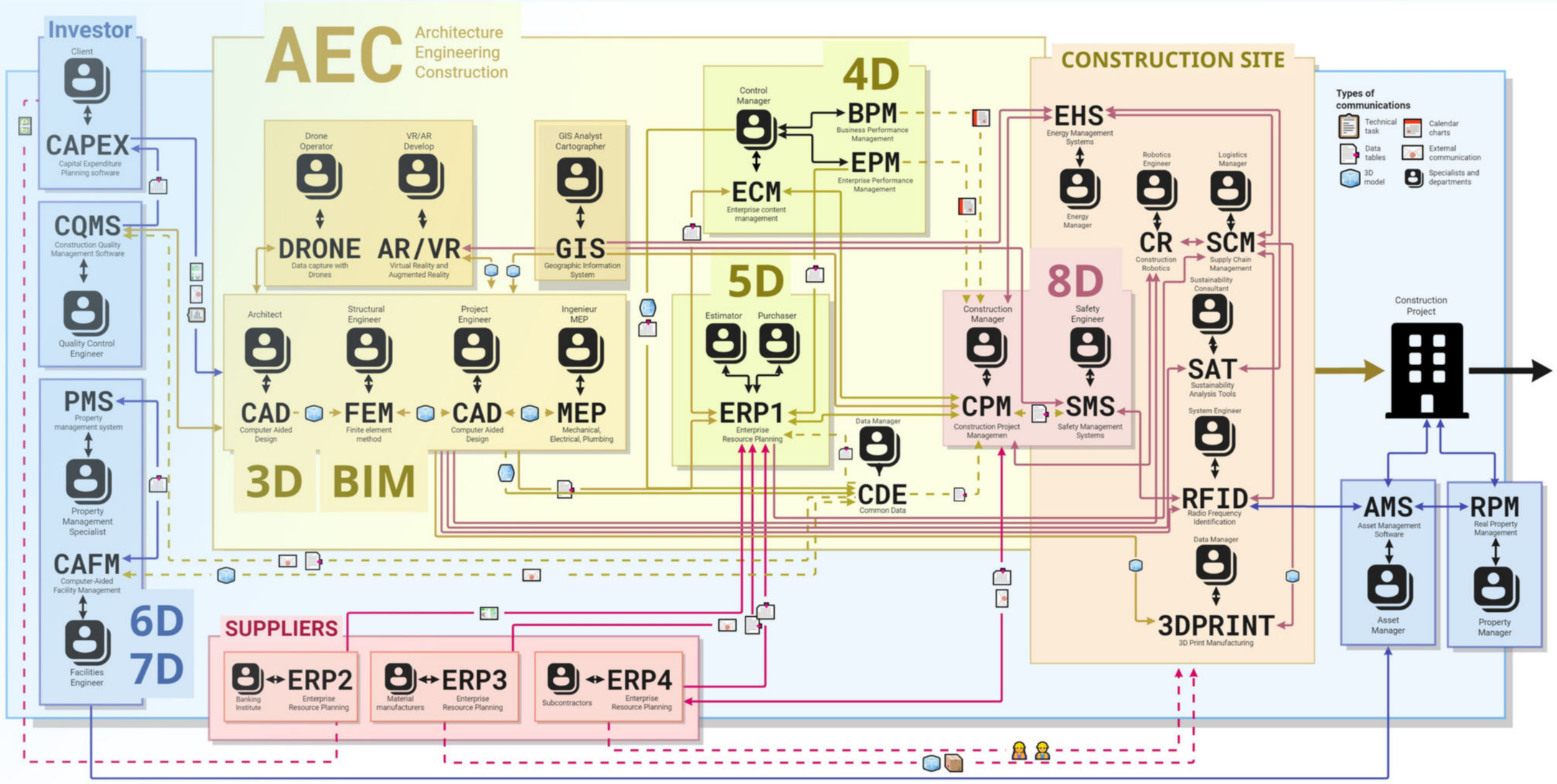
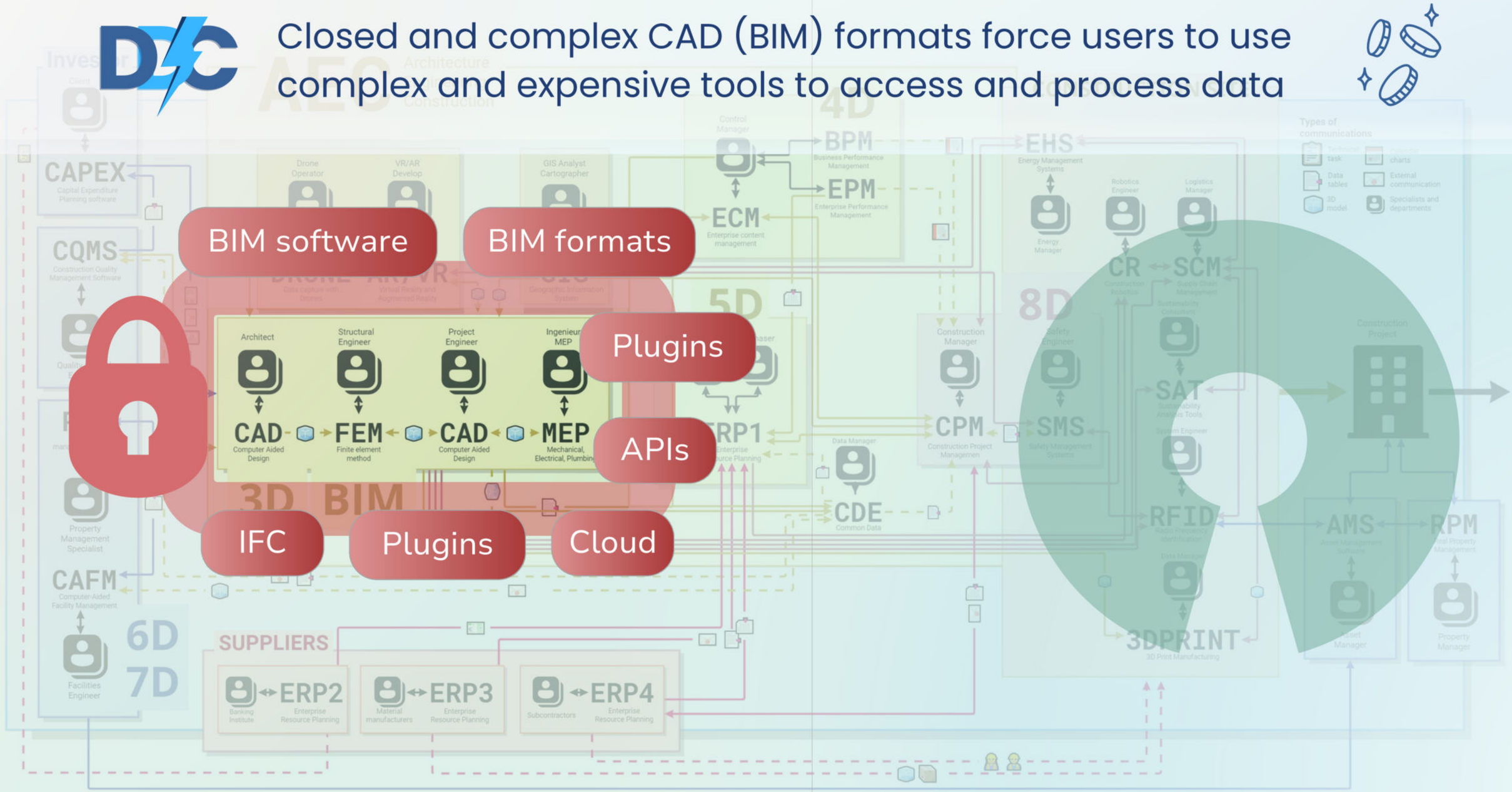
DataDrivenConstruction Toolkit is a powerful tool for exploring construction data without the need for an online connection or the installation of CAD (BIM) software. It supports the offline reading of CAD data and allows for the export of data to formats such as DAE, USD, CSV, Excel, JSON, XML, etc.

The construction business is filled with a lot of systems and data that need to be connected to each other



Closed and complex CAD (BIM) formats force users to use complex and expensive tools to access and process data



CLOSED DATA

converter

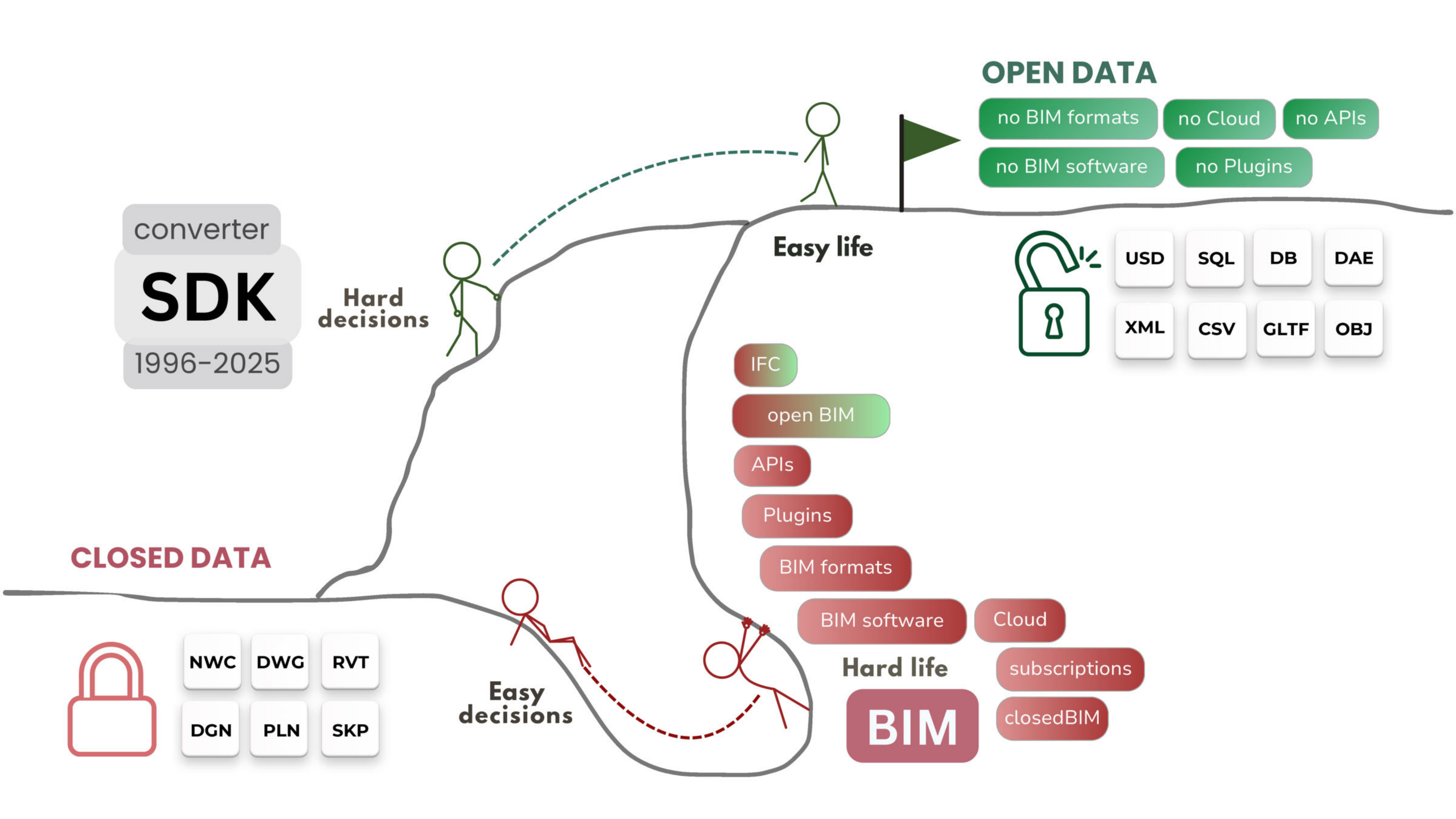
SDK

1996-2018

OPEN DATA

- BIM software
- BIM formats
- IFC
- Plugins
- Cloud
- Internet
- APIs

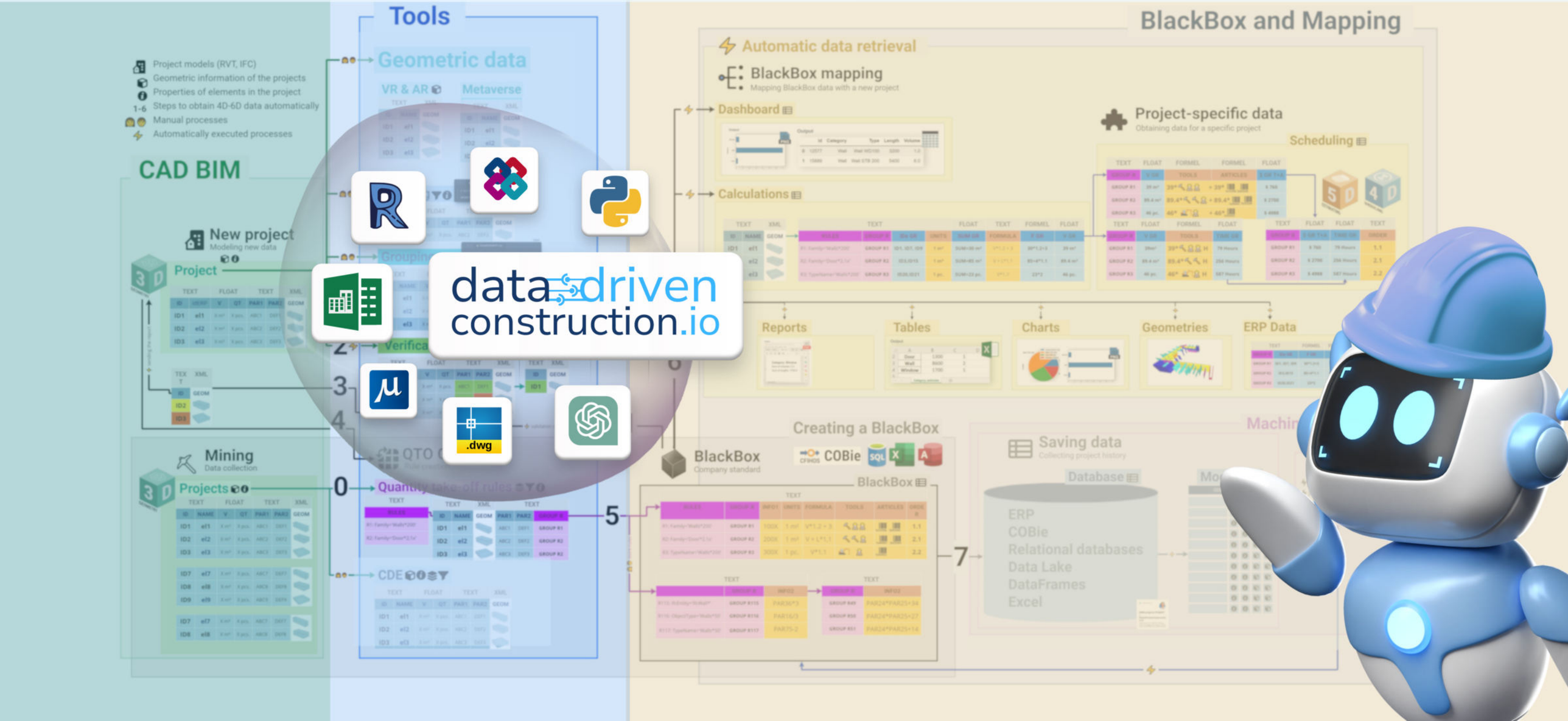
- no BIM software
- no BIM formats
- no IFC
- no Plugins
- no Cloud
- no Internet
- no APIs


converter
SDK
1996-2025
Hard decisions
Easy life
OPEN DATA
no BIM formats
no Cloud
no APIs
no BIM software
no Plugins
USD
SQL
DB
DAE
XML
CSV
GLTF
OBJ
IFC
open BIM
APIs
Plugins
BIM formats
BIM software
Cloud
subscriptions
closedBIM
Hard life
BIM
CLOSED DATA
NWC
DWG
RVT
DGN
PLN
SKP
Easy decisions

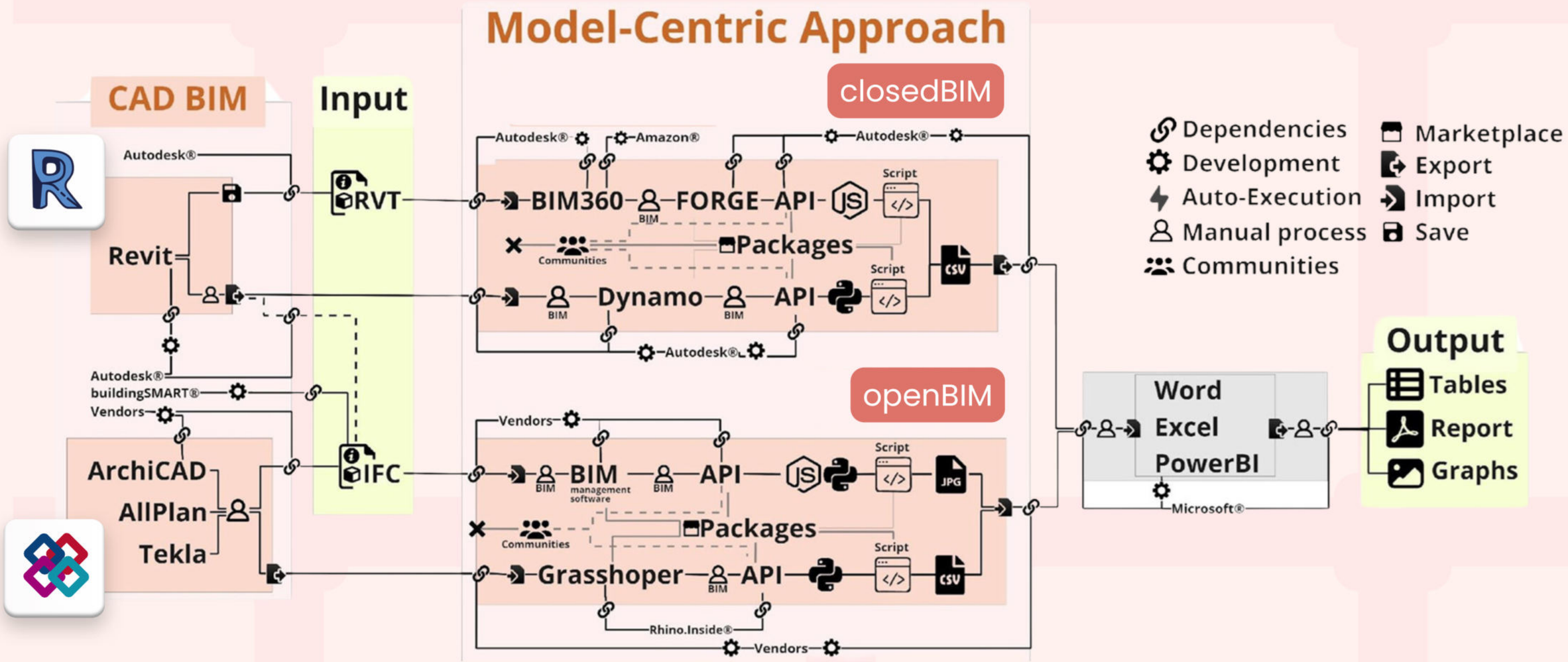
A single CAD (BIM) project

Quality of data

1000000000+ data use cases



THE **LARGE NUMBER OF DEPENDENCIES** WITH CLOSED DATA MAKES IT **DIFFICULT TO CREATE A SEAMLESS PROCESS**



Data-Centric Approach vs Model-Centric Approach in Construction Data

data-driven construction.io

Number of dependencies when working in closedBIM , openBIM and Data-Centric Approach

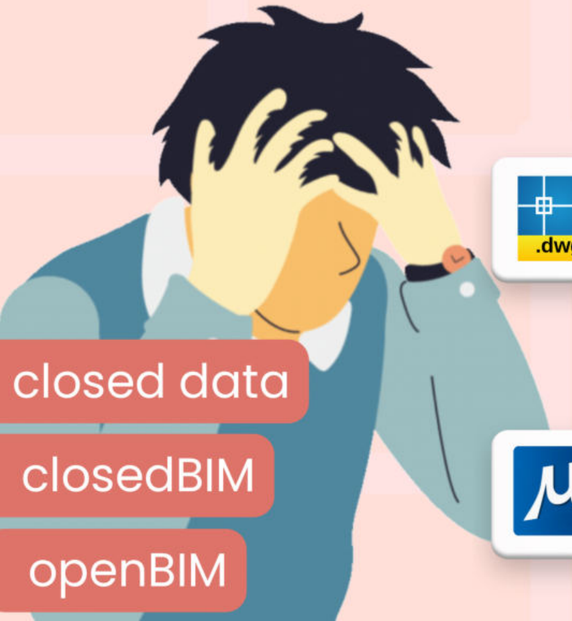
Structured data

Granular data

Open data

converter

SDK



closed data

closedBIM

openBIM

CAD BIM

Input

Autodesk®

Revit

ArchiCAD

AllPlan

Tekla

Vendors

buildingSMART®

RVT

IFC

Data-Centric Approach

noBIM

Communities

Vendor

Data Engineer

Packages

Data Analyst

Open Data

Converter

CSV

DAE

id

JSON

XML

XLSX

Script

Script

Data Engineer
Data Analyst
Communities and experts
50x
Technology Stack
DataFrame
Pandas Python

DDC

Output
Tables
Docs
Graphs
Dashboard

Dependencies
Development
Auto-Execution
Manual process
Communities

Marketplace
Export
Import
Save

Model-Centric Approach

CAD BIM

Input

Autodesk®

Revit

Autodesk®
buildingSMART®
Vendors

ArchiCAD

AllPlan

Tekla

RVT

IFC

closedBIM

Autodesk®

Amazon®

Autodesk®

BIM360

FORGE API

Script

Communities

Packages

Script

Dynamo

API

CSV

Autodesk®

openBIM

Vendors

BIM management software

API

Script

JPG

Communities

Packages

Script

Grasshoper

API

CSV

Rhino.Inside®

Vendors

Word
Excel
PowerBI

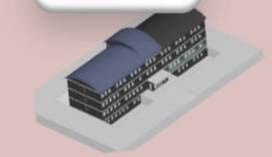
Microsoft®

BIM

BIM Manager
BIM Coordinator
Communities and experts
1x
Technology Stack
Dynamo
API Revit
BIM360
Forge API
Python
API BIMs
API Revit
Rhino API
CAD API

Revit 2015
Revit 2016
Revit 2017
Revit 2018
Revit 2019
Revit 2020
Revit 2021
Revit 2022
Revit 2023

IFC2X3
IFC4
IFC4X1
IFC4X2



Different formats

Various versions

Restricted access

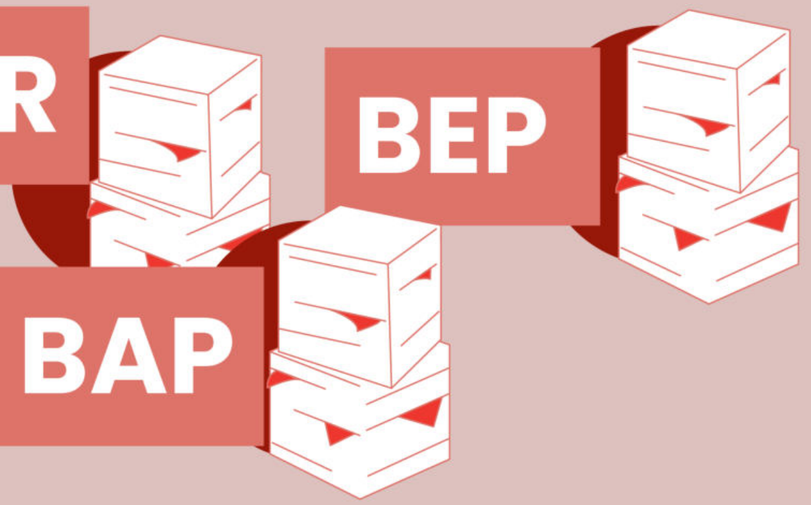
Quality?

Various documents to be filled out

EIR

BEP

BAP



Information Requirements?

EIR

BEP

BAP

Other industries check quality more easily

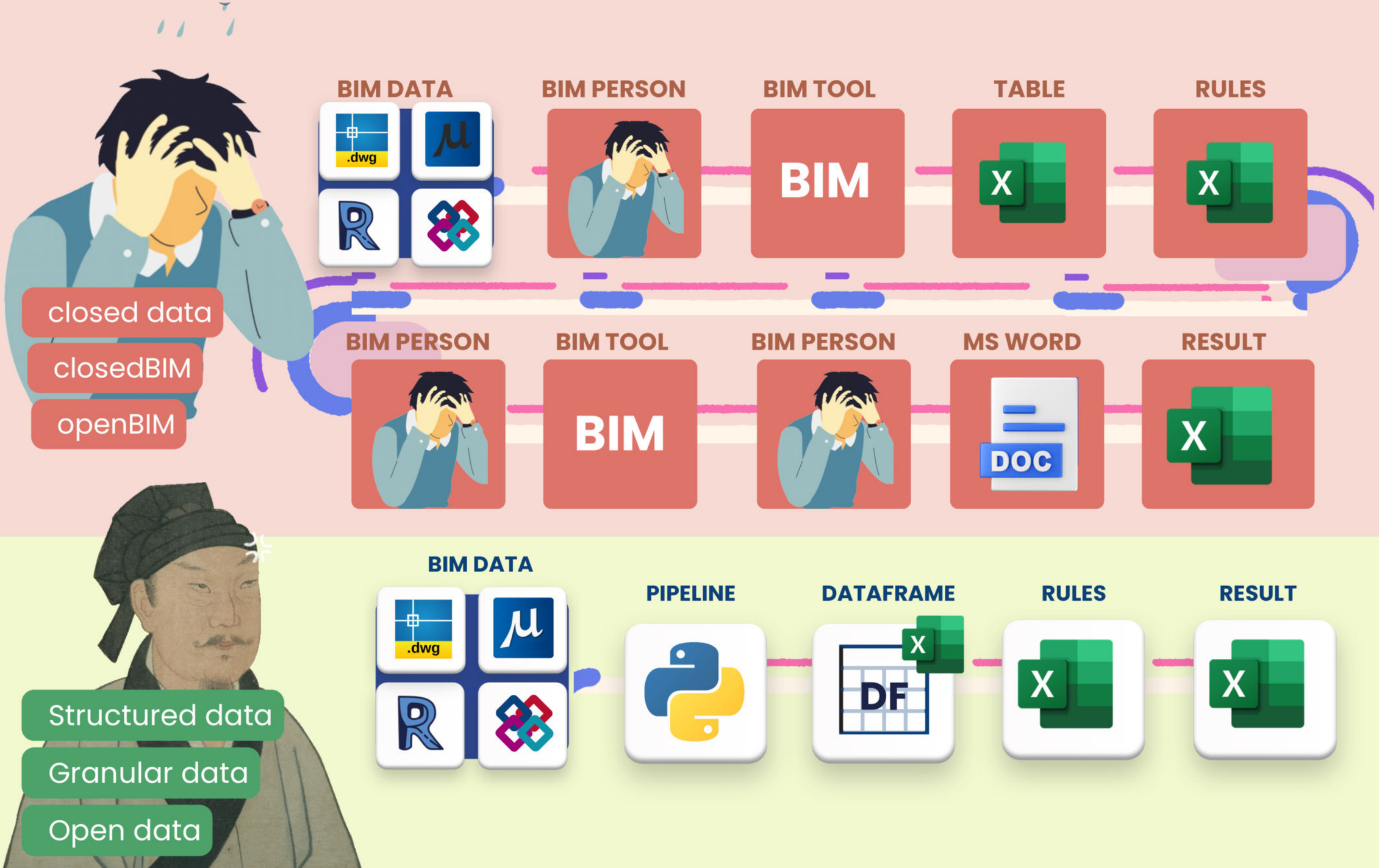
Revit 2015
Revit 2016
Revit 2017
Revit 2018
Revit 2019
Revit 2020
Revit 2021
Revit 2022
Revit 2023

IFC2X3
IFC4
IFC4X1
IFC4X2

converter

DF

granular structured data


BIM DATA
BIM PERSON
BIM TOOL
TABLE
RULES
.dwg
BIM
closed data
closedBIM
openBIM
BIM PERSON
BIM TOOL
BIM PERSON
MS WORD
RESULT
BIM
DOC
BIM DATA
PIPELINE
DATAFRAME
RULES
RESULT
.dwg
DF
Structured data
Granular data
Open data

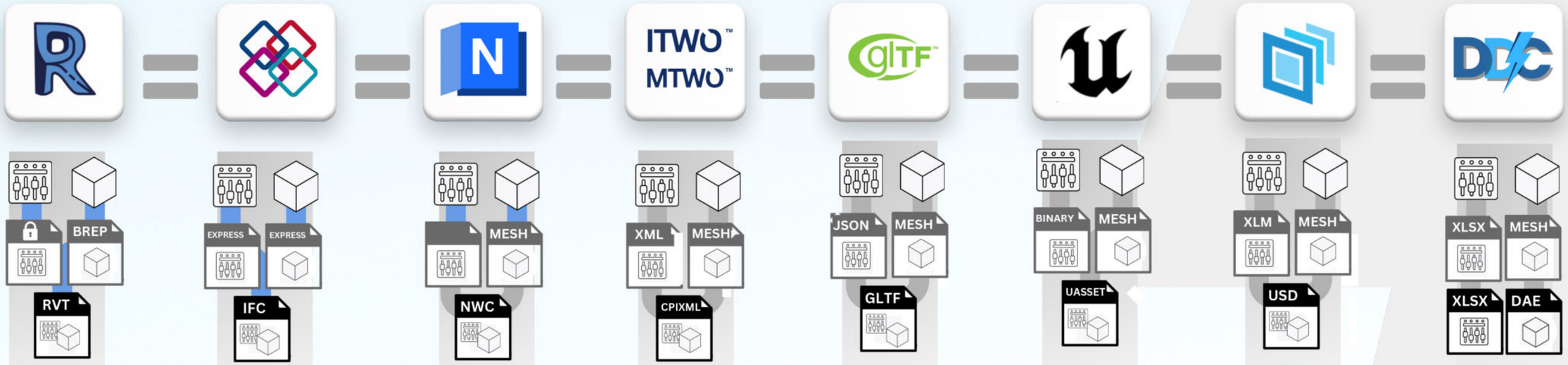
Thanks to SDKs and converters, different formats including complex closed formats, parametric formats and simplified flat formats **now contain identical information** about the same construction project

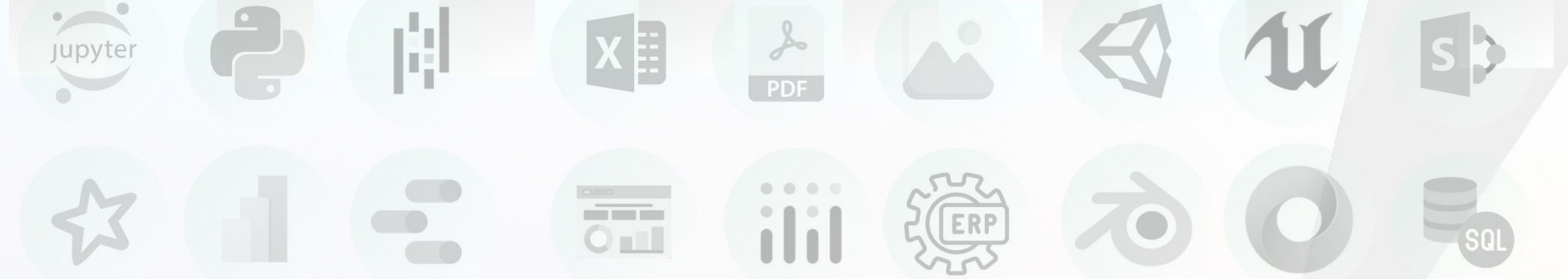
CAD (BIM) DATA

In construction projects, data manipulation begins with the collection of attribute and geometry requirements for project entities. Using parametrized CAD systems, the project is populated with data on the geometric parameters of the entities, which allows to confirm volumes and prepare data to be transferred to systems for handling the attribute parameters of the project entities.

Geometric properties of project entities

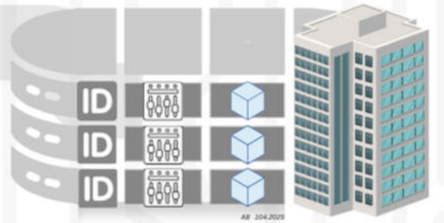
Attribute properties of project entities





EVOLUTION OF

CONSTRUCTION CAD (BIM) DATA STORAGE FORMATS



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Geometric properties of project entities

Attribute properties of project entities

In construction projects, data manipulation begins with the collection of attribute and geometry requirements for project entities. Using parametrized CAD systems, the project is populated with data on the geometric parameters of the entities, which allows to confirm volumes and prepare data to be transferred to systems for handling the attribute parameters of the project entities.

COMPARATIVE ANALYSIS OF FILE FORMATS FOR CONSTRUCTION PROJECTS

	Excel*	AutoCAD*	MicroStation*	AutoCAD* DXF	Tekla	ArchiCAD*	IFC	FBX	Navisworks*	SketchUp*	Revit*	BlenderBIM	BIM 360* & ACC	Open CDE	BEXEL	SYNCHRO*	GBXML	ITWO* / MTWO*	PRIMAVERA*	ACONEX*	PROCORE*	GLTF	Unreal Engine*	Pixel* & NVIDIA*	DataDrivenConstruction
	XLSX	DWG	DGN	DXF	DB1	PLN	IFC	FBX	NWC	SKP	RVT	BLEND	SVF	XML	BX3	SPX	GBXML	CPIXML	XER	CLOUD	CLOUD	GLTF	UASSET	USD	XLSX & DAE
Year published	XLM 1985, XLSX 2007	1982	1982	1982	1987	1987	1989	1996	1997						2010	2005	1998	2004	1983	2000	2002	2015	1998	2016	1997 & 2004
Developer	Microsoft*	Mike Riddle / Autodesk*	MicroStation*/Intergraph*	Autodesk*	Tekla Corporation*	Graphisoft*	TU Munich	Kaydara* / Autodesk*	Lightwork D / Autodesk*						BEXEL Consulting*	Synchro Software	Green Building Studio, Inc	RIB Software*	Kopppelmann & Partz	Aconex Ltd*, Oracle*	Craig "Tooey" Courtemanch	Khronos Group* (Google, Apple, Intel, NVIDIA...)	Epic Games*	Pixar*	Microsoft* & Khronos Group*
Purpose of creation	Calculations, analysis and visualize data	Used in CAD applications	Used in CAD (BIM) applications	Interoperability between CAD software	Used in CAD (BIM) applications	Used in CAD (BIM) applications	Interoperability between CAD (BIM) software	Exchange of data between 3D application	Data management and 4D-5D use cases						Data management and 4D-5D use cases	Data management and 4D-5D use cases	Environmental analysis data	Data management and 4D-5D use cases	Data management and 4D-5D use cases	Project management and collaboration tools	Data management and 4D-5D use cases	Simulations, visualization and project assets	Simulations, visualization and project assets	Simulations, visualization and project assets	Data management and 4D-5D use cases
Importing data from formats	XLS, XLSX, CSV, TXT	DXF, DGN, STP, ...	DWG, DXF, IFC, ...	DWG, DXF, IFC, ...	IFC, DWG, DXF, ...	DWG, DXF, IFC, SKP, ...	RVT, DWG, PLN, DGN, DXF, ...	RVT, IFC, OBJ, DAE, ...	RVT, DWG, DXF, DGN, IFC, ...										N/A	RVT, IFC, DWG, NWC, ...	RVT, IFC, DWG, NWC, ...	RVT, IFC, DXF, NWC, ...	RVT, IFC, FBX, OBJ, ...	RVT, IFC, DWG, DGN, NWC	RVT, IFC, DWG, DGN, NWC
Storage	Tabular	Hierarchical	Hierarchical	Hierarchical	Hierarchical	Hierarchical	Hierarchical	Hierarchical	Hierarchical						Hierarchical	Hierarchical	Hierarchical	Tabular	Tabular	Hierarchical	Cloud-based	Hierarchical	Hierarchical	Hierarchical	Tabular & Hierarchical
Data structure	Structured Data	Closed Data	Closed Data	ASCII	Closed Data	Closed Data	Semi-Structured Data	ASCII	Closed Data						Semi-Structured Data	Closed Data	Semi-Structured Data	Semi-Structured Data	Structured Data	Closed Data	Closed Data	Semi-Structured Data	Closed Data	Semi-Structured Data	Structured Data
Open format	✓	✗	✗	✓	✗	✗	✓	✓	✗						✓	✓	✓	✓	✗	✗	✗	✓	✗	✓	✓
Don't need the Internet to work	✓	✓	✓	✓	✓	✓	✓	✓	✗						✓	✓	✓	✓	✗	✗	✗	✓	✓	✓	✓
Parametric geometry creation	✗	✗	✓	✗	✓	✓	✓	✗	✗						✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Creating & modifying entity geometry	✗	✓	✓	✓	✓	✓	✗	✗	✗						✗	✗	✗	✗	✗	✗	✗	✗	✓	✓	✗
Checking geometric collisions	✗	✗	✓	✗	✓	✓	✓	✓	✗						✓	✓	✓	✓	✗	✗	✗	✗	✓	✓	✓
Creating & modifying entity attribute	...	...	...	...	...	...	...	...	...						...	...	...	...	...	...	...	...	...	...	...
Quality of data	...	...	...	...	...	...	...	...	...						...	...	...	...	...	...	...	...	...	...	...
Visualization of entity geometry	✗	...	...	...	...	...	...	...	...						...	...	...	...	✗	...	...	...	...	...	...
Completeness of geometry	✗	...	...	...	...	...	...	...	...						...	...	...	...	✗	...	...	...	...	...	...
Creation of drawings	✗	✓	✓	✗	✓	✓	✗	✓	✗						✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Integration with other tools	...	...	...	...	...	...	...	...	...						...	...	✗	...	...	...	...	...	...	...	...
Community	...	...	...	...	...	...	...	...	✗						...	...	✗	...	✗	...	...	...	...	...	...
Grouping & filtering	... (View of code (Python Pandas))	✗ (Only UI)	✗ (Only UI)	✗ (Only UI)	... (50+ lines of code)	... (50+ code lines (SQL))	... (50+ code lines (ArchiCAD))	...	...						...	...	... (50+ lines of code (Python))	... (50+ lines of code (Python))	...	...	...	... (50+ lines of code (Python))	... (50+ lines of code (Python))	... (50+ lines of code (Python))	... (View of code (Python Pandas))
Calculations 4D, 5D, 6D, 7D	...	...	...	...	...	...	...	...	...						...	...	...	...	...	...	...	✗	✗	✗	...
No API Restrictions	...	✗	✗	...	✗	✗	...	✗	✗						✗	✗	...	...	✗	✗	✗	...	✗	...	✗
Batch Processing	...	✗	✗	✗	✗	✗	...	✗	✗						✗	✗	...	...	✗	...	...	...	✗	...	✗
Don't need CAD (BIM) tools to work	...	✗	✗	✗	✗	✗	...	✗	✗						✗	✗	...	...	✗	...	...	...	✗	...	✗
Difficulty in handling data	...	✗	✗	✗	✗	✗	...	✗	✗						✗	✗	...	...	✗	...	...	...	✗	...	✗
Versioning and change management	...	✗	✗	✗	✗	✗	...	✗	✗						✗	✗	...	...	✗	...	...	...	✗	...	✗
Support for data analytics	...	✗	✗	✗	✗	✗	...	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	✗	...	...
Creating dashboards	...	✗	✗	✗	✗	✗	...	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	✗	...	...
Easy to create data processing tools	...	✗	✗	✗	✗	✗	...	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	...	...	...
Compatible with ERP Systems	...	✗	✗	✗	...	...	...	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	✗	...	...
The ability to create Big Data	...	✗	✗	✗	✗	✗	...	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	...	...	...
ML and AI support without ETL	...	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	...	...	...
Usage in ChatGPT	...	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	...	...	...	...	...	...	✗	...	...	...	...	...	...
Primary application ecosystems	Almost any sector requiring data analysis	CAD Software	CAD Software	CAD Software	CAD (BIM) Software	CAD (BIM) Software	CAD (BIM) interoperability format	Interoperability, 3D modeling, animation, and game development	Project Review Software	CAD (3D Modeling) Software	CAD (BIM) Software	3D modeling and animation software	Cloud-based Viewing and Data Management Platform	Cloud-based Viewing and Data Management Platform	4D-5D use cases, Construction Project Information Management	4D-5D use cases, Construction Project Information Management	6D-7D use cases, Energy analysis in building design	ERP, 4D-5D use cases, Construction Project Information Management	4D Project scheduling, Tracking, and Management	Managing documents, processes, and communications in large-scale projects	Project management, resource coordination, and communication in construction projects	3D rendering and virtual reality platforms	Real-time Rendering Engines	High-end rendering and animation platforms	ERP, 4D-5D use cases, Construction Project Information Management
Main users of the format	Project Managers, BIM Coordinators & Manager's	Planners, Architects, Designers	Planners, Architects, Designers	Planners, Architects, Designers	Planners, Architects, Designers	Planners, Architects, Designers	BIM Coordinators, BIM Managers	AR/VR, Game Developers, 3D Designers	Project Managers, BIM Coordinators & Manager's	Architects, Interior Designers	Planners, Architects, Designers	Planners, Architects, Designers	Project Managers, BIM Coordinators & Manager's	Project Managers, BIM Coordinators & Manager's	Project Managers, BIM Coordinators & Manager's	Project Managers, BIM Coordinators & Manager's	Environmental Engineers, Sustainability Consultants	Projects', Estimatings', Logistics Managers, Construction Project Managers	Projects Managers, Logistics Managers, Construction Project Managers	Projects Managers, Logistics Managers, Construction Project Managers	Projects Managers, Logistics Managers, Construction Project Managers	Simulation creators, AR/VR, Game Developers, 3D Designers	Simulation creators, AR/VR, Game Developers, 3D Designers	Simulation creators, AR/VR, Game Developers, 3D Designers	Project, Estimating, Logistics Managers, Construction Project Managers
Usage	Widely used across all platforms	Autodesk* AutoCAD*	Bentley* Systems MicroStation*	Autodesk* AutoCAD*	Tekla Structures	Graphisoft* ArchiCAD*	OpenBIM*, ARCHICAD*, Tekla*, Revit*, Vectorworks*, BlenderBIM	Autodesk* 3ds Max, Maya*, and Unity*	Autodesk* Navisworks*	SketchUp*, Trimble Connect*	Autodesk* Revit*, Autodesk* BIM 360*	Blender	Autodesk* Forge*, Autodesk* BIM 360*, Autodesk* Construction Cloud*	BIM 360*, Forge based, Bentley* ProjectWise*, Trimble* Connect, Procore* and others	Bexel* Manager	Bentley* ecosystem, Synchro* software	Autodesk* Green Building Studio	RIB* iTWO, MTWO Construction Cloud	Oracle* Primavera P6	Oracle* Construction and Engineering suite	Mobile applications, enabling use on various devices in the field or office	Microsoft* Mixed Reality Toolkit, Fabulous* 3D Photo, SketchFab, Three.js	Unreal Engine*	NVIDIA* Omniverse™, Apple* ARKit, Pixar's* USD tools	Excel*, Python Pandas, Unreal Engine*, PowerBI, ChatGPT, Unreal Engine
Popular usage platforms	XLS, XLSX	DWG	DGN	DXF	DB1	PLN	IFC	FBX	NWC	SKP	RVT	BLEND	SVF	XML	BX3	SPX	GBXML	CPIXML	XER	CLOUD	CLOUD	GLTF	UASSET	USD	XLSX & DAE

https://datadrivenconstruction.io/?sdm_process_download=1&download_id=3231

data-driven construction.io

AS STRUCTURED DATA

Column names

Columns
axis = 1

ID	Name	Category	Family Name	Height	BoundingBoxMin_X	BoundingBoxMin_Y	BoundingBoxMin_Z	Level
431144	Single-Flush	OST_Doors	Single-Flush	6.88976378	20.1503	-10.438	9.84252	Level 1
431198	Single-Flush	OST_Doors		6.88976378	13.2281	-1.1207	9.84252	Level 2
457479	Single Window	OST_Windows	Single Window	8.858267717	-11.434	-11.985	9.80971	Level 2
485432	Single Window	OST_Windows	Single Window	8.858267717	-11.434	4.25986	9.80971	Level 2
490150	Single-Flush	OST_Doors	Single-Flush	6.88976378	-1.5748	-2.9565	-1E-16	Level 1
493697	Basic Wall	OST_Walls	Basic Wall		-38.15	20.1656	-4.9213	Level 1
497540	Basic Wall	OST_Walls	Basic Wall		-4.5212	-0.0708	9.84252	Level 1

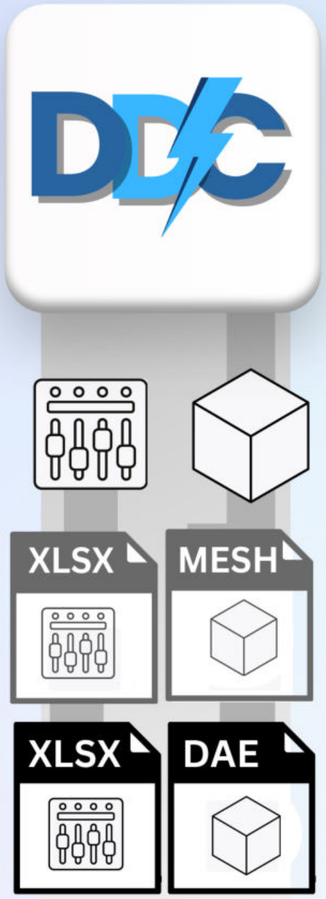
Index label

Index
axis = 0

Missing value

Data

A project, is a set of elements where **each element has a set of properties** and parameters and where geometry is an optional attribute

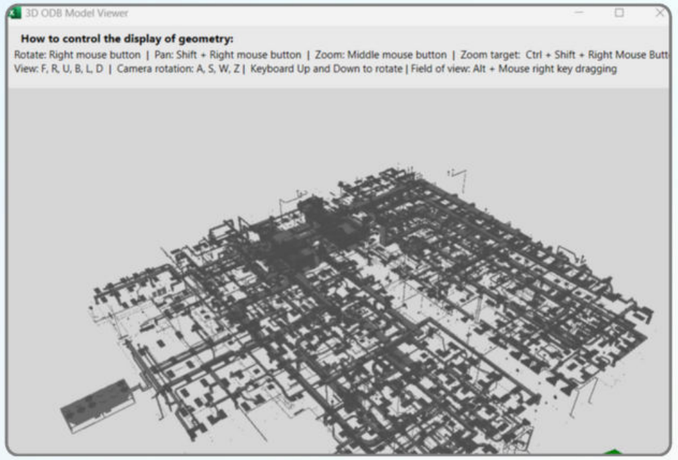


XLSX

ID	Name	Category	Volume	IfcGUID
176804	Floor	OST_Floors	561.0052641	0WFFycJ9rEj9FbADAA0q3o
198694	Basic Wall	OST_Walls	159.4707199	3lLx0gNe59vvExhby0Bfew
198749	Basic Wall	OST_Walls	42.87248164	3lLx0gNe59vvExhby0Bff1
211850	Sink-Offset-Kohler-Vaul	OST_PlumbingFixtures	0.140436811	28i3i5WDD8Ju0YHnzXOtS7
213811	Faucet-8inch_Reach-Kc	OST_PlumbingFixtures	0.011825773	28i3i5WDD8Ju0YHnzXOm__
234869	Basic Wall	OST_Walls	153.1897499	28i3i5WDD8Ju0YHnzXOzdu
243274	Basic Roof	OST_Roofs	1235.098039	2cgXCjpDT0ZxBvxMSr3pfm
414482	M_Concrete-Round-Co	OST_StructuralColumns	144.8376535	3llj7B0LnBjf0mvxk2zuuc
418079	Basic Wall	OST_Walls	61.63398154	1oPutv5ADAxgWEbAZbN6Wv
418183	Floor	OST_Floors	1064.663482	3OLNF2_DL6hfPgh8Bw7fI7
418977	M_Wind Power Genera	OST_Site	8.431030183	3OLNF2_DL6hfPgh8Bw7f6X
418985	M_Wind Power Genera	OST_Site	8.431030183	3OLNF2_DL6hfPgh8Bw7f6f
420270	Bathtub-TOTO-Nexus-F	OST_PlumbingFixtures	9.049002553	21MLmufC9A8ftVM8JLuL62
422243	Basic Wall	OST_Walls	42.6965127	1PDnLIM013wvkZO9Lb4$wc
422466	Single-Flush	OST_Doors	3.84110567	1PDnLIM013wvkZO9Lb4$s7
423100	System Panel	OST_CurtainWallPanels	3.82334098	1PDnLIM013wvkZO9Lb4$jv
423107	Entrance door	OST_Doors	3.591789773	1PDnLIM013wvkZO9Lb4$i6
423134	Rectangular Mullion	OST_CurtainWallMullio	0.20341248	1PDnLIM013wvkZO9Lb4$iR
423136	Rectangular Mullion	OST_CurtainWallMullio	0.20341248	1PDnLIM013wvkZO9Lb4$ib
423138	Rectangular Mullion	OST_CurtainWallMullio	0.423776001	1PDnLIM013wvkZO9Lb4$id

ID

DAE

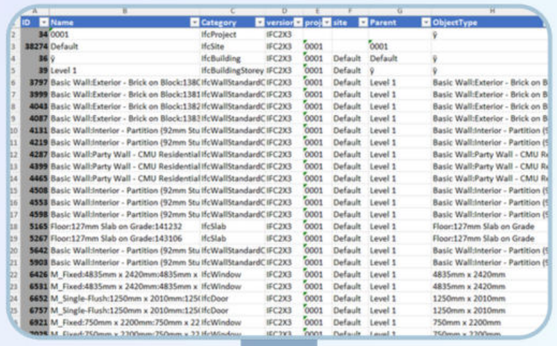


Projects

TEXT		FLOAT		TEXT		XML	
ID	NAME	V	QT	PAR1	PAR2	GEOM	ID
ID1	el1	X m³	X pcs.	ABC1	DEF1		ID1
ID2	el2	X m³	X pcs.	ABC2	DEF2		ID2
ID3	el3	X m³	X pcs.	ABC3	DEF3		ID3
ID7	el7	X m³	X pcs.	ABC7	DEF7		ID7
ID8	el8	X m³	X pcs.	ABC8	DEF8		ID8
ID9	el9	X m³	X pcs.	ABC9	DEF9		ID9

IFC

STRUCTURED DATA



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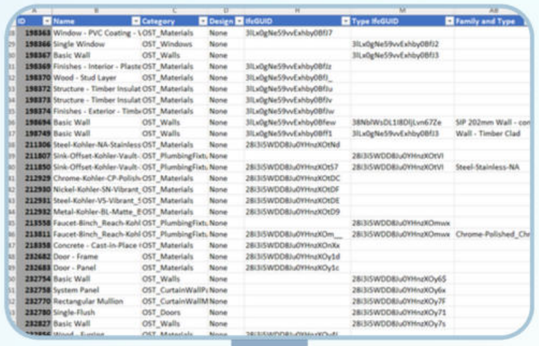
34	0001	IfcProject	IFC2X3				
38274	Default	IfcSite	IFC2X3	0001		0001	
36		IfcBuilding	IFC2X3	0001	Default	Default	
39	Level 1	IfcBuildingStorey	IFC2X3	0001	Default		
3797	Basic Wall:Exterior - Brick on Block:138(	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Exterior - Brick on B
3999	Basic Wall:Exterior - Brick on Block:1381	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Exterior - Brick on B
4043	Basic Wall:Exterior - Brick on Block:1382	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Exterior - Brick on B
4087	Basic Wall:Exterior - Brick on Block:1383	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Exterior - Brick on B
4131	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
4219	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
4287	Basic Wall:Party Wall - CMU Residential	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Party Wall - CMU Re
4399	Basic Wall:Party Wall - CMU Residential	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Party Wall - CMU Re
4465	Basic Wall:Party Wall - CMU Residential	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Party Wall - CMU Re
4508	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
4553	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
4598	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
5165	Floor:127mm Slab on Grade:141232	IfcSlab	IFC2X3	0001	Default	Level 1	Floor:127mm Slab on Grade
5267	Floor:127mm Slab on Grade:143106	IfcSlab	IFC2X3	0001	Default	Level 1	Floor:127mm Slab on Grade
5642	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
5903	Basic Wall:Interior - Partition (92mm Stu	IfcWallStandardC	IFC2X3	0001	Default	Level 1	Basic Wall:Interior - Partition (9
6426	M_Fixed:4835mm x 2420mm:4835mm x	IfcWindow	IFC2X3	0001	Default	Level 1	4835mm x 2420mm
6531	M_Fixed:4835mm x 2420mm:4835mm x	IfcWindow	IFC2X3	0001	Default	Level 1	4835mm x 2420mm
6652	M_Single-Flush:1250mm x 2010mm:125(	IfcDoor	IFC2X3	0001	Default	Level 1	1250mm x 2010mm
6757	M_Single-Flush:1250mm x 2010mm:125(	IfcDoor	IFC2X3	0001	Default	Level 1	1250mm x 2010mm
6921	M_Fixed:750mm x 2200mm:750mm x 22	IfcWindow	IFC2X3	0001	Default	Level 1	750mm x 2200mm

RVT

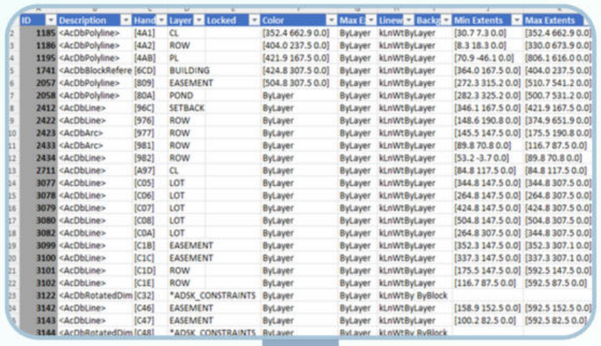
STRUCTURED DATA



ID	Name	Category	Design	IfcGUID	Type IfcGUID	Family and Type
198363	Window - PVC Coating - \	OST_Materials	None	3lLx0gNe59vvExhby0Bfi7		
198366	Single Window	OST_Windows	None		3lLx0gNe59vvExhby0Bfi2	
198367	Basic Wall	OST_Walls	None		3lLx0gNe59vvExhby0Bfi3	
198369	Finishes - Interior - Plaste	OST_Materials	None	3lLx0gNe59vvExhby0Bfiz		
198370	Wood - Stud Layer	OST_Materials	None	3lLx0gNe59vvExhby0Bfij_		
198372	Structure - Timber Insulat	OST_Materials	None	3lLx0gNe59vvExhby0Bfiu		
198373	Structure - Timber Insulat	OST_Materials	None	3lLx0gNe59vvExhby0Bfiv		
198374	Finishes - Exterior - Timb	OST_Materials	None	3lLx0gNe59vvExhby0Bfiw		
198694	Basic Wall	OST_Walls	None	3lLx0gNe59vvExhby0Bfew	38NbIWsDL18D0jLvn67Ze	SIP 202mm Wall - con
198749	Basic Wall	OST_Walls	None	3lLx0gNe59vvExhby0Bff1	3lLx0gNe59vvExhby0Bfi3	Wall - Timber Clad
211306	Steel-Kohler-NA-Stainless	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtNd		
211807	Sink-Offset-Kohler-Vault-	OST_PlumbingFixtu	None		2Bi3iSWDD8JuOYHnzKOtVI	
211850	Sink-Offset-Kohler-Vault-	OST_PlumbingFixtu	None	2Bi3iSWDD8JuOYHnzKOts7	2Bi3iSWDD8JuOYHnzKOtVI	Steel-Stainless-NA
212929	Chrome-Kohler-CP-Polish-	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtDC		
212930	Nickel-Kohler-SN-Vibrant_	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtDF		
212931	Steel-Kohler-VS-Vibrant_S	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtDE		
212932	Metal-Kohler-BL-Matte_E	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtD9		
213558	Faucet-Binch_Reach-Kohl	OST_PlumbingFixtu	None		2Bi3iSWDD8JuOYHnzKOmwx	
213811	Faucet-Binch_Reach-Kohl	OST_PlumbingFixtu	None	2Bi3iSWDD8JuOYHnzKOm__	2Bi3iSWDD8JuOYHnzKOmwx	Chrome-Polished_Ch
218358	Concrete - Cast-in-Place	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOnRx		
282682	Door - Frame	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOy1d		
282683	Door - Panel	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOy1c		
282754	Basic Wall	OST_Walls	None		2Bi3iSWDD8JuOYHnzKOy6S	
282758	System Panel	OST_CurtainWallPa	None		2Bi3iSWDD8JuOYHnzKOy6x	
282770	Rectangular Mullion	OST_CurtainWallM	None		2Bi3iSWDD8JuOYHnzKOy7F	
282780	Single-Flush	OST_Doors	None		2Bi3iSWDD8JuOYHnzKOy71	
282827	Basic Wall	OST_Walls	None		2Bi3iSWDD8JuOYHnzKOy7s	

DWG

STRUCTURED DATA



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1186	<AcDbPolyline>	[4A2]	ROW		[404.0 237.5 0.0]	ByLayer	kLnWtByLayer		[8.3 18.3 0.0]	[330.0 673.9 0.0]
1195	<AcDbPolyline>	[4AB]	PL		[421.9 167.5 0.0]	ByLayer	kLnWtByLayer		[70.9 -46.1 0.0]	[806.1 616.0 0.0]
1741	<AcDbBlockRefere	[6CD]	BUILDING		[424.8 307.5 0.0]	ByLayer	kLnWtByLayer		[364.0 167.5 0.0]	[404.0 237.5 0.0]
2057	<AcDbPolyline>	[809]	EASEMENT		[504.8 307.5 0.0]	ByLayer	kLnWtByLayer		[272.3 315.2 0.0]	[510.7 541.2 0.0]
2058	<AcDbPolyline>	[80A]	POND		ByLayer	ByLayer	kLnWtByLayer		[282.3 325.2 0.0]	[500.7 531.2 0.0]
2412	<AcDbLine>	[96C]	SETBACK		ByLayer	ByLayer	kLnWtByLayer		[346.1 167.5 0.0]	[421.9 167.5 0.0]
2422	<AcDbLine>	[976]	ROW		ByLayer	ByLayer	kLnWtByLayer		[148.6 190.8 0.0]	[374.9 651.9 0.0]
2423	<AcDbArc>	[977]	ROW		ByLayer	ByLayer	kLnWtByLayer		[145.5 147.5 0.0]	[175.5 190.8 0.0]
2433	<AcDbArc>	[981]	ROW		ByLayer	ByLayer	kLnWtByLayer		[89.8 70.8 0.0]	[116.7 87.5 0.0]
2434	<AcDbLine>	[982]	ROW		ByLayer	ByLayer	kLnWtByLayer		[53.2 -3.7 0.0]	[89.8 70.8 0.0]
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3078	<AcDbLine>	[C06]	LOT		ByLayer	ByLayer	kLnWtByLayer		[264.8 147.5 0.0]	[264.8 307.5 0.0]
3079	<AcDbLine>	[C07]	LOT		ByLayer	ByLayer	kLnWtByLayer		[424.8 147.5 0.0]	[424.8 307.5 0.0]
3080	<AcDbLine>	[C08]	LOT		ByLayer	ByLayer	kLnWtByLayer		[504.8 147.5 0.0]	[504.8 307.5 0.0]
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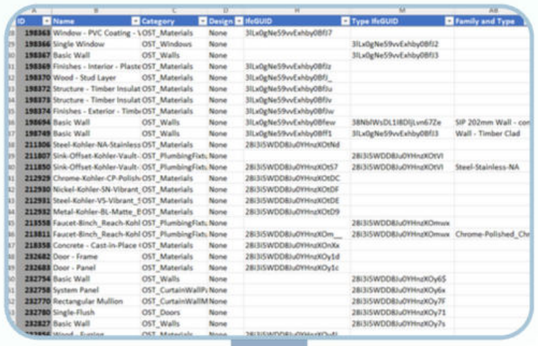
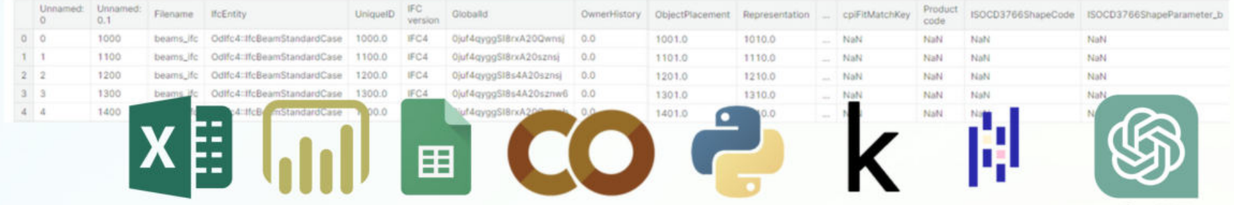
DGN

STRUCTURED DATA



ID	Name	Category	Design	IfcGUID	Type IfcGUID	Family and Type
198363	Window - PVC Coating - \	OST_Materials	None	3lLx0gNe59vvExhby0Bfi7		
198366	Single Window	OST_Windows	None		3lLx0gNe59vvExhby0Bfi2	
198367	Basic Wall	OST_Walls	None		3lLx0gNe59vvExhby0Bfi3	
198369	Finishes - Interior - Plaste	OST_Materials	None	3lLx0gNe59vvExhby0Bfiz		
198370	Wood - Stud Layer	OST_Materials	None	3lLx0gNe59vvExhby0Bfij_		
198372	Structure - Timber Insulat	OST_Materials	None	3lLx0gNe59vvExhby0Bfiu		
198373	Structure - Timber Insulat	OST_Materials	None	3lLx0gNe59vvExhby0Bfiv		
198374	Finishes - Exterior - Timb	OST_Materials	None	3lLx0gNe59vvExhby0Bfiw		
198694	Basic Wall	OST_Walls	None	3lLx0gNe59vvExhby0Bfew	38NbIWsDL18D0jLvn67Ze	SIP 202mm Wall - con
198749	Basic Wall	OST_Walls	None	3lLx0gNe59vvExhby0Bff1	3lLx0gNe59vvExhby0Bfi3	Wall - Timber Clad
211306	Steel-Kohler-NA-Stainless	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtNd		
211807	Sink-Offset-Kohler-Vault-	OST_PlumbingFixtu	None		2Bi3iSWDD8JuOYHnzKOtVI	
211850	Sink-Offset-Kohler-Vault-	OST_PlumbingFixtu	None	2Bi3iSWDD8JuOYHnzKOts7	2Bi3iSWDD8JuOYHnzKOtVI	Steel-Stainless-NA
212929	Chrome-Kohler-CP-Polish-	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtDC		
212930	Nickel-Kohler-SN-Vibrant_	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtDF		
212931	Steel-Kohler-VS-Vibrant_S	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtDE		
212932	Metal-Kohler-BL-Matte_E	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOtD9		
213558	Faucet-Binch_Reach-Kohl	OST_PlumbingFixtu	None		2Bi3iSWDD8JuOYHnzKOmwx	
213811	Faucet-Binch_Reach-Kohl	OST_PlumbingFixtu	None	2Bi3iSWDD8JuOYHnzKOm__	2Bi3iSWDD8JuOYHnzKOmwx	Chrome-Polished_Ch
218358	Concrete - Cast-in-Place	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOnRx		
282682	Door - Frame	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOy1d		
282683	Door - Panel	OST_Materials	None	2Bi3iSWDD8JuOYHnzKOy1c		
282754	Basic Wall	OST_Walls	None		2Bi3iSWDD8JuOYHnzKOy6S	
282758	System Panel	OST_CurtainWallPa	None		2Bi3iSWDD8JuOYHnzKOy6x	
282770	Rectangular Mullion	OST_CurtainWallM	None		2Bi3iSWDD8JuOYHnzKOy7F	
282780	Single-Flush	OST_Doors	None		2Bi3iSWDD8JuOYHnzKOy71	
282827	Basic Wall	OST_Walls	None		2Bi3iSWDD8JuOYHnzKOy7s	

STRUCTURED DATA



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3	3	1300	beams_ifc	Odlfc4::IfcBeamStandardCase	1300.0	IFC4	0juf4qyggSI8s4A20sznw6	0.0	1301.0	1310.0	...	NaN	NaN	NaN	NaN
4	4	1400	beams_ifc	Odlfc4::IfcBeamStandardCase	1400.0	IFC4	0juf4qyggSI8rxA20Qwnsj	0.0	1401.0	1410.0	...	NaN	NaN	NaN	NaN

Excel PowerBI Sheets Google Colab Python Kaggle Pandas ChatGPT

Interoperability and data formats

data driven construction.io

2D image design

Adobe 2000s

- objects
- lines
- text
- layers

PSD

interoperability

XCF

GIMP

- objects
- lines
- text
- layers

3D design project

- objects
- lines
- text
- layers
- parameters

RVT

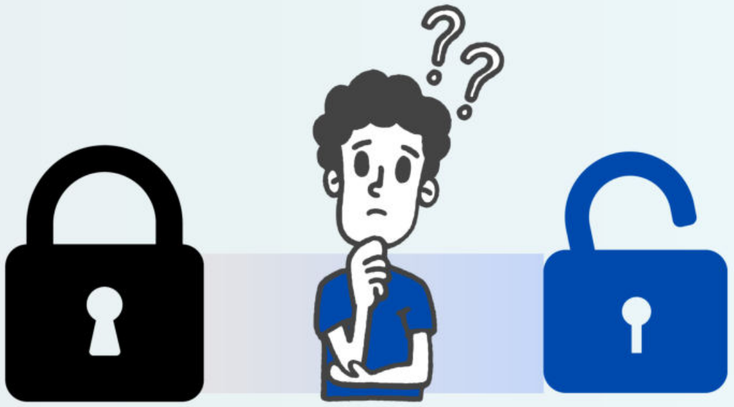
Autodesk 2020s

interoperability

IFC

openBIM

- objects
- lines
- text
- layers
- parameters



The **interoperability of data** formats in construction is **similar to the path from trying to combine Photoshop and GIMP** in the 2000s to the similar goal of combining closed CAD (BIM) tools with open and semi-open solutions in the 2020s.

Interoperability and data formats

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PSD

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RVT

Autodesk — 2020s

interoperability

IFC

openBIM

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- parameters

Data exchange storage formats

JPEG PNG GIF

USD CPIXML GLTF

Users, however, wanted simple solutions - flat and accessible data. They were not interested in redundant layer logics and parameters.

Interoperability and data formats

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- parameters

RVT

Autodesk 2020s

interoperability

IFC

openBIM

- objects
- lines
- text
- layers
- parameters

Data exchange storage formats

JPEG PNG GIF

CSV XLSX XML

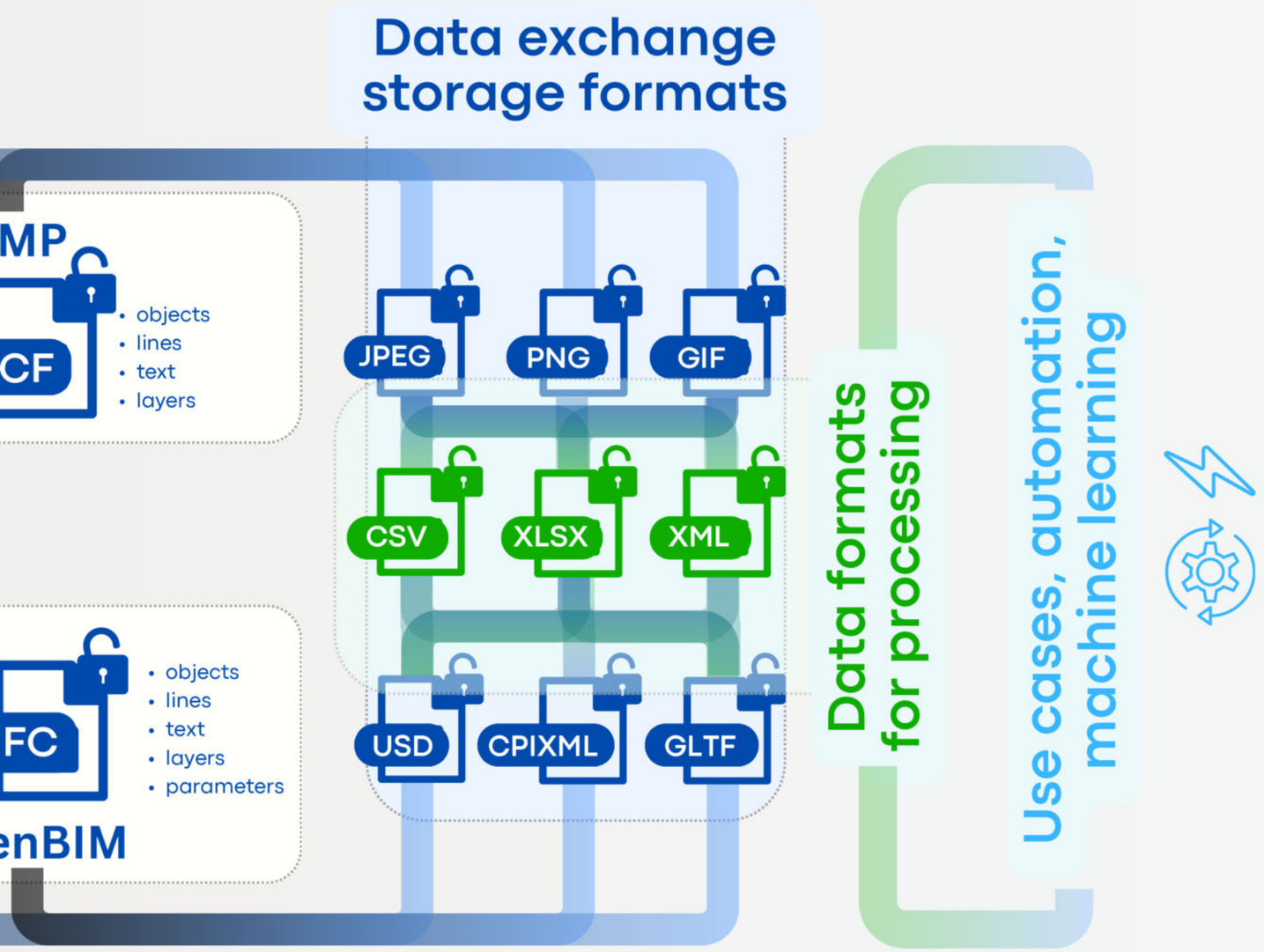
USD CPIXML GLTF

Data formats for processing

Use cases, automation, machine learning

Interoperability and data formats

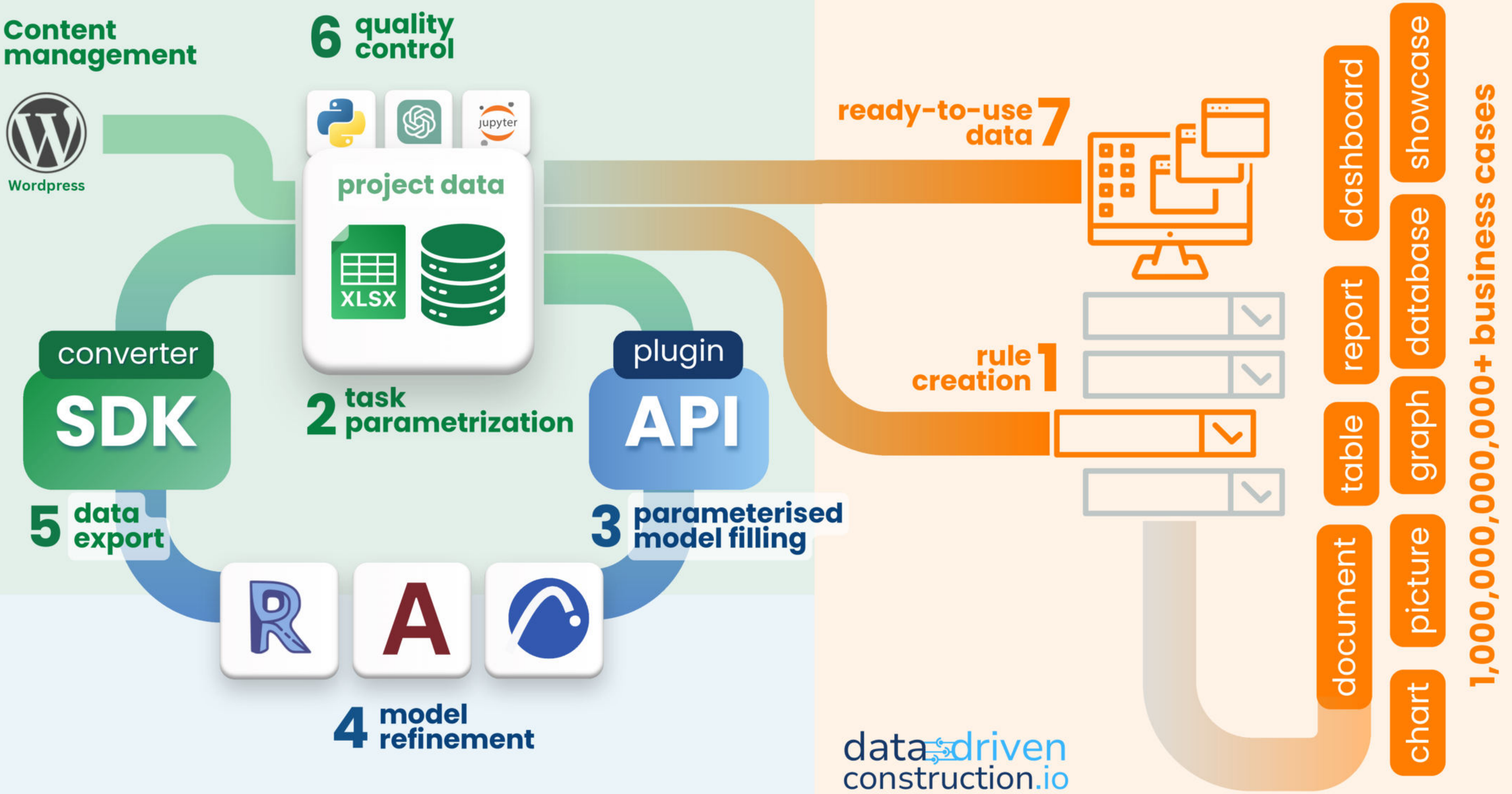
data driven construction.io



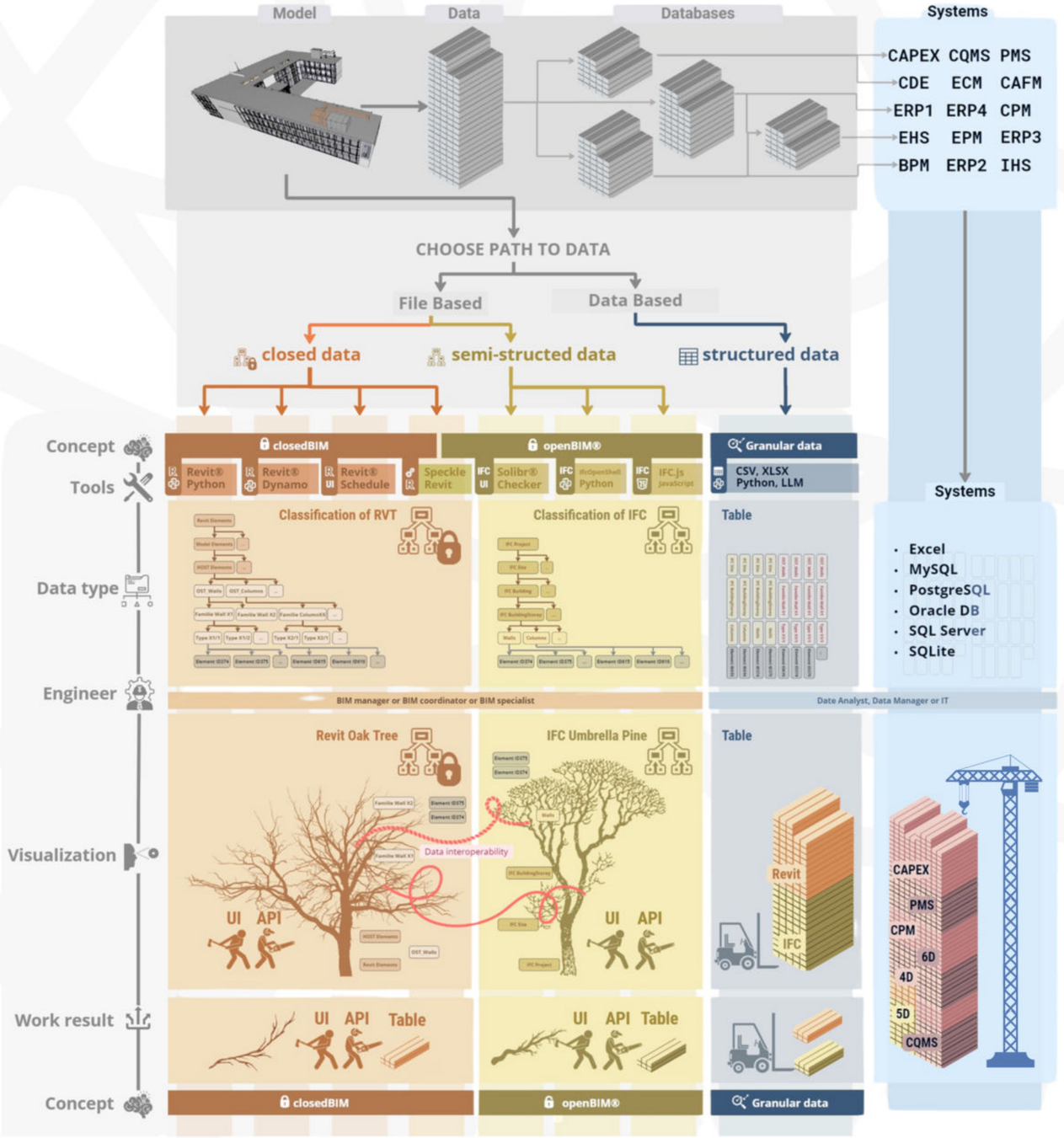
DATA > SOFTWARE

The industry will eventually come around to the need for data, **not tools**

Automated Data Processing Workflow for Construction Applications



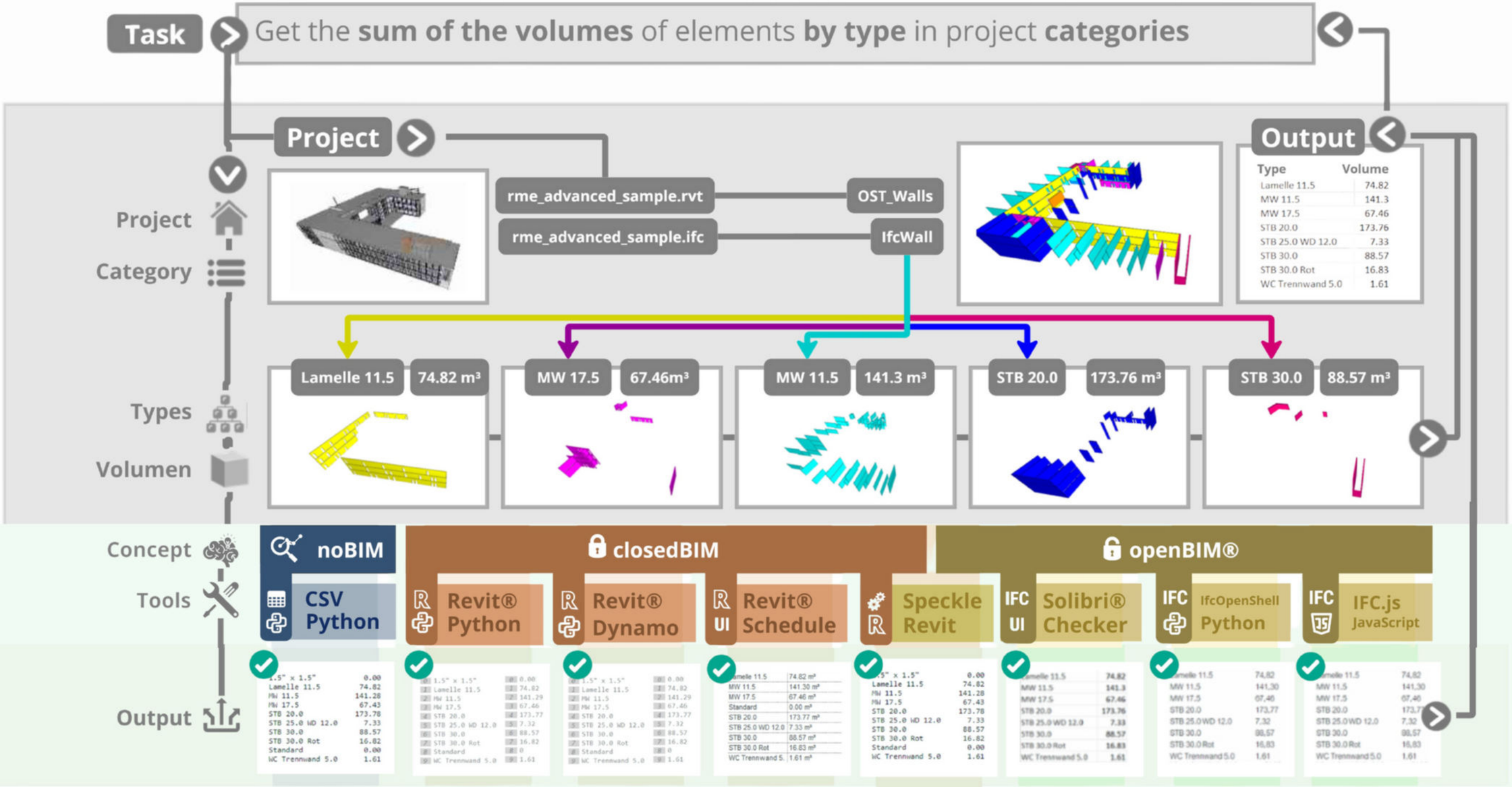
Complex structured formats in **semi-structured form make it difficult** to access element properties



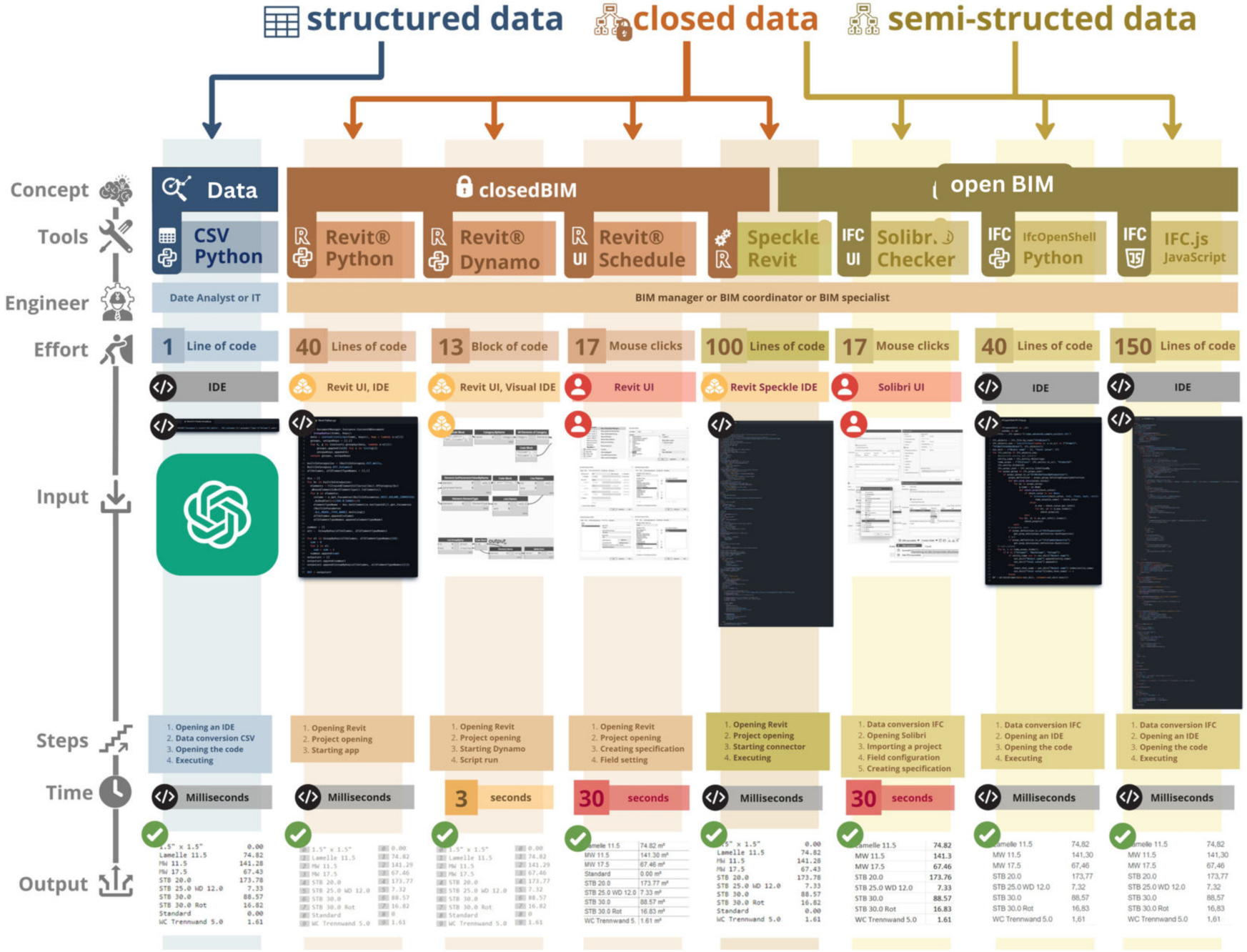
data driven construction.io

GET DATA FROM A MODEL

The popular case study “Quantitative Takeoff



Structured data leads the way: simpler, faster, more efficient



data driven construction.io

CAD (BIM) Maturity Levels: From Stage 0 to Structured Data

BIM Level 0

unstructured data

DWG
JPEG
PDF

CAD

Lines, Texts

1990s

BIM Level 1

closed data

RVT
PLN
TSK

2D,3D

Models, Objects

2000s

BIM Level 2

semi-structured data

IFC
XML
JSON

BIM

Collaboration

2010s

SDK Converter

structured data

CSV
XLSX
SQL

iBIM, BLM

Interoperable Data

Structured Data

Database

Process analytics

Analysis

Reporting

2020s

Data Storage

Data Lakehouse

Digitalization

Automation

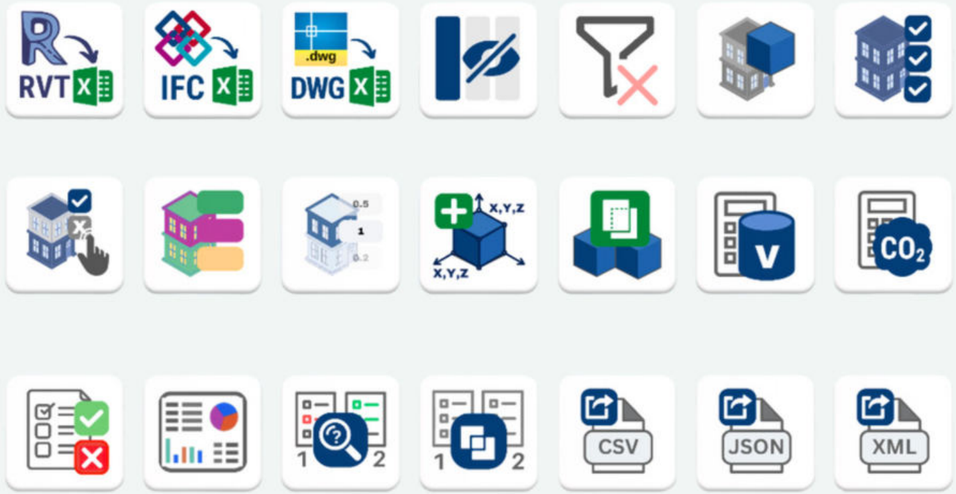
ML & AI

2020s

data driven construction.io

excel

plugin



converters

converter with UI

terminal version

Input

```python
# The bar plot can be created as follows

dfp = df.groupby('Category')['Volume'].sum()
dfp.plot(kind='barh')
```

Output

	Id	Category	Type	Length	Volume
0	12577	Wall	Wall WD100	3200	1.0
1	15889	Wall	Wall STB 200	5400	6.0
3	74456	Window	Window 1700w	1700	0.5

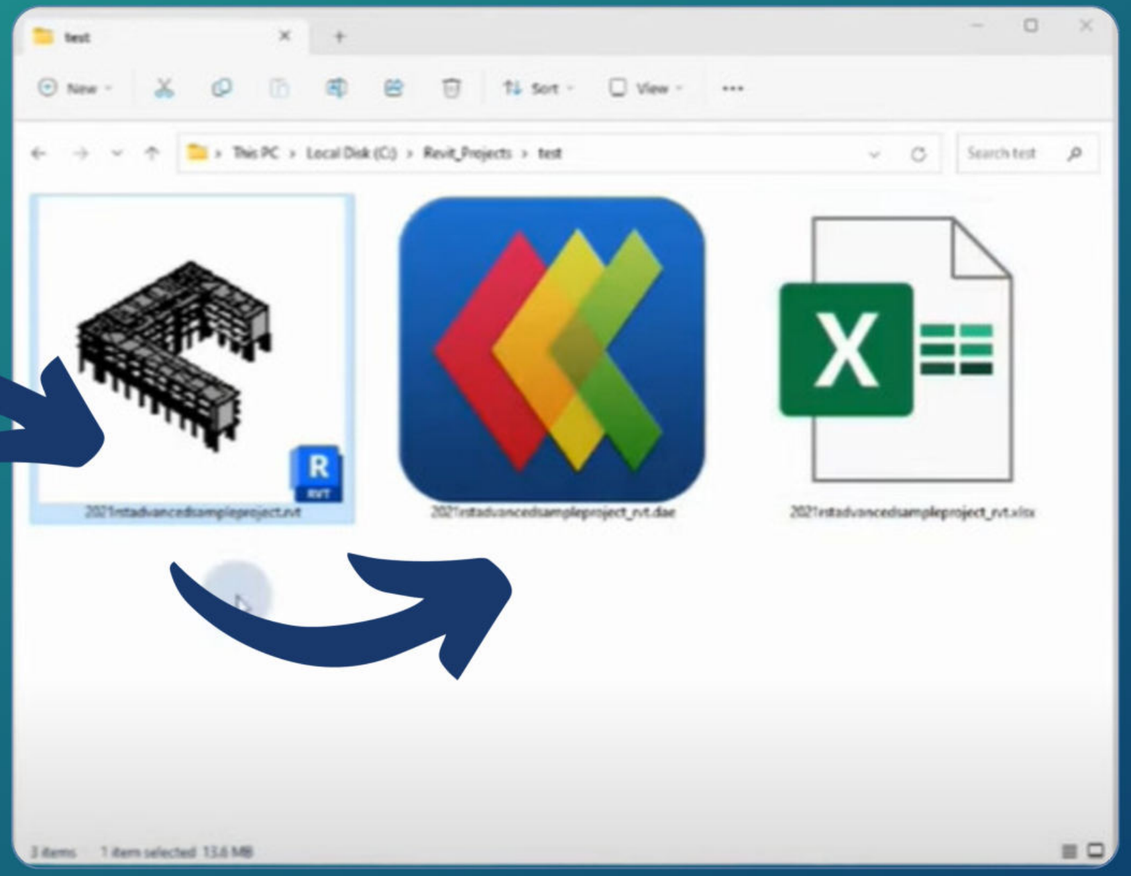
Input

```python
# Whether each element contains the values

df[df['Category'].isin(['Wall', 'Window'])]
```

Converter with UI

Conversion from CAD (BIM) formats in two clicks

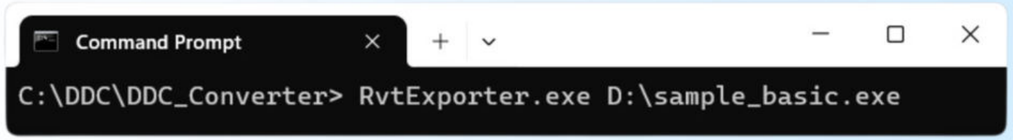


Converter

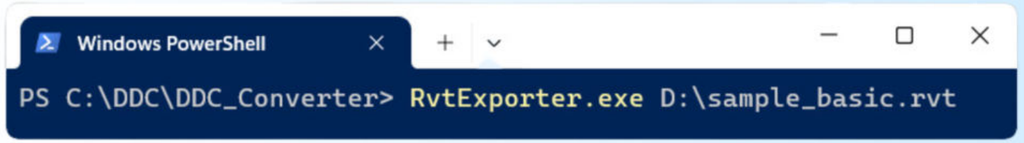
terminal version

Hundreds of applications allow you to embed the conversion process into your use cases

Command Promt



PowerShell



VS Code

jupyter

kaggle

Google colab

eclipse

Azure Notebooks

From **multi-format CAD (BIM)** data into a structured format 🤗

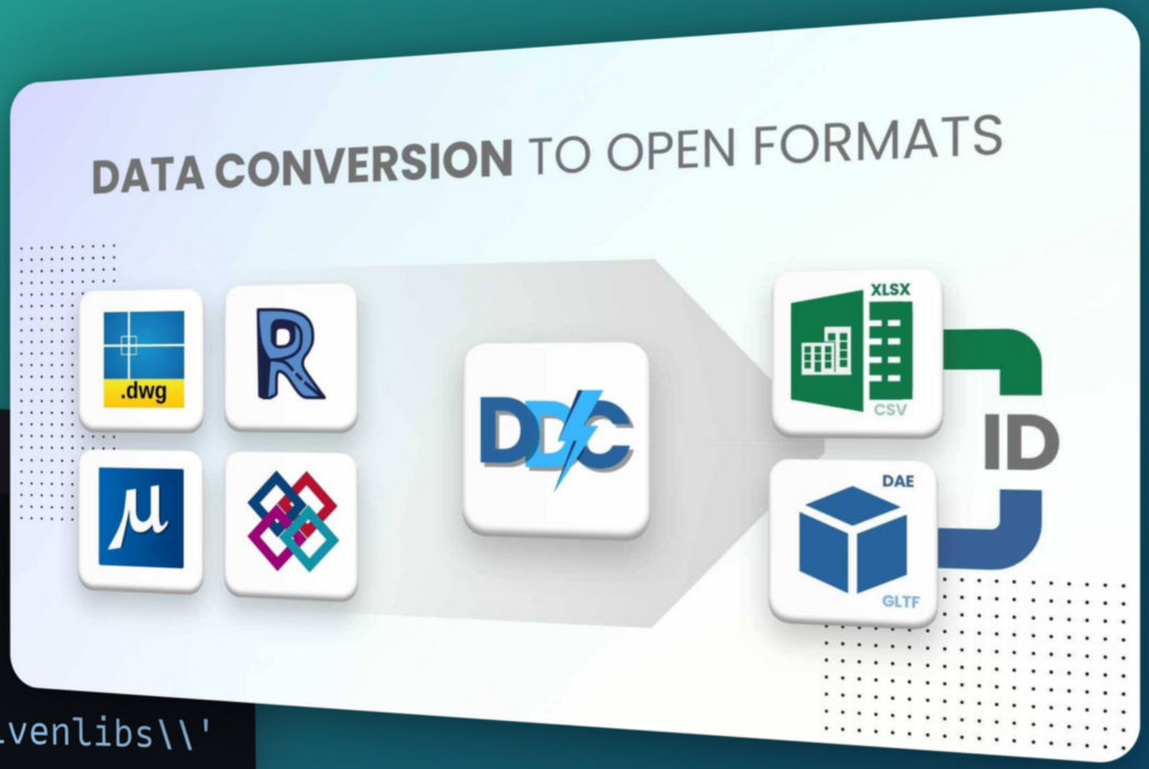
RVT | IFC | DWG conversion.py

```python
import os, subprocess

# Folder where the DDC converter is located
path_conv = r'C:\DDC_Revit_Community\datadrivenlibs\\'
# Path address RVT | IFC | DWG  project are located
file_path = r'C:\DDC\rstadvanced_sample.rvt'

# Conversion of one RVT project
process = subprocess.Popen([os.path.join(path_conv,
'RvtExporter.exe'), file_path], cwd=path_conv)

print("DDC Conversion process finished")
```



conversion in just 4 lines of code

data-driven construction.io

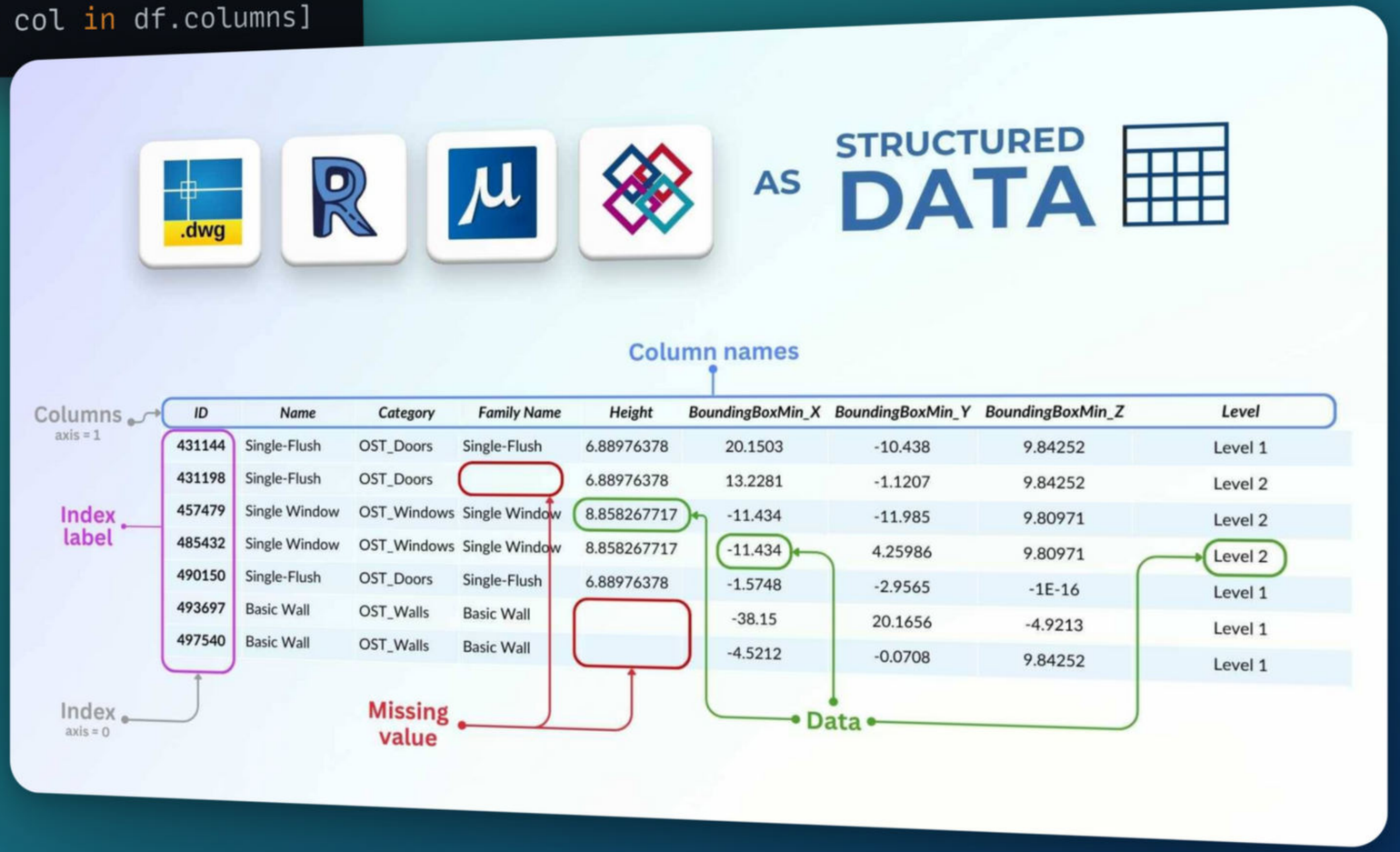
RVT | IFC | DWG as DataFrame.py

```python
# RVT | IFC | DWG project file name in XLSX format
output_file = file_path[:-4] + "_rvt.xlsx"
# Read the converted Excel file
df = pd.read_excel(output_file)
# Update column names to remove storage type in parameter
df.columns = [col.split(' : ')[0] for col in df.columns]
```

🚀 Structed format is ideal for analytics, visualization and automation

two-dimensional project data

.dwg AS STRUCTURED DATA



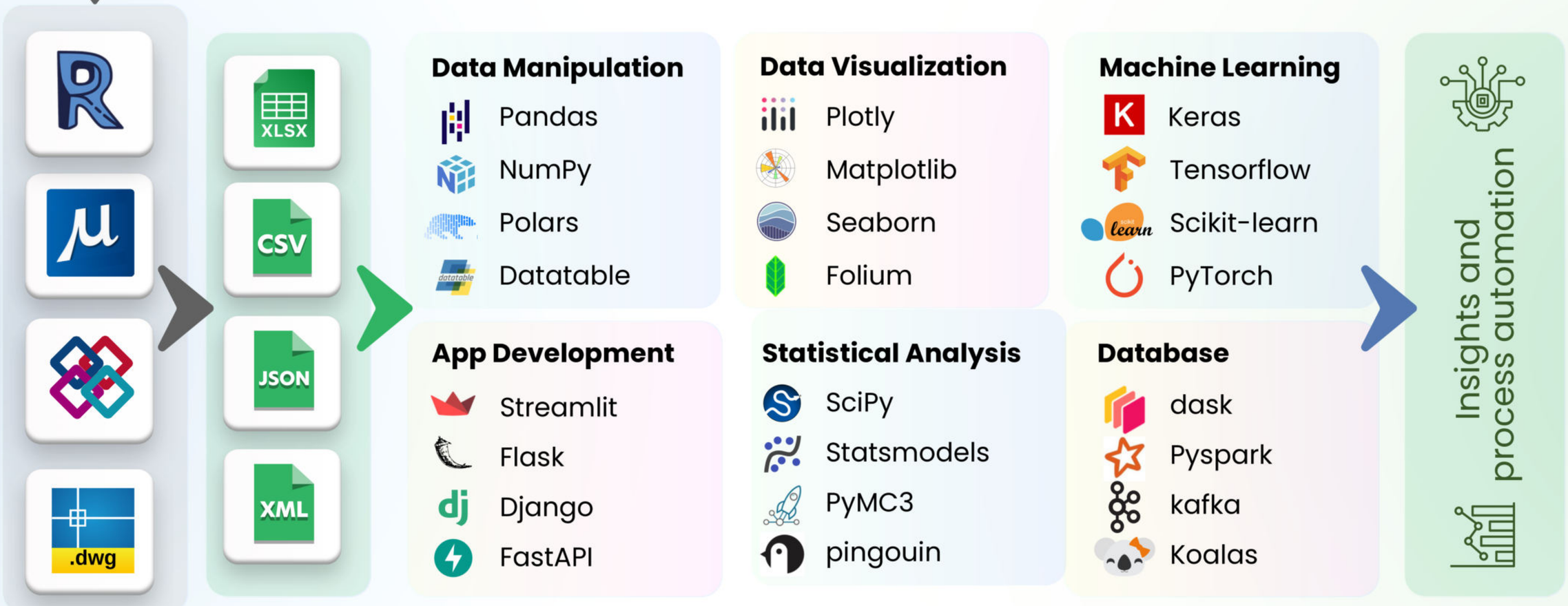
	ID	Name	Category	Family Name	Height	BoundingBoxMin_X	BoundingBoxMin_Y	BoundingBoxMin_Z	Level
0	431144	Single-Flush	OST_Doors	Single-Flush	6.88976378	20.1503	-10.438	9.84252	Level 1
1	431198	Single-Flush	OST_Doors		6.88976378	13.2281	-1.1207	9.84252	Level 2
2	457479	Single Window	OST_Windows	Single Window	8.858267717	-11.434	-11.985	9.80971	Level 2
3	485432	Single Window	OST_Windows	Single Window	8.858267717	-11.434	4.25986	9.80971	Level 2
4	490150	Single-Flush	OST_Doors	Single-Flush	6.88976378	-1.5748	-2.9565	-1E-16	Level 1
5	493697	Basic Wall	OST_Walls	Basic Wall		-38.15	20.1656	-4.9213	Level 1
6	497540	Basic Wall	OST_Walls	Basic Wall		-4.5212	-0.0708	9.84252	Level 1

data-driven construction.io

Life Is Short, Use Python

to work with construction project data

data driven construction.io



easy to learn, easy to develop

STRUCTURED DATA

Pandas: The leading library for data manipulation and a key tool for building pipelines

8811040

Number of downloads of the Pandas Pipeline library each day

70%

Data engineers using Pandas Pipeline as their primary tool

200k

Questions on Stack Overflow tagged with Pandas Pipeline

LOAD

Input

Importing Revit and IFC data.py

```python
# Importing data for processing

import pandas as pd
df = pd.read_csv('C:\Revit_Sample.csv')
```

Output

	Id	Category	Type	Length	Volume
0	12577	Wall	Wall WD100	3200	1.0
1	15889	Wall	Wall STB 200	5400	6.0
2	76554	Door	Glazed Back Door	1300	0.3
3	74456	Window	Window 1700w	1700	0.5

FILTER

Input

Filtering data in Revit and IFC projects.py

```python
# Whether each element contains the values

df[df['Category'].isin(['Wall', 'Window'])]
```

Output

	Id	Category	Type	Length	Volume
0	12577	Wall	Wall WD100	3200	1.0
1	15889	Wall	Wall STB 200	5400	6.0
3	74456	Window	Window 1700w	1700	0.5

GROUP

Input

GroupBy Revit IFC.py

```python
# Grouping a Revit or IFC project by parameters

df.groupby('Category')['Volume', 'Length'].sum()
```

Output

Category	Volume	Length
Door	0.3	1300
Wall	7.0	8600
Window	0.5	1700

PIE chart

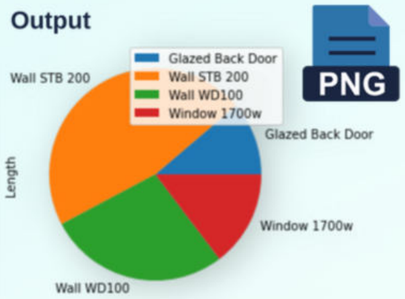
Input

Pie chart.py

```python
# Create a basic pie chart

df.groupby(['Type']).sum().plot.pie(y='Length')
```

Output



BAR chart

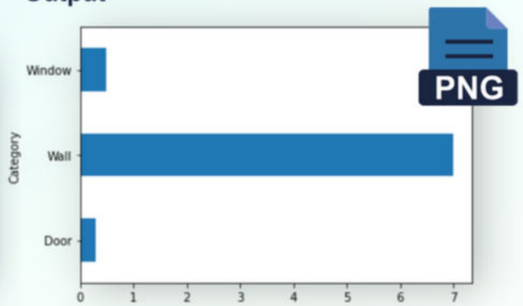
Input

Bar plot.py

```python
# The bar plot can be created as follows

dfp = df.groupby('Category')['Volume'].sum()
dfp.plot(kind='barh')
```

Output



Regular **Ex**pression

Input

RegEx.py

```python
#Regular expression in Revit and IFC

df[df['Category'].str.match('Wal*')]
```

Output

	Id	Category	Type	Length	Volume
0	12577	Wall	Wall WD100	3200	1.0
1	15889	Wall	Wall STB 200	5400	6.0

QTO TakeOff

Input

QTO by RegEx.py

```python
#QTO - Finding volumetric quantities for the group

dfq = df[df['Category'].str.match('Wal*')]
dfq = dfq.groupby('Category')['Volume', 'Length'].sum()
```

Output

Category	Volume	Length
Wall	7.0	8600

EXCEL Data Export

Input

Export to Excel.py

```python
# Creating a grouping and saving as Excel

dfe = df.groupby(['Category'])['Length'].agg(['sum', 'count'])
dfe.to_excel("output.xlsx",sheet_name='Category_estimate')
```

Output

	A	B	C	D
2	Door	1300	1	
3	Wall	8600	2	
4	Window	1700	1	
5				

Category_estimate

PDF Document

Input

Creating a PDF document.py

```python
from fpdf import FPDF

# Determining the volumetric characteristics of the group
s_cat = 'Window'
dfq= df[df['Category'].str.match(s_cat)]
dfq = dfq.groupby('Category')['Volume', 'Length'].sum()
cat_len = str(dfq.iloc[0]['Length'])
cat_vol = str(dfq.iloc[0]['Volume'])

# Creating a PDF document based on the parameters found
pdf = FPDF()
pdf.add_page()
pdf.set_font('Arial', 'B', 16)
pdf.cell(190, 8, 'Category: ' + s_cat, 2, 1, 'L')
pdf.set_font('Arial', '', 14)
pdf.cell(190, 8, 'Sum of volumes: ' + cat_vol, 2, 1, 'L')
pdf.cell(190, 8, 'Sum of lengths: ' + cat_len, 2, 1, 'L')

# Saving a document in PDF format
pdf.output(' c:\Report_DataDrivenConstruction.pdf ', 'F')
```

Output

Report_OpenDataBIM.pdf - Adobe Acrobat Reader DC (...

File Edit View Sign Window Help

Home Tools Report_Op... Sign ...

1 / 1 125%

Category: Window

Sum of volumes: 0.5

Sum of lengths: 1700.0

8.27 x 11.69 in

LLM CHAT

FILTER

Input

Filtering data in Revit and IFC projects.py

```python
# Whether each element contains the values

df[df['Category'].isin(['Wall', 'Window'])]
```

Output

	Id	Category	Type	Length	Volume
0	12577	Wall	Wall WD100	3200	1.0
1	15889	Wall	Wall STB 200	5400	6.0
3	74456	Window	Window 1700w	1700	0.5

Filter the data in the project to keep the wall category items in the project

GROUP

Input

GroupBy Revit IFC.py

```python
# Grouping a Revit or IFC project by parameters

df.groupby('Category')['Volume', 'Length'].sum()
```

Output

Category	Volume	Length
Door	0.3	1300
Wall	7.0	8600
Window	0.5	1700

Group the project by the "Type Name" parameter and show the volume of each group

PDF

Input

Creating a PDF document.py

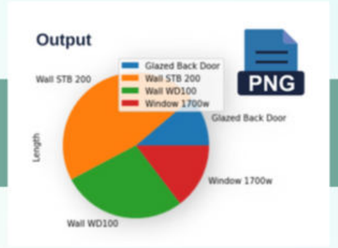
```python
from fpdf import FPDF

# Determining the volumetric characteristics of the group
s_cat = 'Window'
dfq= df[df['Category'].str.match(s_cat)]
dfq = dfq.groupby('Category')['Volume', 'Length'].sum()
cat_len = str(dfq.iloc[0]['Length'])
cat_vol = str(dfq.iloc[0]['Volume'])

# Creating a PDF document based on the parameters found
pdf = FPDF()
pdf.add_page()
pdf.set_font('Arial', 'B', 16)
pdf.cell(190, 8, 'Category: ' + s_cat, 2, 1, 'L')
pdf.set_font('Arial', '', 14)
pdf.cell(190, 8, 'Sum of volumes: ' + cat_vol, 2, 1, 'L')
pdf.cell(190, 8, 'Sum of lengths: ' + cat_len, 2, 1, 'L')

# Saving a document in PDF format
pdf.output('c:\Report_DataDrivenConstruction.pdf', 'F')
```

Output



Choose the first 20 types by volume and show the result as a Pie chart

PDF

Create a PDF report with a table and a graph

Show the differences between the new version of the project and the latest version

Filter the data in the project to keep the wall category items in the project

Group the project by the "Type Name" parameter and show the volume of each group

Choose the first 20 types by volume and show the result as a Pie chart

Create a PDF report with a table and a graph

LLM CHAT

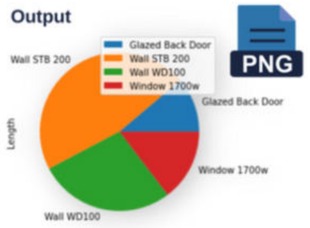
Output

	Id	Category	Type	Length	Volume
0	12577	Wall	Wall WD100	3200	1.0
1	15889	Wall	Wall STB 200	5400	6.0
3	74456	Window	Window 1700w	1700	0.5

Output

Category	Volume	Length
Door	0.3	1300
Wall	7.0	8600
Window	0.5	1700

Output



PDF

PANDAS

1 Line of code

IDE

QTO.py

```
df[df['Category'].isin(['OST_Walls',
'OST_Columns'])].groupby('Type')['Volume'].sum()
```

Milliseconds

1.5" x 1.5"	0.00
Lamelle 11.5	74.82
MW 11.5	141.28
MW 17.5	67.43
STB 20.0	173.78
STB 25.0 WD 12.0	7.33
STB 30.0	88.57
STB 30.0 Rot	16.82
Standard	0.00
WC Trennwand 5.0	1.61

Effort

Input

Time

Output

1 Sentence

LLM Chat

Sum the 'Volume' column, grouped by 'Type', but only for rows where 'Category' is either 'OST_Walls' or 'OST_Columns'

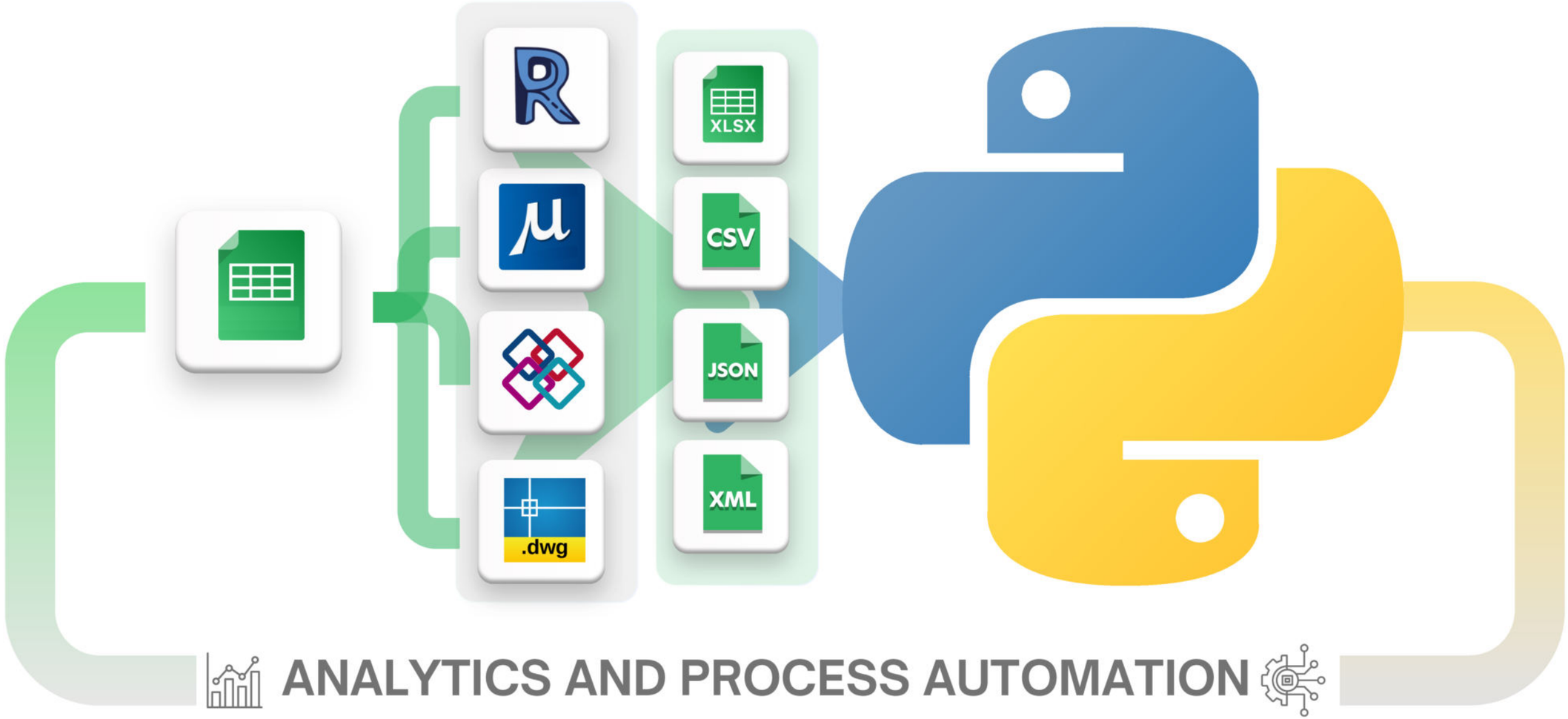
Seconds

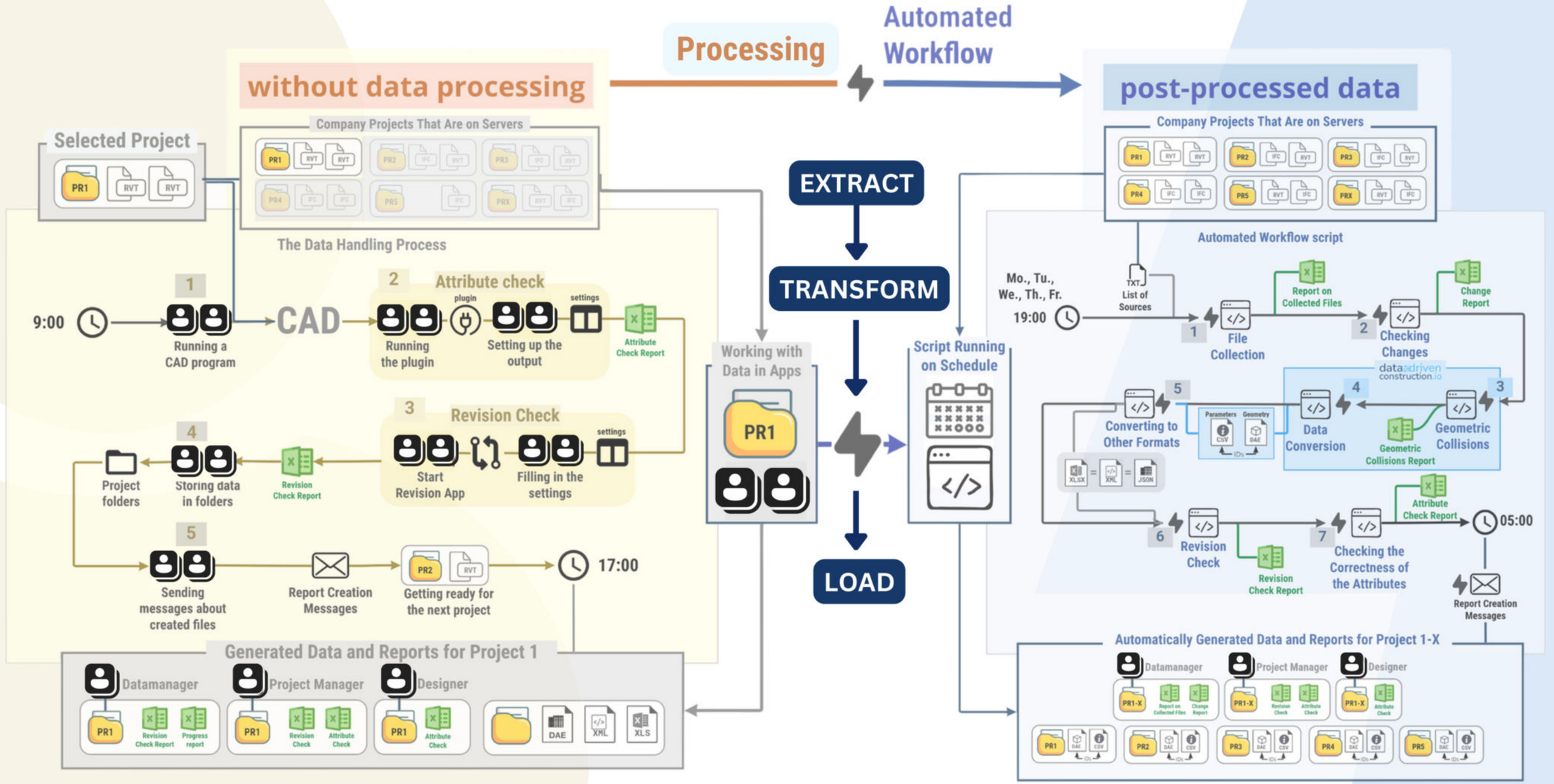
1.5" x 1.5"	0.00
Lamelle 11.5	74.82
MW 11.5	141.28
MW 17.5	67.43
STB 20.0	173.78
STB 25.0 WD 12.0	7.33
STB 30.0	88.57
STB 30.0 Rot	16.82
Standard	0.00
WC Trennwand 5.0	1.61

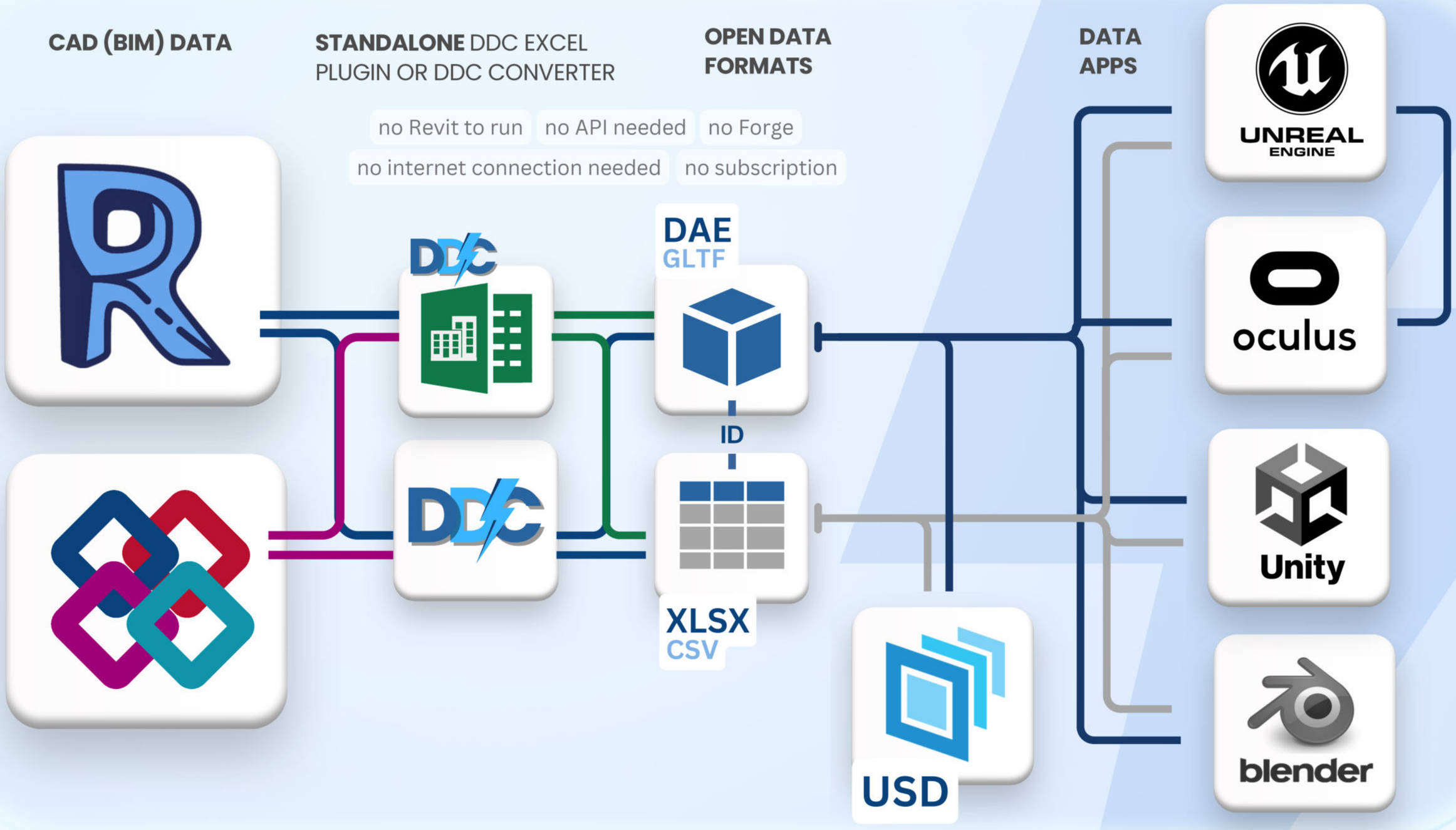
LLM CHAT

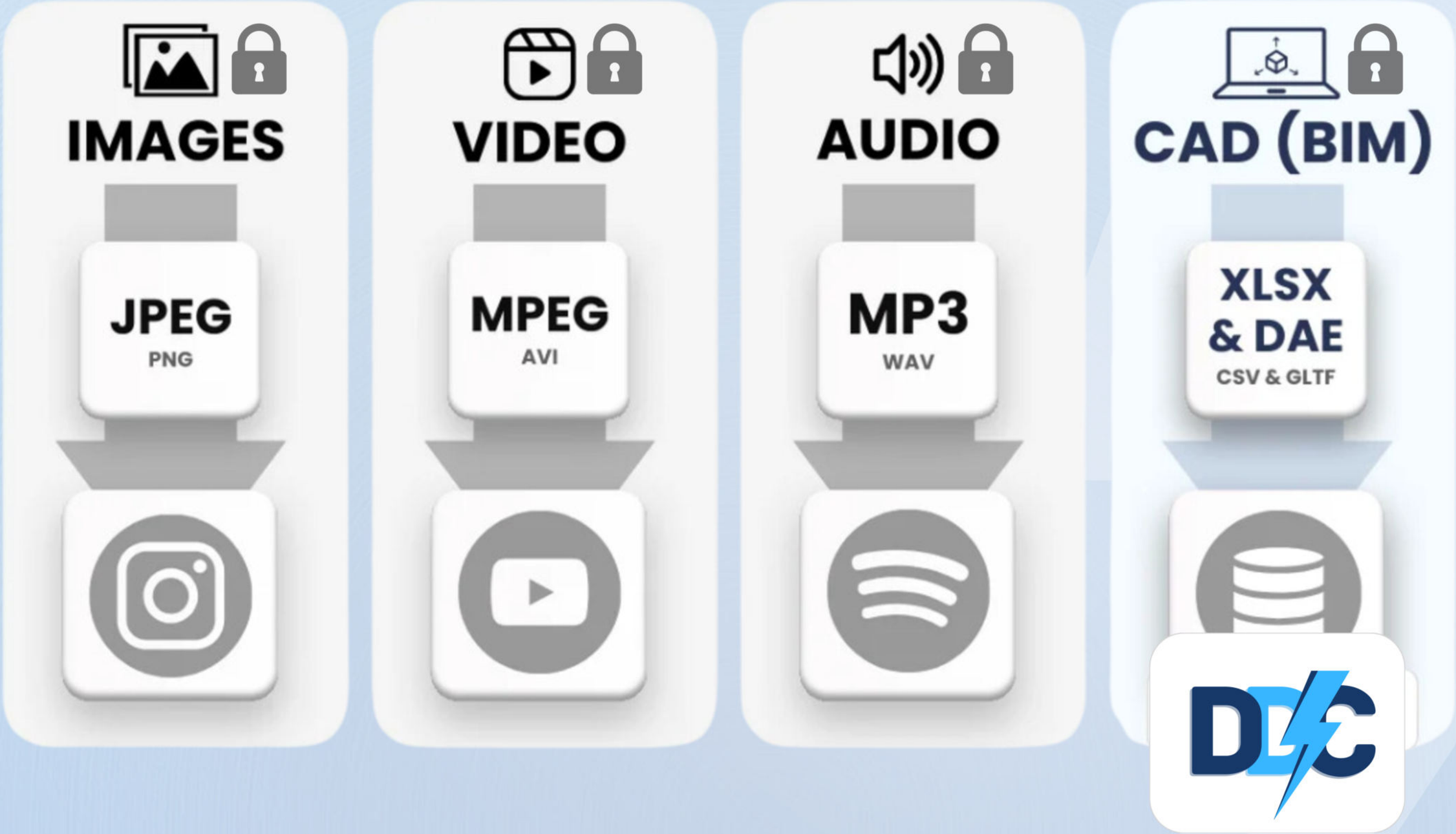
Life Is Short, Use Python

to work with data in construction




Processing
Automated Workflow
without data processing
post-processed data
Selected Project
Company Projects That Are on Servers
The Data Handling Process
EXTRACT
TRANSFORM
LOAD
Working with Data in Apps
Script Running on Schedule
1
Running a CAD program
9:00
CAD
2
Attribute check
Running the plugin
plugin
Setting up the output
settings
Attribute Check Report
3
Revision Check
Start Revision App
Filling in the settings
settings
Revision Check Report
4
Storing data in folders
Project folders
5
Sending messages about created files
Report Creation Messages
Getting ready for the next project
17:00
Generated Data and Reports for Project 1
Datamanager
Project Manager
Designer
Automated Workflow script
Mo., Tu., We., Th., Fr.
19:00
List of Sources
File Collection
Report on Collected Files
Checking Changes
Change Report
Converting to Other Formats
Data Conversion
Geometric Collisions
Geometric Collisions Report
Revision Check
Revision Check Report
Checking the Correctness of the Attributes
Attribute Check Report
05:00
Report Creation Messages
Automatically Generated Data and Reports for Project 1-X


CAD (BIM) DATA
STANDALONE DDC EXCEL PLUGIN OR DDC CONVERTER
no Revit to run
no API needed
no Forge
no internet connection needed
no subscription
OPEN DATA FORMATS
DAE
GLTF
ID
XLSX
CSV
USD
DATA APPS
UNREAL ENGINE
oculus
Unity
blender


IMAGES
JPEG
PNG
VIDEO
MPEG
AVI
AUDIO
MP3
WAV
CAD (BIM)
XLSX
& DAE
CSV & GLTF
DDC

data driven construction.io

Platforms for working with data from

Processing and visualization

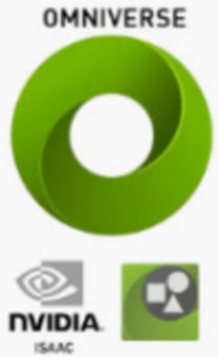
Excel »

Automation and Pipelines

Python and JN »

Visualize geometry

UE and Unity »



Training and simulation

USD and Omniverse »

And 10+ more popular data platforms

Nicolas Merot

Ingénieur BIM | Caeli Ingénierie

★★★★★

DataDrivenConstruction products revolutionize data management in construction! Their IFC and RVT to Excel converters enable smooth data analysis and extraction, optimizing...

Read more

Daniel Glober

BIM-Manager | SCHOLZE-THOST GmbH

★★★★★

Revit and IFC reports that used to take me almost weeks to create are now updated in just a few minutes. I was able to quickly understand what the DataDrivenConstruction did and thu...

Read more

Dmitri Garbuzenko

BIM and AIM Coordinator | RB Rail AS

★★★★★

With the help of Python and especially the pandas library, as the DataDrivenConstruction team does, we are now able to perform delivery checks four times faster....

Read more

Prof. Dr.-Ing. Michael Bühler

Co-Owner GemeinWerk Ventures

★★★★★

Be part of the movement with DataDrivenConstruction! Let's make true freedom in data formats a reality and catalyze a new era of productivity and innovation in construction....

Read more

Abdelrahim (Mohamed) Deghidy

BIM Manager I Consolidated Contractors Company

★★★★★

DDC converter and Plugin is a fantastic and helpful tool for visualisation and quantification the meta data from Revit. Thanks for sharing such helpful tools!

Jānis Dzenis

BIM Coordinator | Merks, SIA

★★★★★

This is a fantastic tool, haven't seen one like this in a long time. In this era, we have countless tools and methods for creating models, drawings, tables, and other forms of data....

Read more

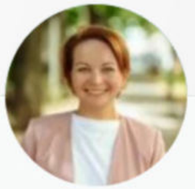
Valerio Spini

Settore RVCS

★★★★★

Great experience: Until now, I used to open IFC files in Blocknote to check the parameters and their structure. Thanks to the DataDrivenConstruction converter I can check the parameter...

Read more



Irina Fischer

BIM Coordinator | OBERMEYER Group

★★★★★

The decision to use Jupyter Notebook for results verification turned out to be highly beneficial. Our experience with solutions from Data Driven Construction and Jupyter Notebook...

Read more

Excel Add-in

free basic functions for working with data

FUNCTIONAL APPLICATIONS AVAILABLE IN THE DATADRIVENCONSTRUCTION PLUGIN FOR EXCEL

RVT to Excel

IFC to Excel

DWG to Excel

Hide Columns

Remove Filters

Project Geometry

Visible Rows

Selected Elements

Change Colors

Change Transparency

Add BBox Data

Check Duplicate

QTO Table

CO2 Emissions

Check Parameters

Create Dashboard

Comparing Versions

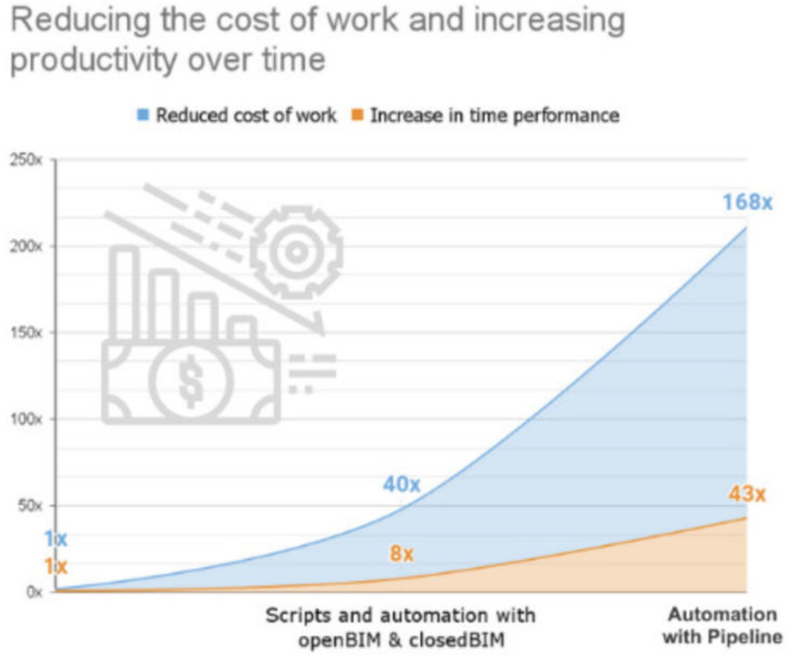
Merging Projects

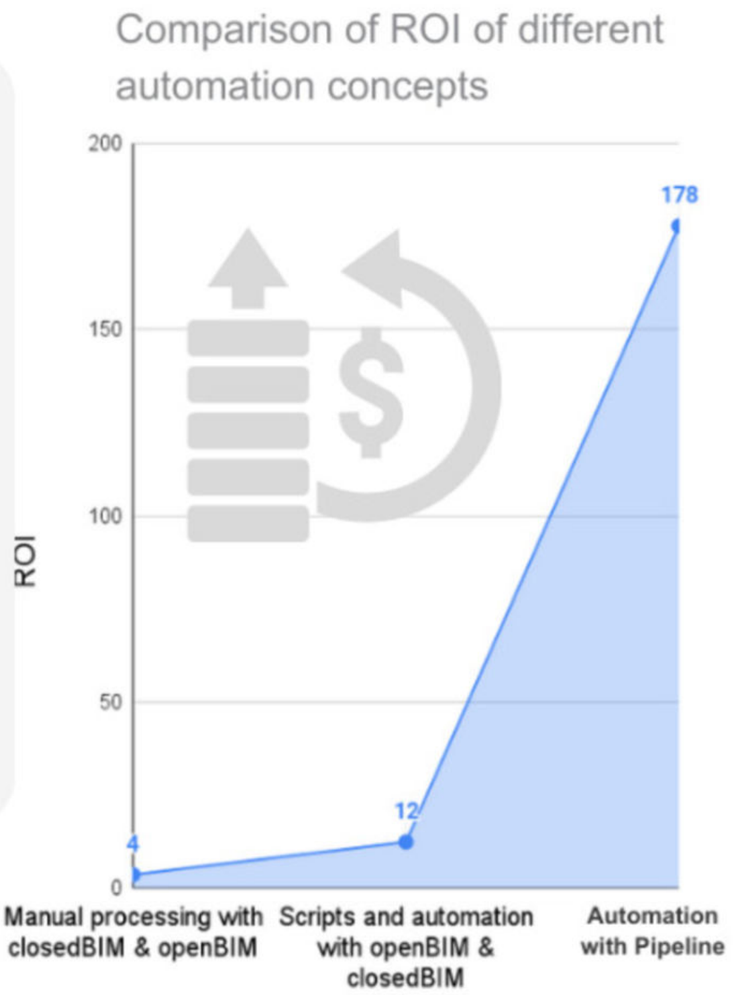
Export to CSV

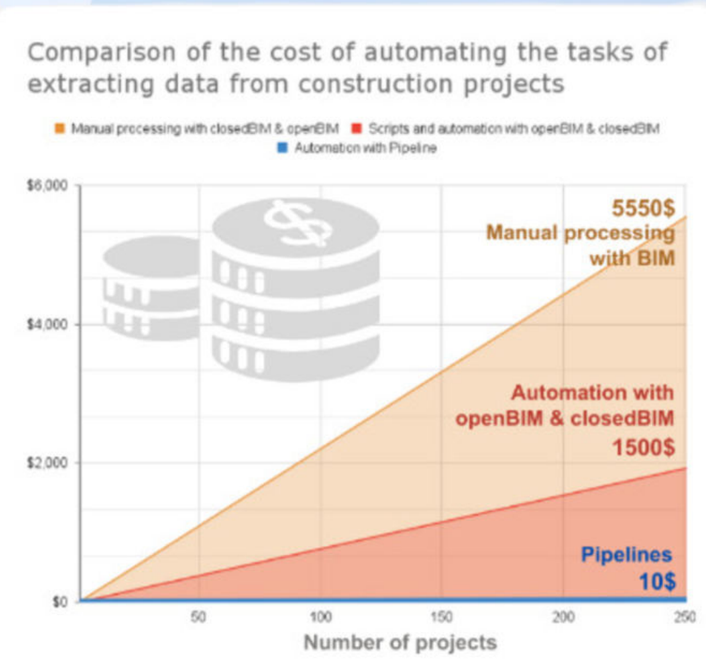
Export to JSON

Export to XML

Utilizing Pipeline provides an exponential increase in productivity







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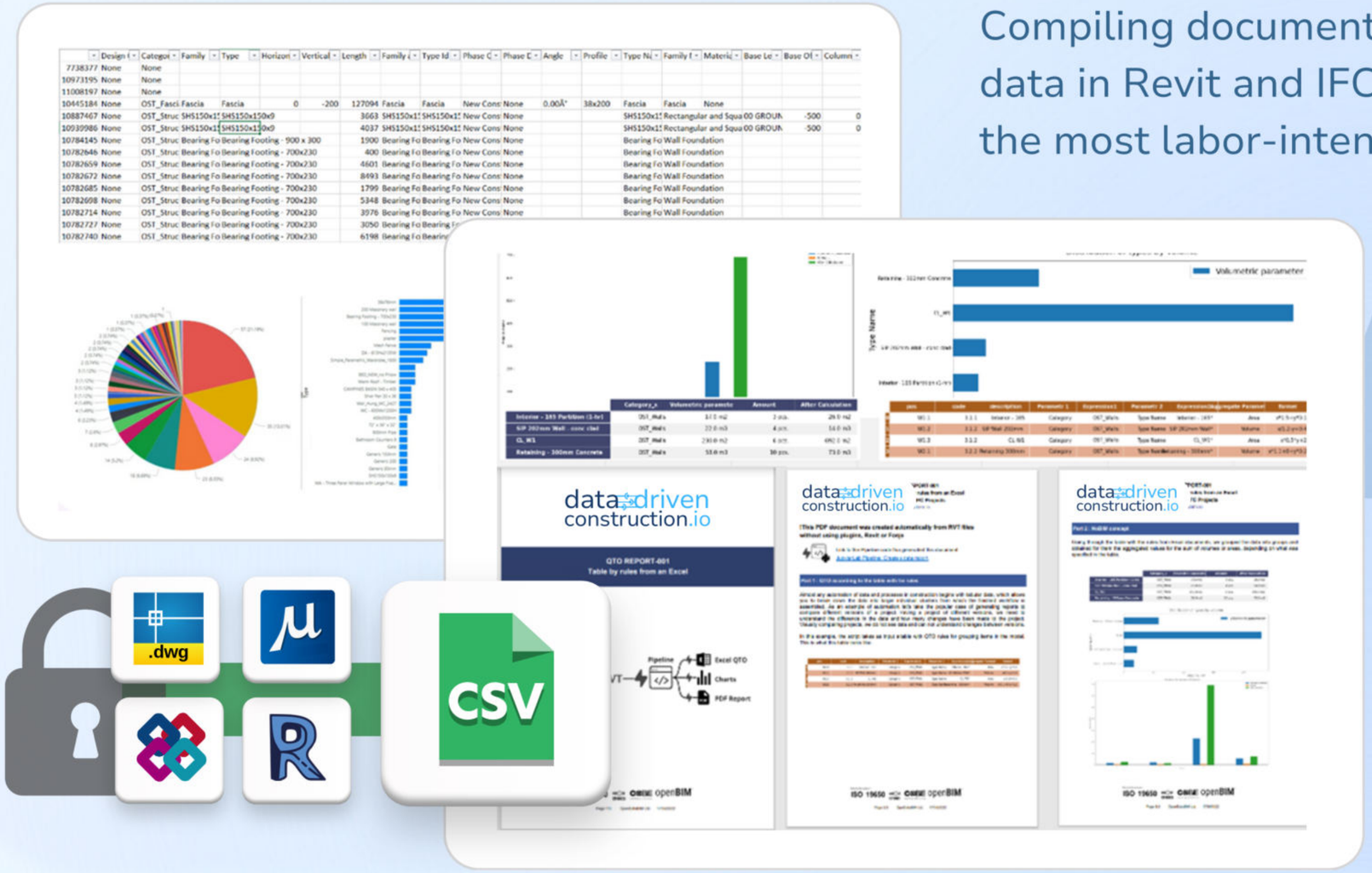
Use case

Data quality and automatic checks



Compiling documentation from BIM model data in Revit and IFC formats ranks among the most labor-intensive tasks for managers

Benefits of automated documentation:

- Consistency
- Efficiency
- Accuracy
- Scalability
- Time Savings
- Up-to-date
- Customization
- Cost-Efficiency
- Traceability
- Adaptability

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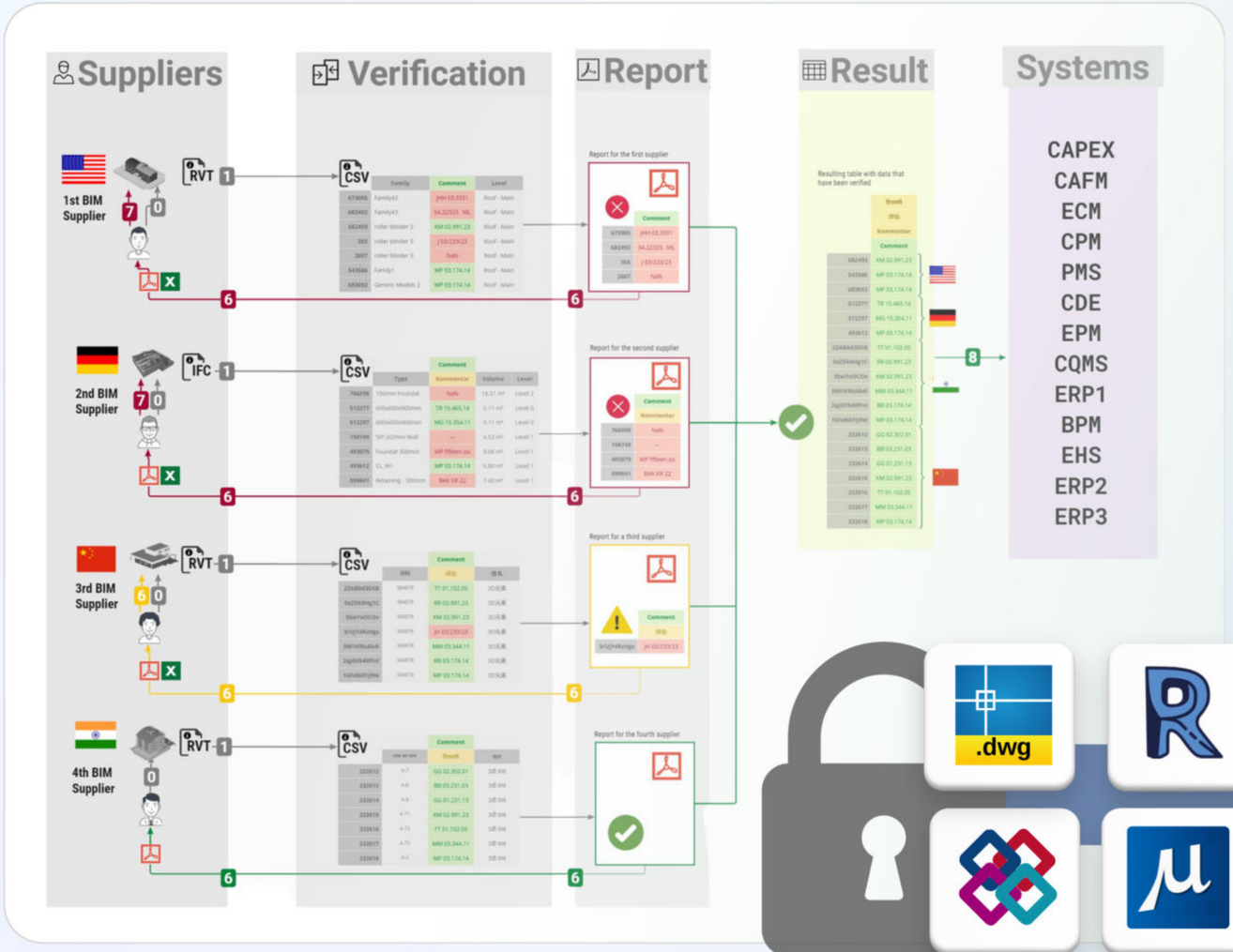
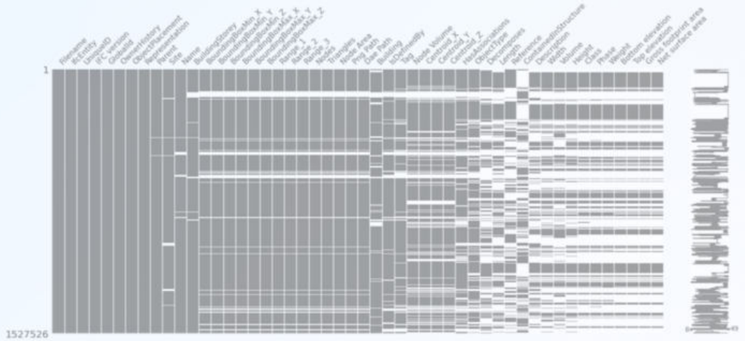
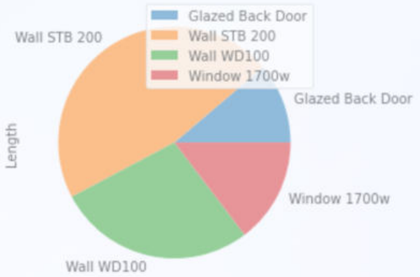
Use case

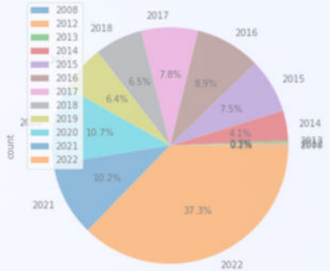
Automatic reporting for BIM model

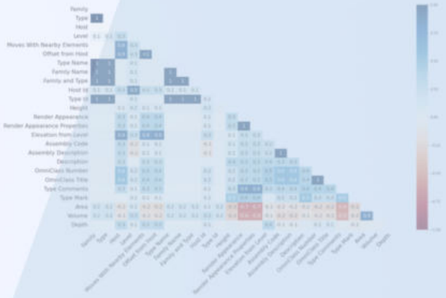


Automated validation, utilizing logic and code, empowers a company to efficiently and accurately process 100s of files at once, ensuring consistent quality while reducing costs and human errors









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Use case

Data visualisation of project data

Tools for working and processing project data in Revit™ and IFC formats

	DDC	Revit	IFC	BIM 360 & ACC
Open Format	✓	✗	✓	✗
Quality of Data	▂▄▆	▂▄▆	▂	▂▄▆
Don't Need CAD to Get Data	✓	✗	✗	✓
Don't Need the Internet	✓	✓	✓	✗
Data Structure	Structured Data	Closed Data	Semi-Structured Data	Closed Data
Data Form	Table	Graph as a classifier	Graph as a classifier	Graph as a classifier
Batch Processing	✓	✗	✗	✓
Automate Data Mining	1 line of code	100+ lines of code	100+ lines of code	100+ lines of code
No API Restrictions	✓	✗	✓	✗
Community	▂▄▆	▂	▂	▂
Ready-made solutions	▂▄▆	▂	▂	▂
Easy to Work	▂▄▆	▂▄	▂	▂▄
No BIM skills required	✓	✗	✗	✗
Basic Work Tool	Excel	Revit	OpenBIM Tools	Forge
Compatible with ERP Systems	✓	✗	✗	✓

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- no Revit to run
- no plugins
- offline
- no BIM software
- standalone application
- no BIM formats
- no APIs

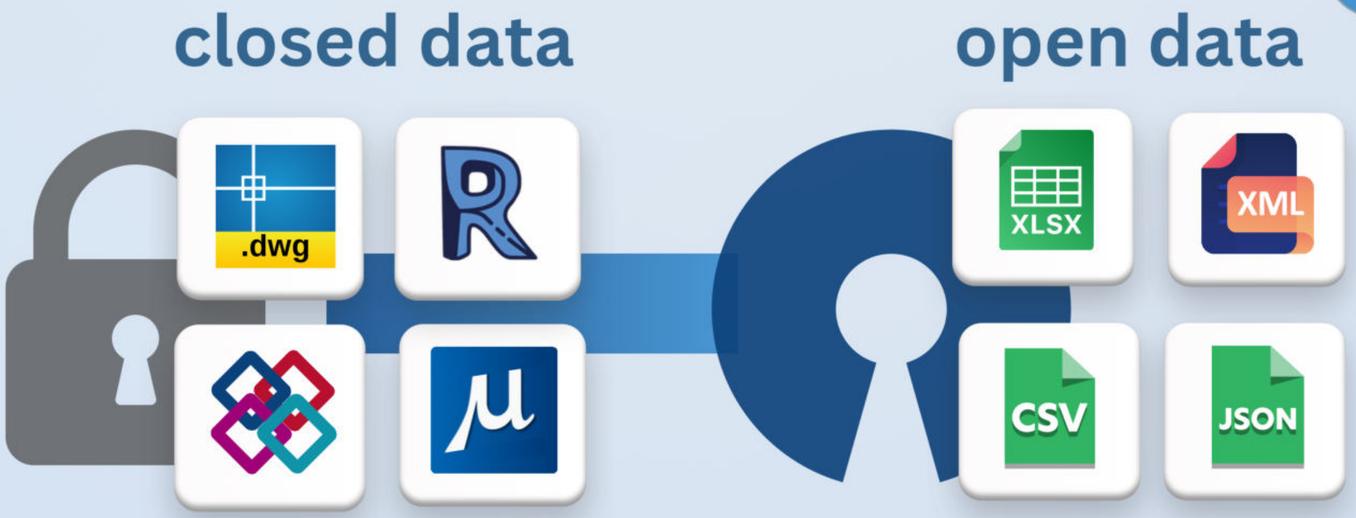
Democratizing access to data from CAD software

WORK WITH DATA FROM CAD (BIM) DIRECTLY INTO CHATGPT

Code for converting ⚡ data stream into required formats and documents

How Secure is My Data?

Your information remains strictly yours

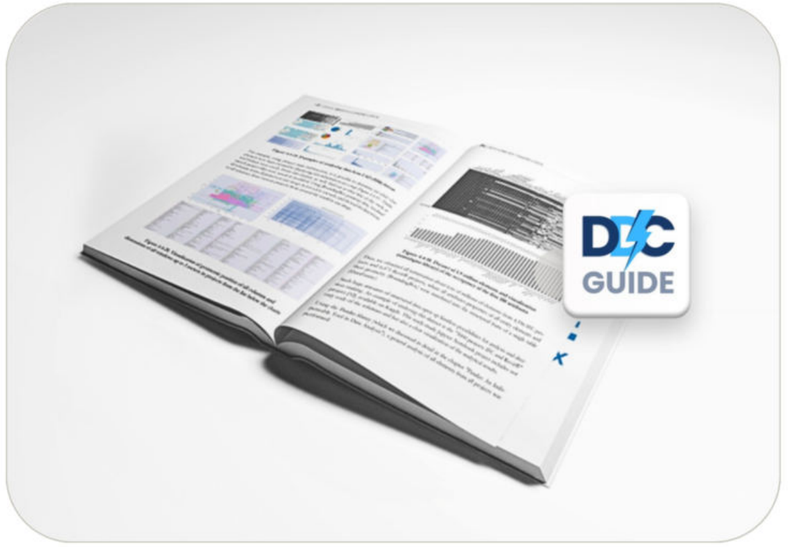


- no Revit to run
- no plugins
- offline
- no BIM software
- standalone application
- no BIM formats
- no extra costs

DDC BOOK

"**DATA-DRIVEN CONSTRUCTION: Navigating the Data Age in the Construction Industry**" opens the door to the world of digital innovation in construction for a wide audience, offering insights into the latest technological advancements shaping the industry.

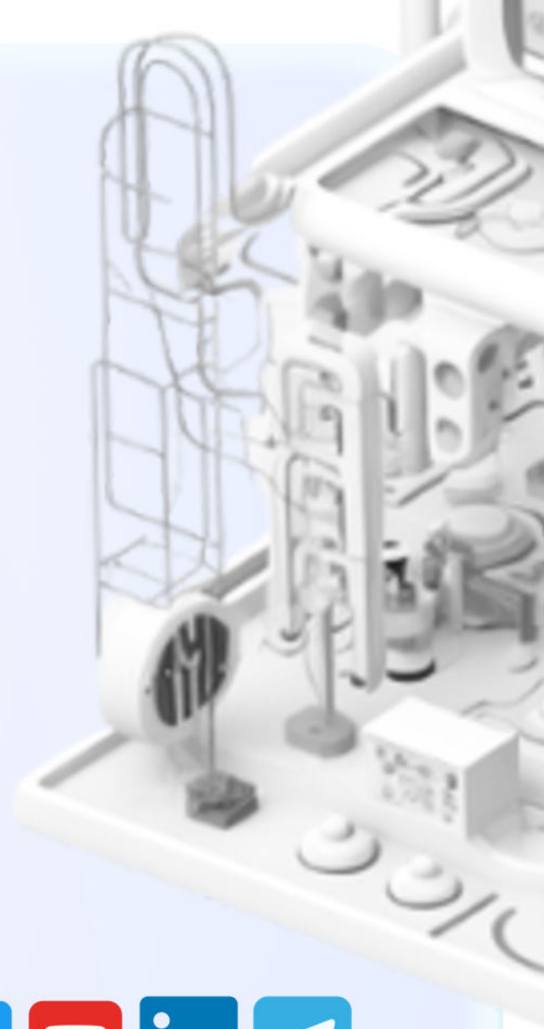
~80 MOST IMPORTANT TOPICS ON DATA MANAGEMENT IN CONSTRUCTION



210
UNIQUE
ILLUSTRATIONS

Support & Training

Dedicated Post-Implementation Support
Training Modules to Get You Started



What We Offer

Customized Data Strategies

Tailored solutions for data collection, management, and analysis that fit your specific project requirements

CAD Conversion and Integration

Streamline your project documentation with our advanced CAD conversion tools, making data easily accessible and usable

Training and Support

Empower your team with the knowledge to leverage BIM data, enhancing productivity and innovation

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Together, Let's Build the
Future of Construction