

Design Intelligence Futures  
Leadership Summit on the Future of Technology & Applied Innovation

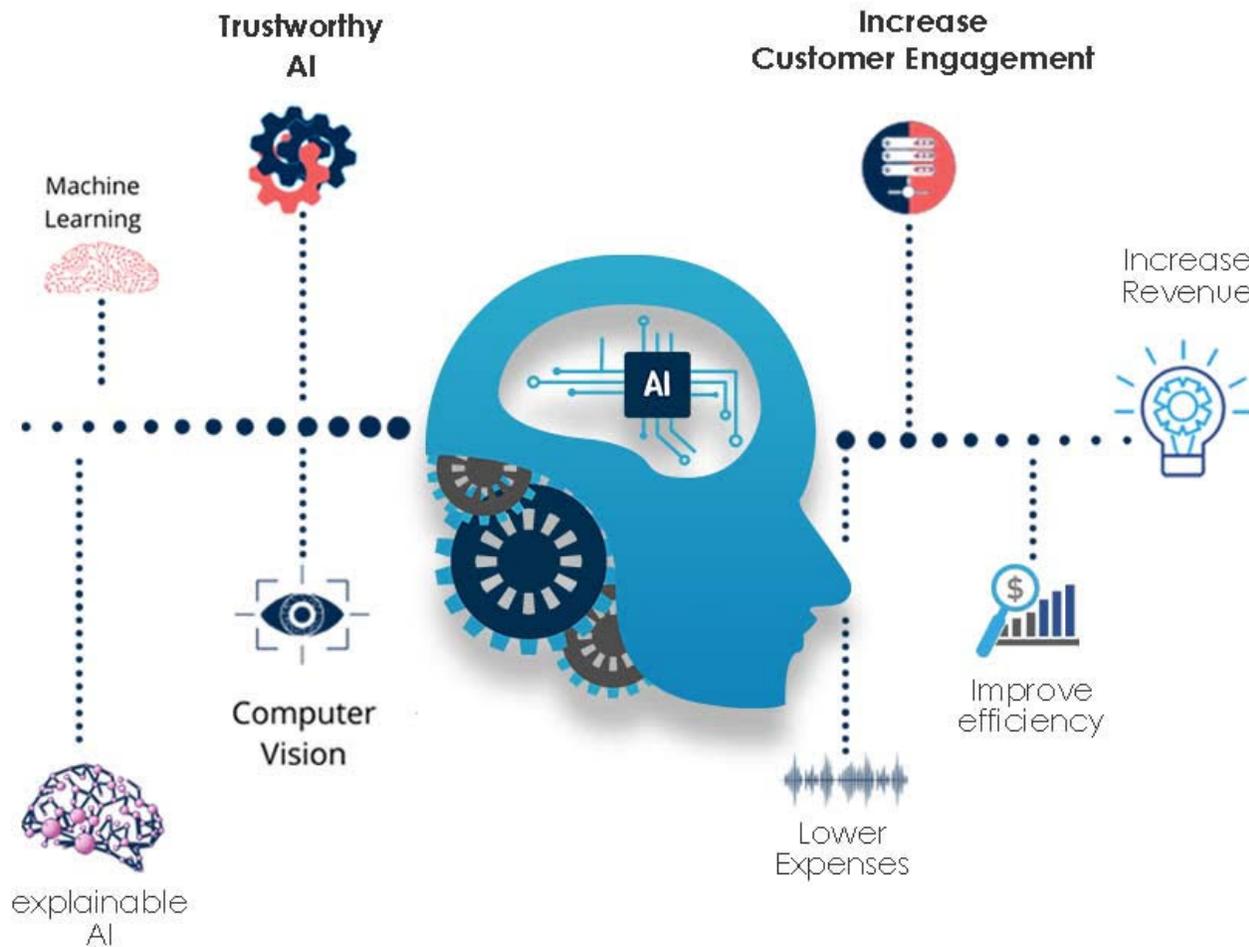
**AI – Dymystifying, Operationalizing, and Cautioning**

**AI: Operationalizing.**

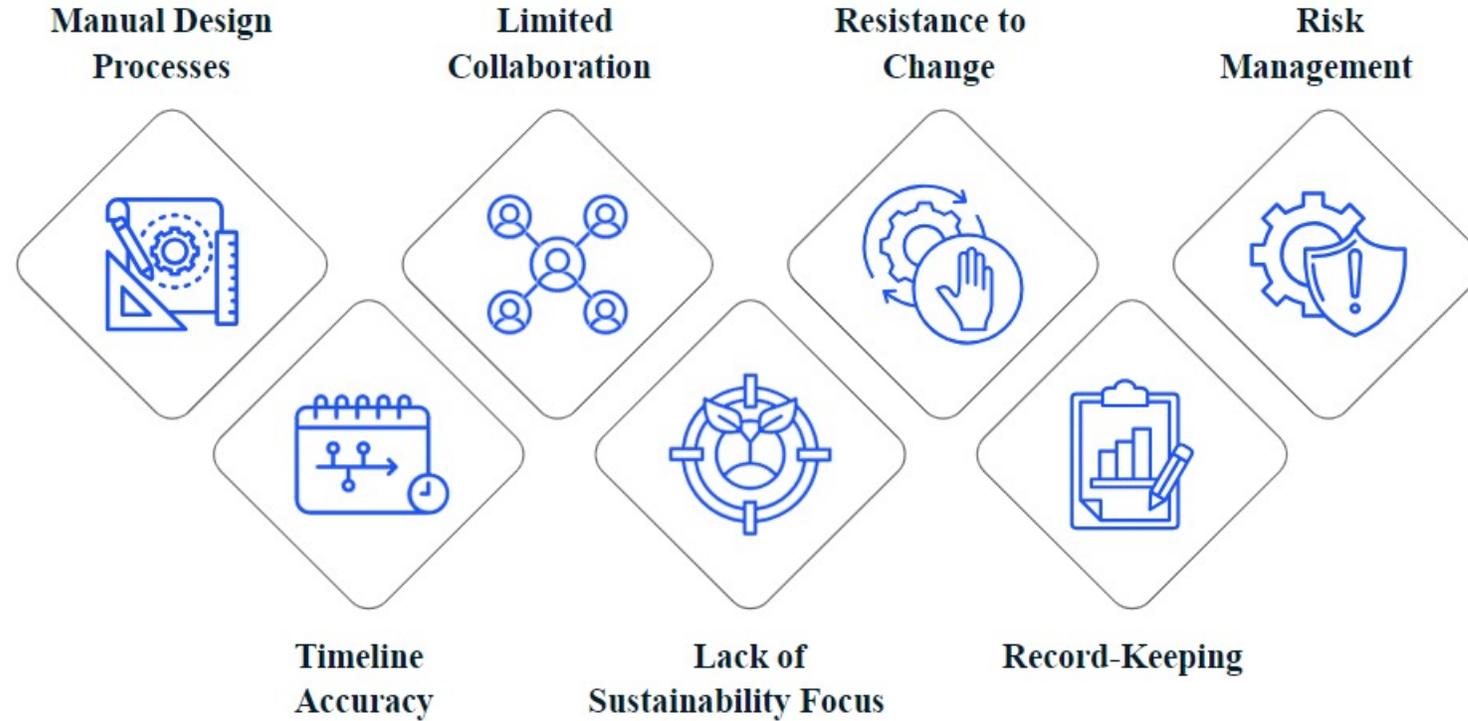
Michael Hodge, TVSDesign.

## AI Innovation

## AI Benefits



## The Challenges of Traditional Methods in Architecture

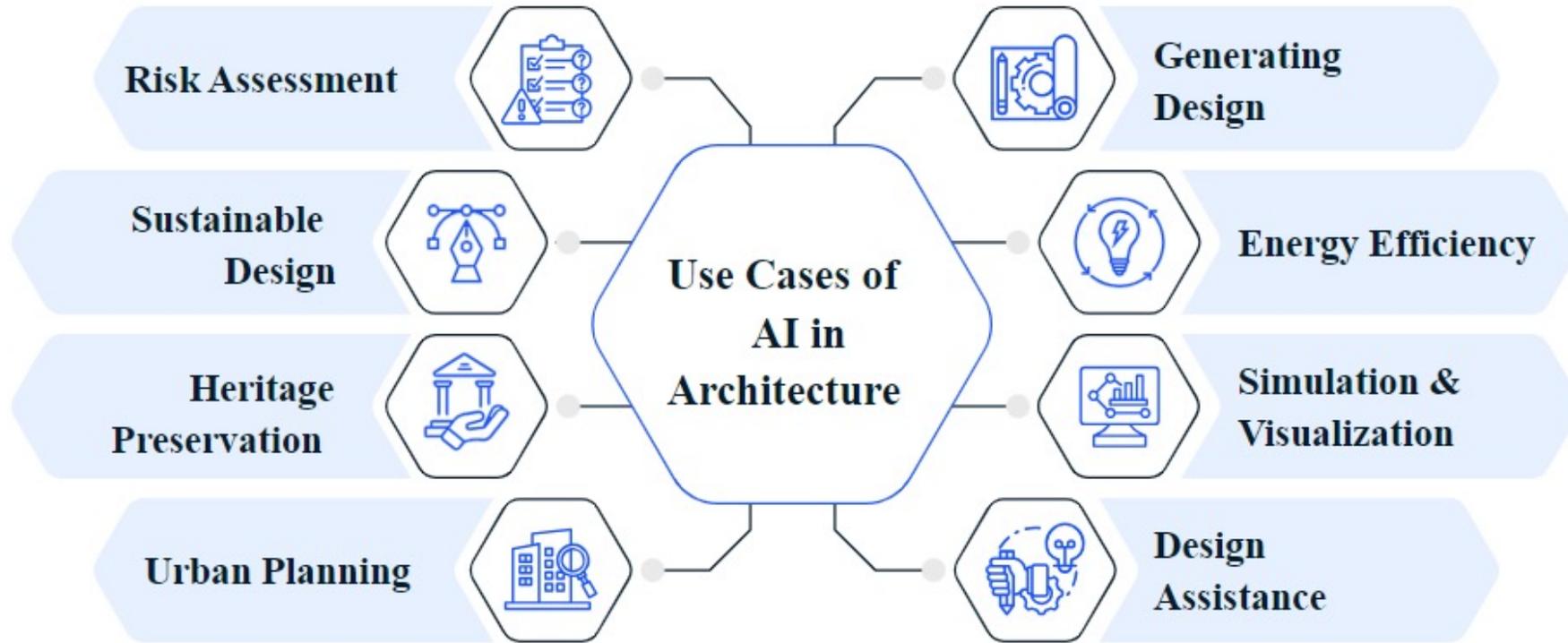


LeewayHertz

## The Benefits of AI in Architecture

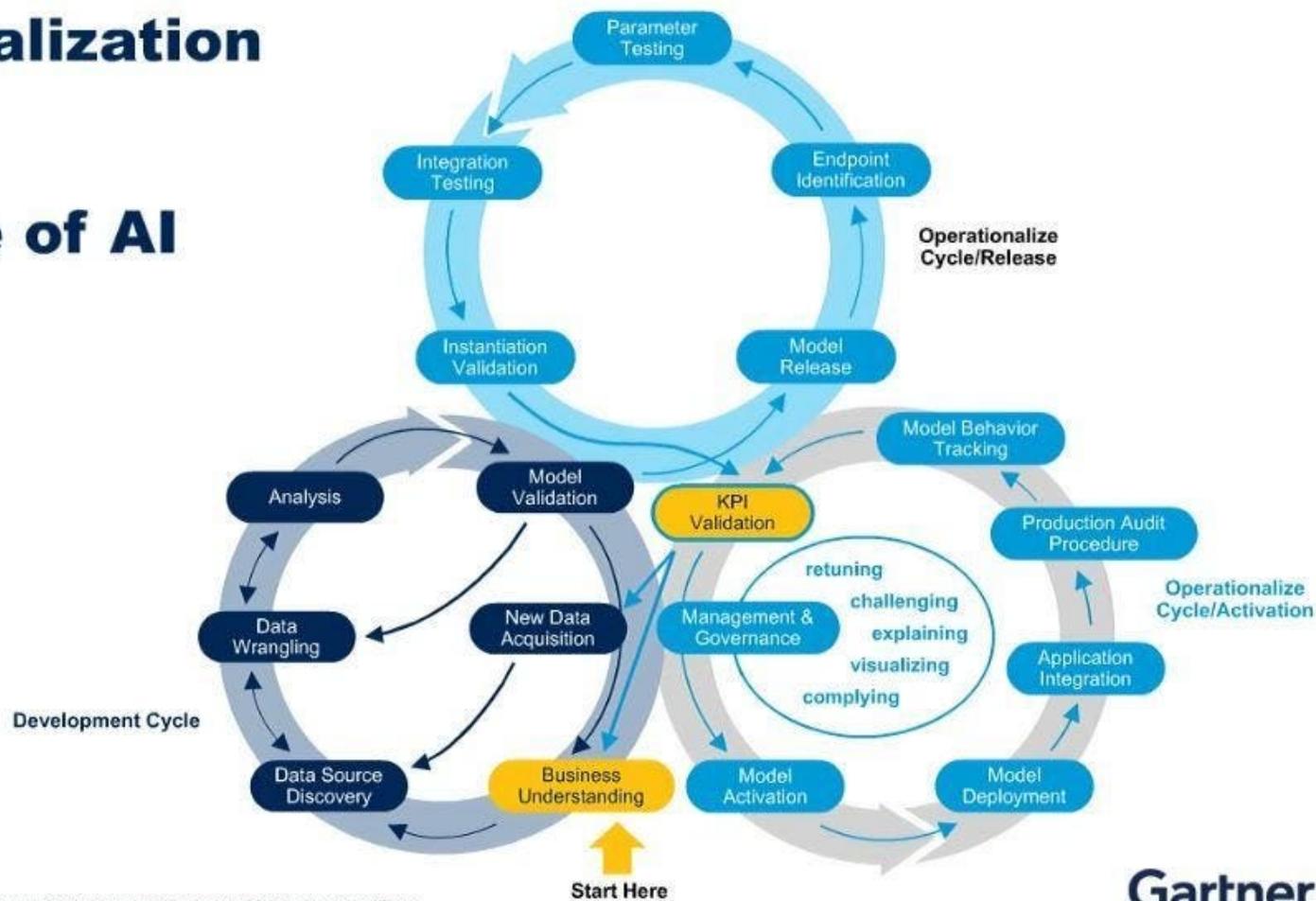


LeewayHertz



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# Operationalization Will Make or Break the Future of AI



“It merely takes mindset changes across businesses, tools, and processes to enable the operating environment.”

**Jun Wu**

# Operationalization?

“**Few companies have deployed AI at scale**, and many initiatives remain stuck in perpetual pilot mode.”

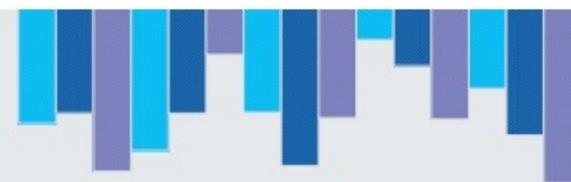
“...80% of those who have succeeded in putting AI into production say the time and effort required to put their models into effect are worth it. Moreover, respondents believe **AI is key to their organization’s future**. Seventy-six percent of all those surveyed state that successfully deploying **AI is critical to achieving their organization’s strategic goals**.”

“This finding as well as the others suggest that some **organizational disconnect exists when it comes to conceptualizing AI’s role**, especially given how effective operationalizing AI is when achieved and how important it is for companies going forward. Indeed, **the question of who is in charge of initiating, developing, and deploying AI** is far from settled at most organizations.”



## Operationalizing Artificial Intelligence:

Making the Promise a Reality



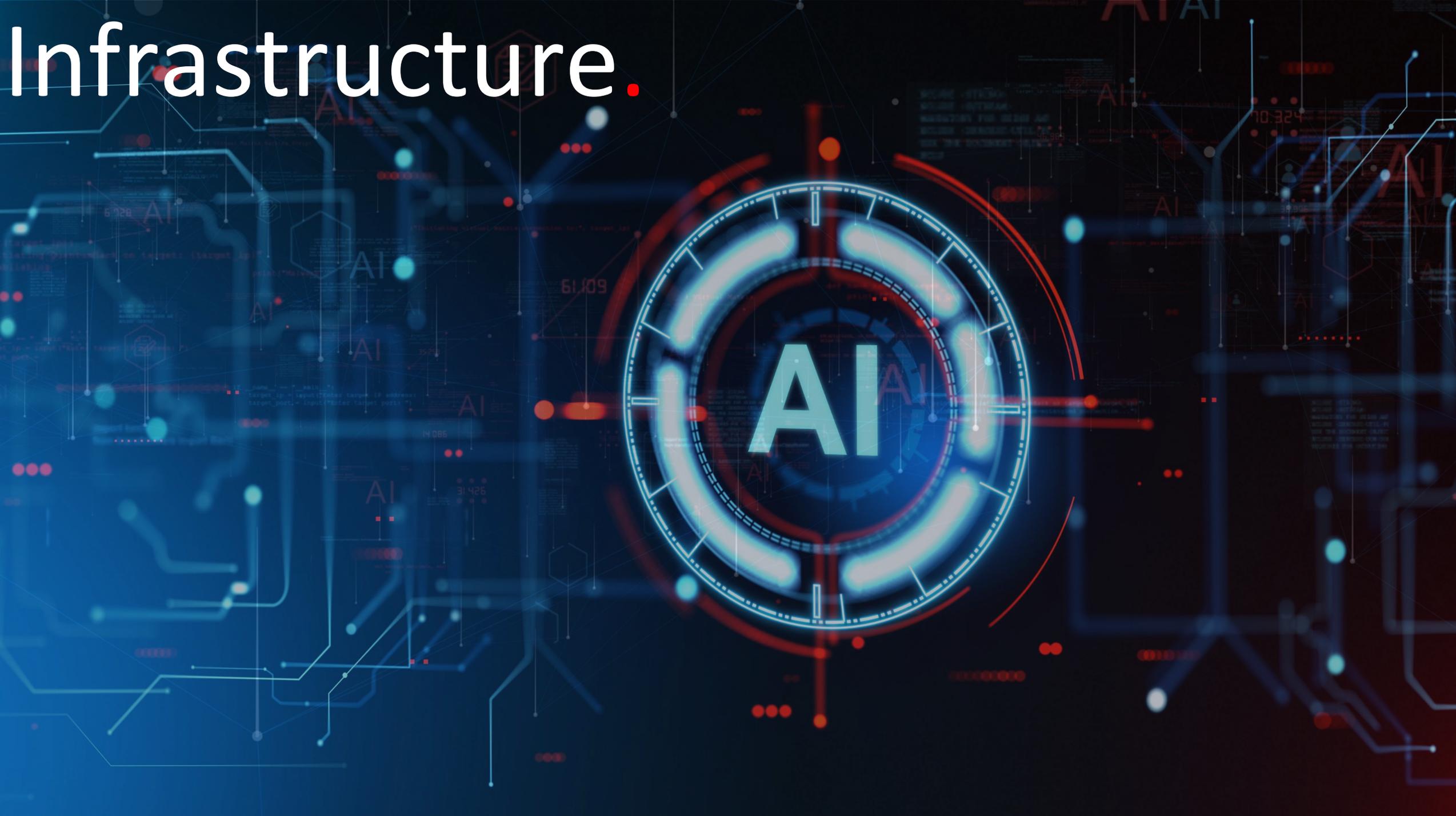
Operationalization Requires **Data Infrastructure**



Organizations' top data priorities over the next two years fall into three areas, all supported by wider adoption of cloud platforms: **improving data management, enhancing data analytics and ML,** and **expanding the use of all types of enterprise data,** including streaming and unstructured data.

**Data Infrastructure** will be equally as important as evolving **Processes**. There must be an approach to connect the two.

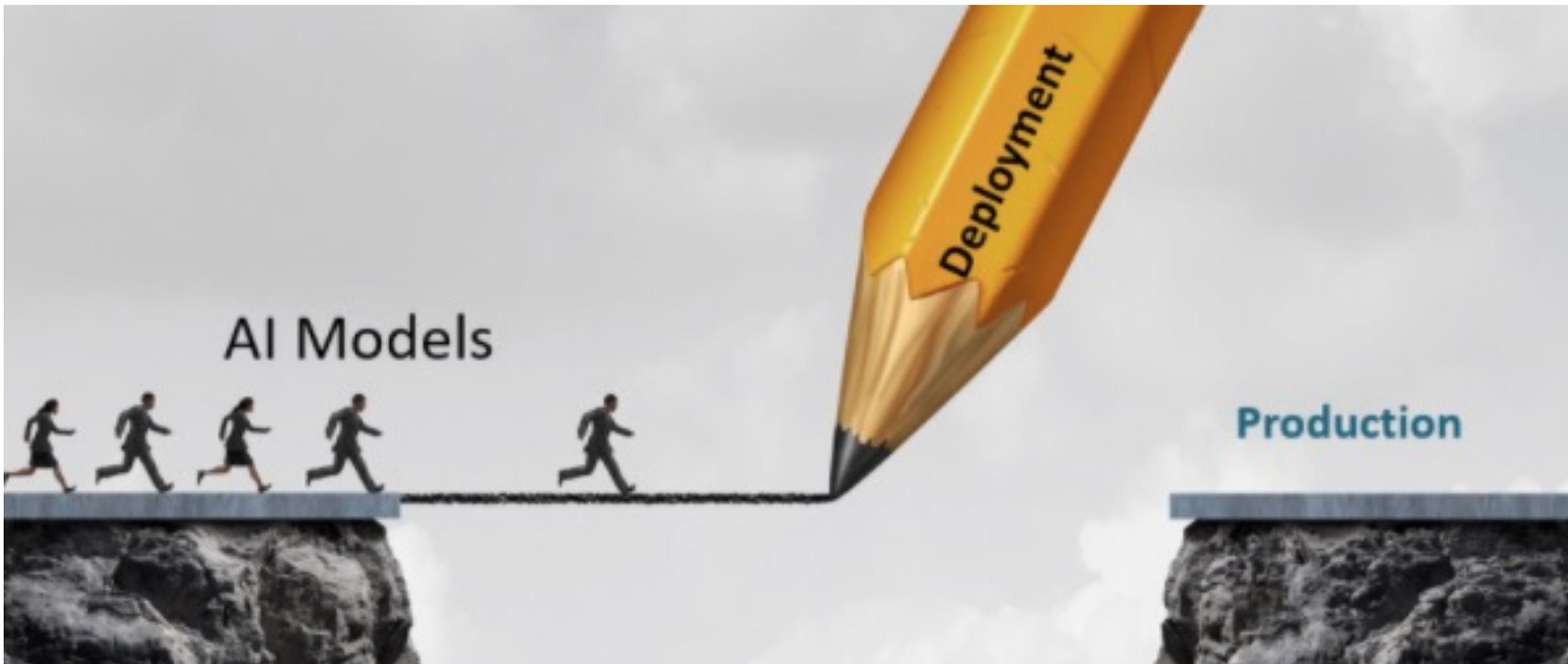
# Infrastructure.

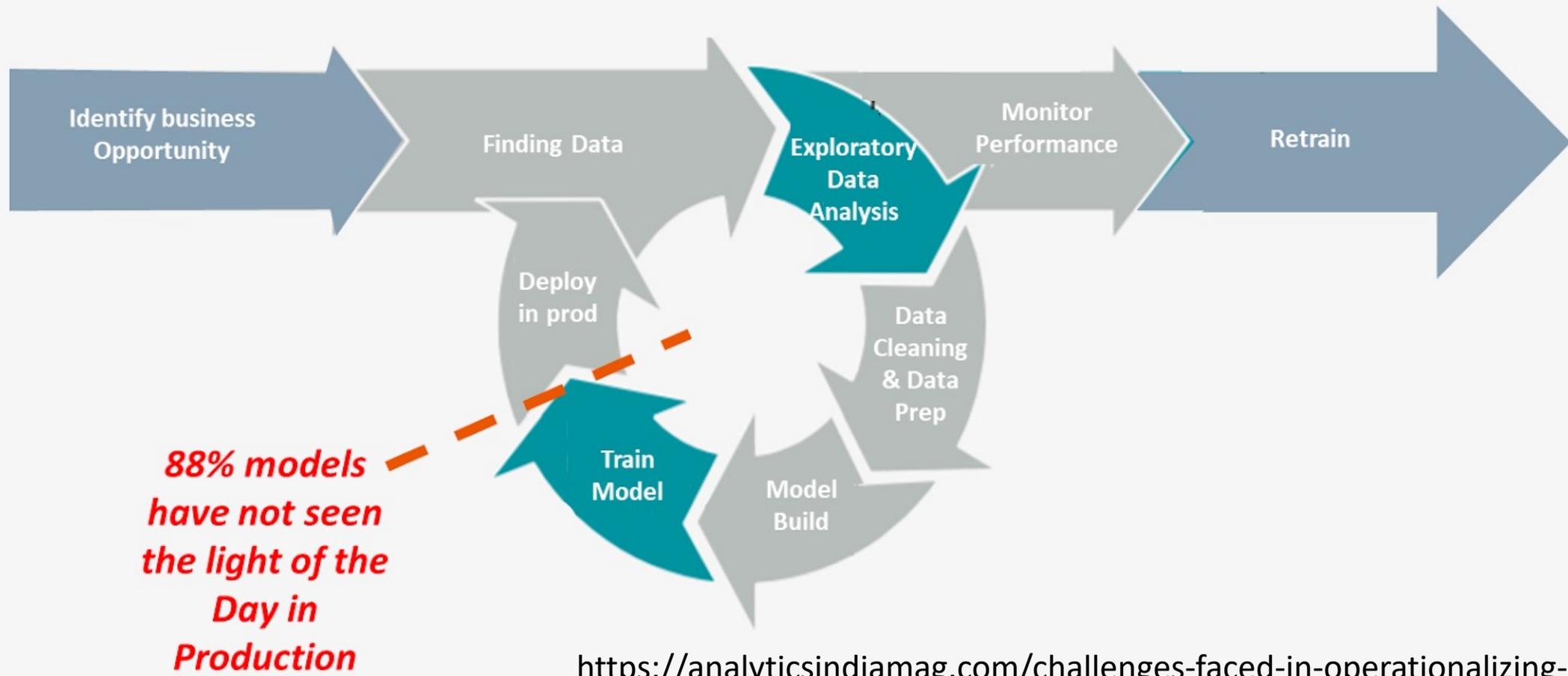
A futuristic digital background with a dark blue and red color scheme. It features a complex network of glowing lines, nodes, and data points. In the center, there is a prominent circular graphic with a glowing blue and red border, containing the letters 'AI' in a large, white, sans-serif font. The overall aesthetic is high-tech and data-driven.

AI

## Four Components of **Data Infrastructure**:

1. Data Strategy
2. Data Engineering
3. Data Analysis and Models
4. Visualization and Operationalization



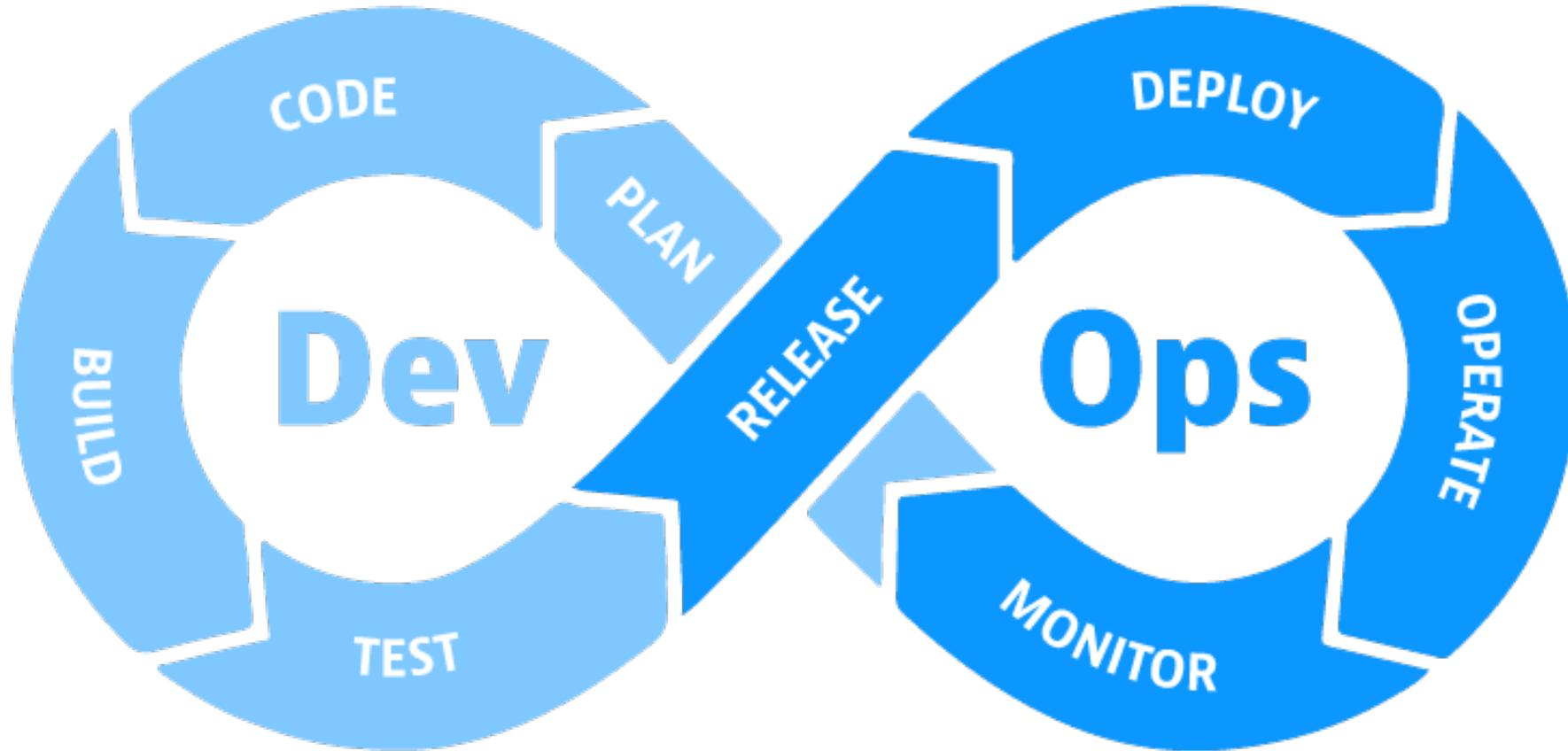




What does this mean for the  
AEC Industry?

We must identify **Processes**  
that can become **Data**  
**Models** for  
**Operationalization?**

And establish software development, and extensibility capabilities to capture and utilize **Data Models** in our processes.



**Operational Overlaps** : IT Systems, Digital Practice, and Design Technology

**DEVOPS for AEC:** A software Development approach to create applications needed, enhance and improve what is in place, and creating data systems and pipelines that inform, expedite and improve processes and operations.

**Evsvdesign** Floor Plan by Level

Filter By Level:

- LEVEL 1
- LEVEL 2
- LEVEL 3
- LEVEL 4
- ROOF BEARING

Filter By Department:

- Back of House
- Back of House Circulation
- LAB SUPPORT
- Poche
- Public Restroom
- Public Vertical Circulation

1.29K Average of Area    85.08 Average of Perimeter

8.00 Average of CeilingHeight    0.00 Average of OccupancyTag

Area and Perimeter by RoomNumber and Department

Department: ● Back of H... ● Back of H... ● LAB SUP... ● Poche

RoomNumber	RoomName	Area	CeilingH...
LAB SUPPORT			
402	CUST	78.01	
388	DATA	39.04	
387	ELEC	275.40	
383	ELEVATOR	87.98	
389	ELEVATOR	98.45	
392	ELEVATOR	343.22	
415	ELEVATOR	191.66	
417	LAB SERVICES	26,999.53	
370	MEN	287.75	

MultiFamilyRenovation\_CashFlowInterop\_V2.01 - Saved to SharePoint

File Home Insert Page Layout Formulas Data Review View Help

DB

Year	1	2	3	4	5	6	7	8	9	10
Initial Base Rent (Year 1)	\$ 21.00									
Comparable Operating Expense (in \$)	\$ 3,300.00									
Initial Operating Expense (in \$)	\$ 500.00									
Asset Management Fee (in % of Eq)	1.25%									
Lease Term	10 yrs									
Landlord work	50.00									

5 YEAR NET CASHFLOW: RENT PRICE VS. OPENING OCCUPANCY

Opening Occupancy	45%	50%	55%	60%	65%	70%	75%
1.00	\$ 3,355,283	\$ 3,401,738	\$ 3,418,901	\$ 3,437,734	\$ 3,451,464	\$ 3,465,592	\$ 3,475,881
1.25	\$ 3,355,499	\$ 3,401,954	\$ 3,419,117	\$ 3,437,950	\$ 3,451,684	\$ 3,465,813	\$ 3,476,139
1.50	\$ 3,355,715	\$ 3,402,171	\$ 3,419,334	\$ 3,438,172	\$ 3,451,904	\$ 3,466,033	\$ 3,476,381
1.75	\$ 3,355,931	\$ 3,402,387	\$ 3,419,550	\$ 3,438,391	\$ 3,452,124	\$ 3,466,254	\$ 3,476,552
2.00	\$ 3,356,147	\$ 3,402,603	\$ 3,419,778	\$ 3,438,610	\$ 3,452,344	\$ 3,466,478	\$ 3,476,779
2.25	\$ 3,356,363	\$ 3,402,827	\$ 3,419,995	\$ 3,438,828	\$ 3,452,563	\$ 3,466,695	\$ 3,476,994
2.50	\$ 3,356,579	\$ 3,403,044	\$ 3,420,214	\$ 3,439,047	\$ 3,452,783	\$ 3,466,916	\$ 3,477,235

5 YEAR NET CASHFLOW: RENT PRICE VS. DESIGN OPTIONS

Option	Option1	Option2	Option3	Option4
1.00	\$ 2,828,305	\$ 3,437,738	\$ 2,907,555	\$ (459,337)
1.25	\$ 2,828,415	\$ 3,437,953	\$ 2,907,774	\$ (459,338)
1.50	\$ 2,828,525	\$ 3,438,172	\$ 2,907,993	\$ (459,320)
1.75	\$ 2,828,635	\$ 3,438,391	\$ 2,908,212	\$ (459,301)
2.00	\$ 2,828,745	\$ 3,438,610	\$ 2,908,431	\$ (459,281)
2.25	\$ 2,828,855	\$ 3,438,828	\$ 2,908,650	\$ (459,265)
2.50	\$ 2,828,964	\$ 3,439,047	\$ 2,908,869	\$ (459,246)

MASSING CALCULATOR

Scheme Version: Scheme-01

Requirements:

F.A.R. Input: 0

Open Space %: 20

Height Restrictions? Yes

Height Limits: 250

SAVE SETTINGS

Real-Time Metrics:

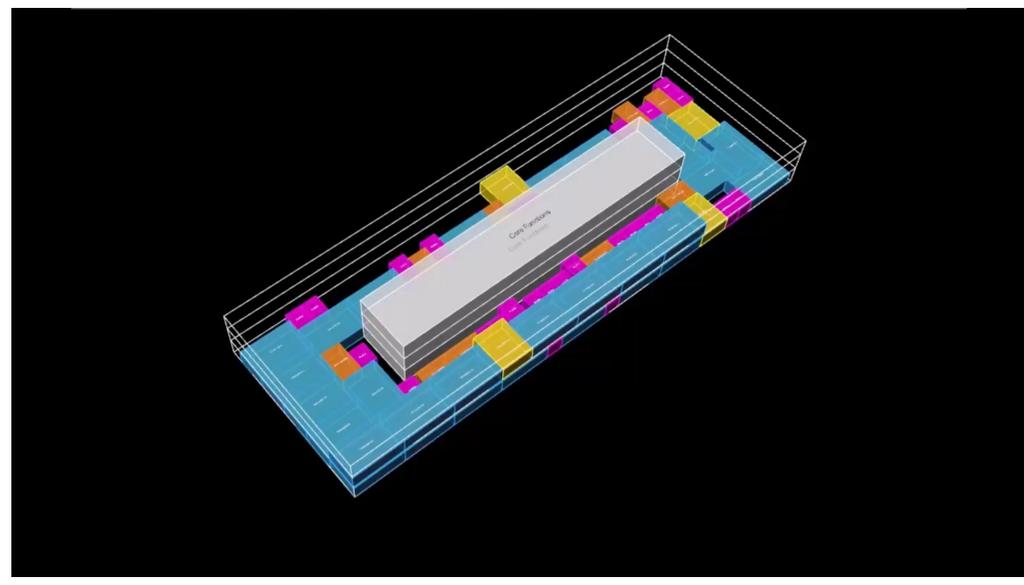
Site Boundary Area: 49632.765439 sqft

Total Areas of Floors: 395730 sqft

Current Massing FAR: 7.941144 [VALID]

Current Open Space %: 20.288706 % [VALID]

Current Height: 288.566724 FT [FAILING]



## AI Simulation Tool as Response to Covid-19 for Convention Center Reopening.

START Simulation | Reset Simulation

- Booth Layout 1 - Standard Aisles  
 Booth Layout 2 - Extra Middle Aisles  
 One-Way Aisles

Total Number Of People:

100

COVID AVOIDANCE: 49



Totals:

All People: 0

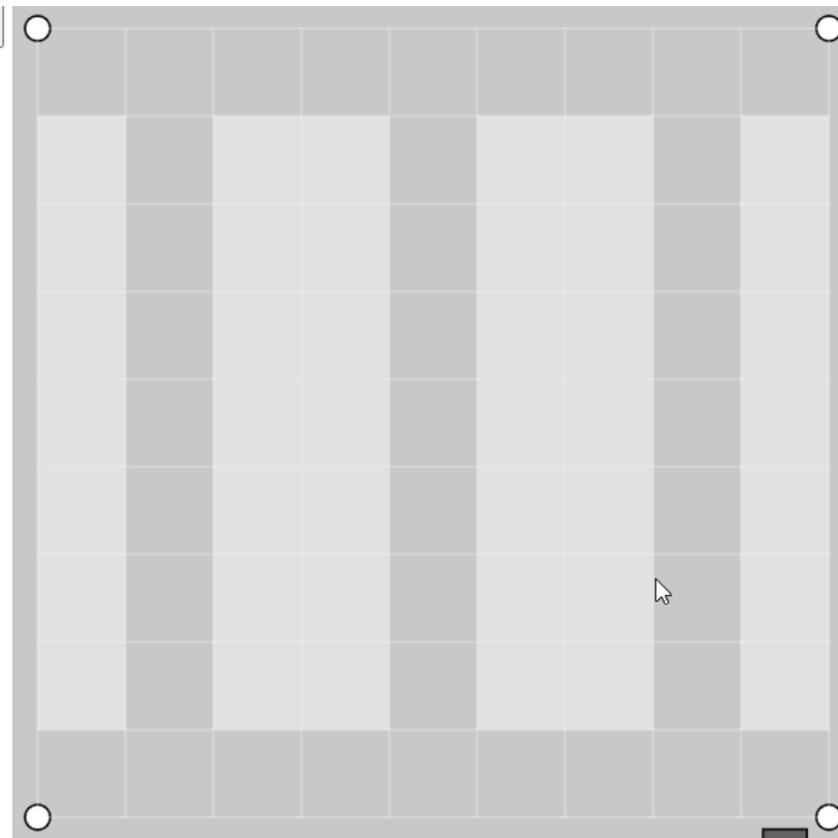
Exhibitors: 0

Guests: 0

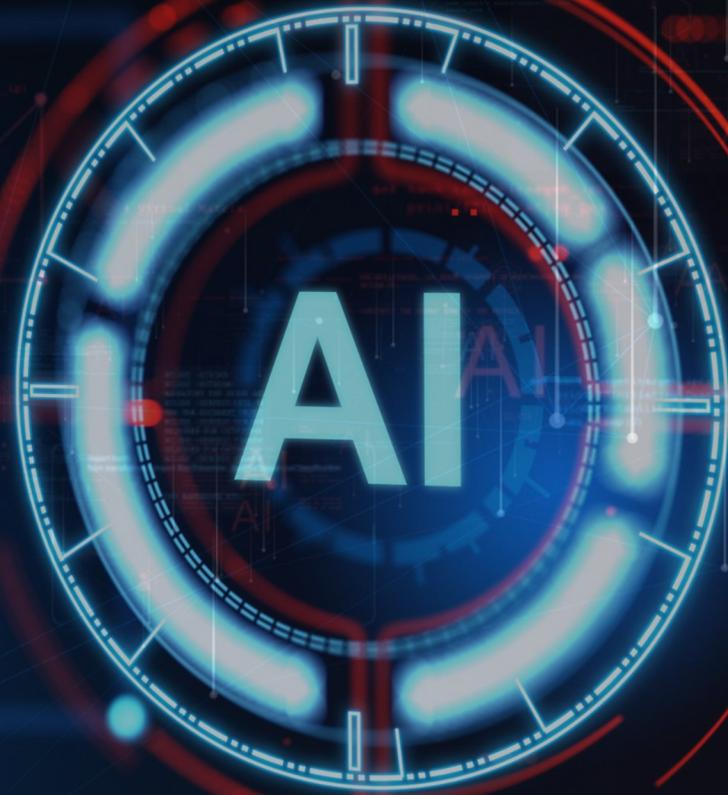
Booths: 42

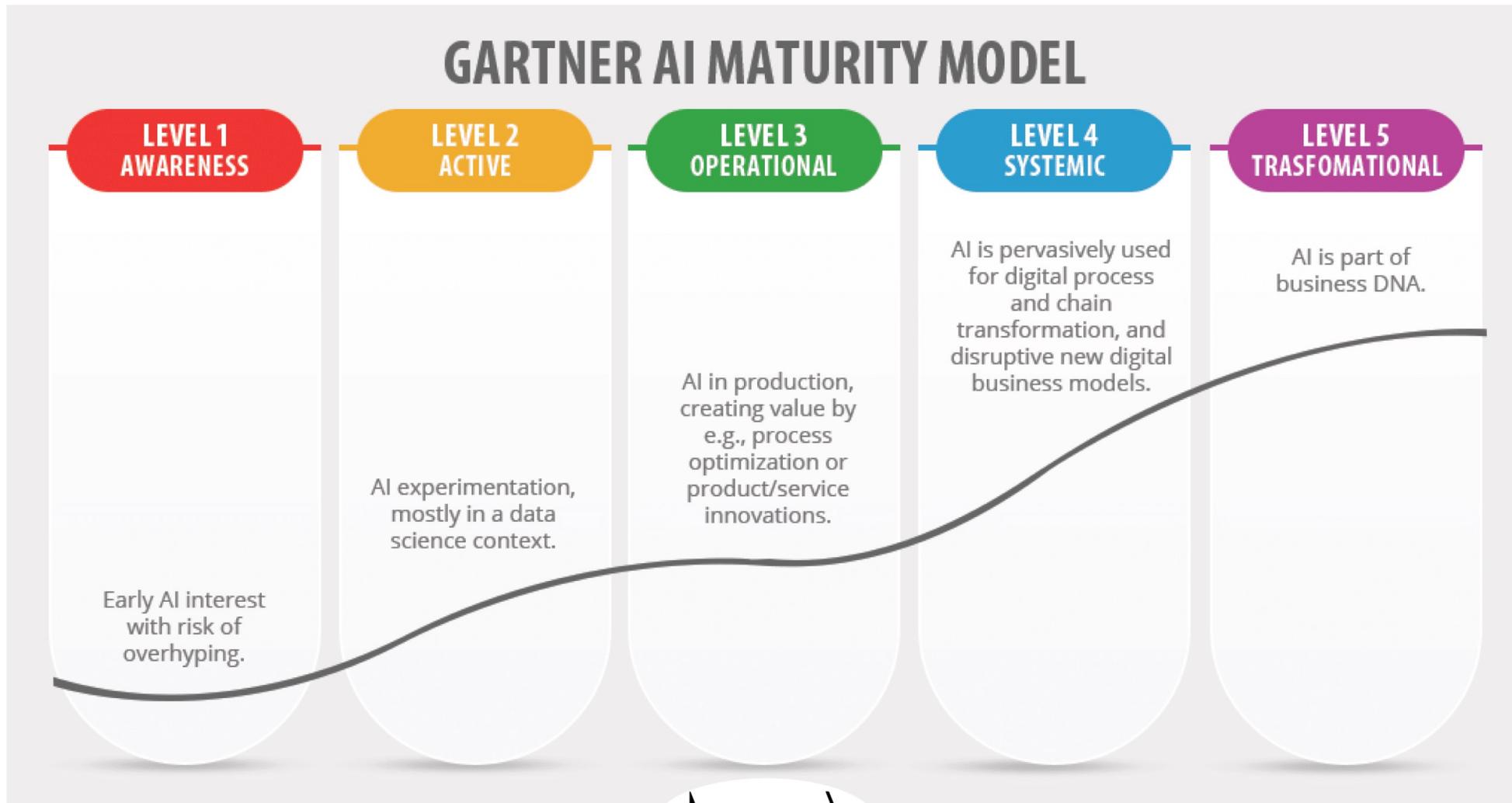
Average Guest Speed: 0

COVID % 74.60317460317461



# Tools + Processes.





Source: Gartner | Infographic design by Antonio Grasso



deltalogix.blog

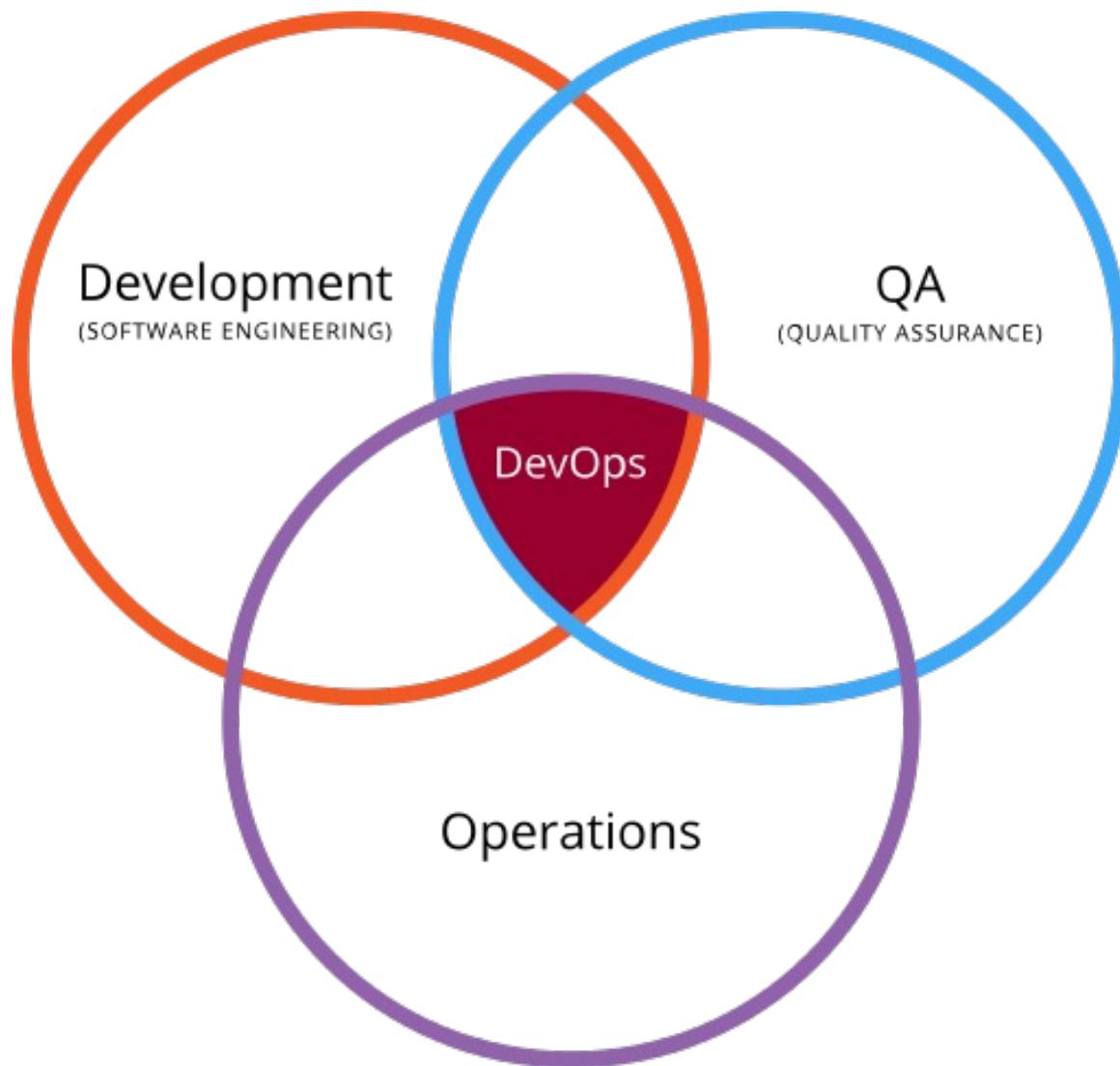
Listen. Solve. Deliver.

# Traditional DevOps for AI:

Data Infrastructure

Tool Development

Optimized Processes





## Crawl

These are actions you can implement immediately to get quick wins and gain momentum. The actions might just be extensions of what you're already doing, but they represent the beginning of change.



## Walk

This is when you collaborate to build new concepts and socialize them.



## Run

This is when the change is integrated into your systems, meaning they are included in your organization's strategic goals and key performance indicators.



## Fly

This happens when the change becomes part of your organization and employees are learning and evolving together to optimize the change.

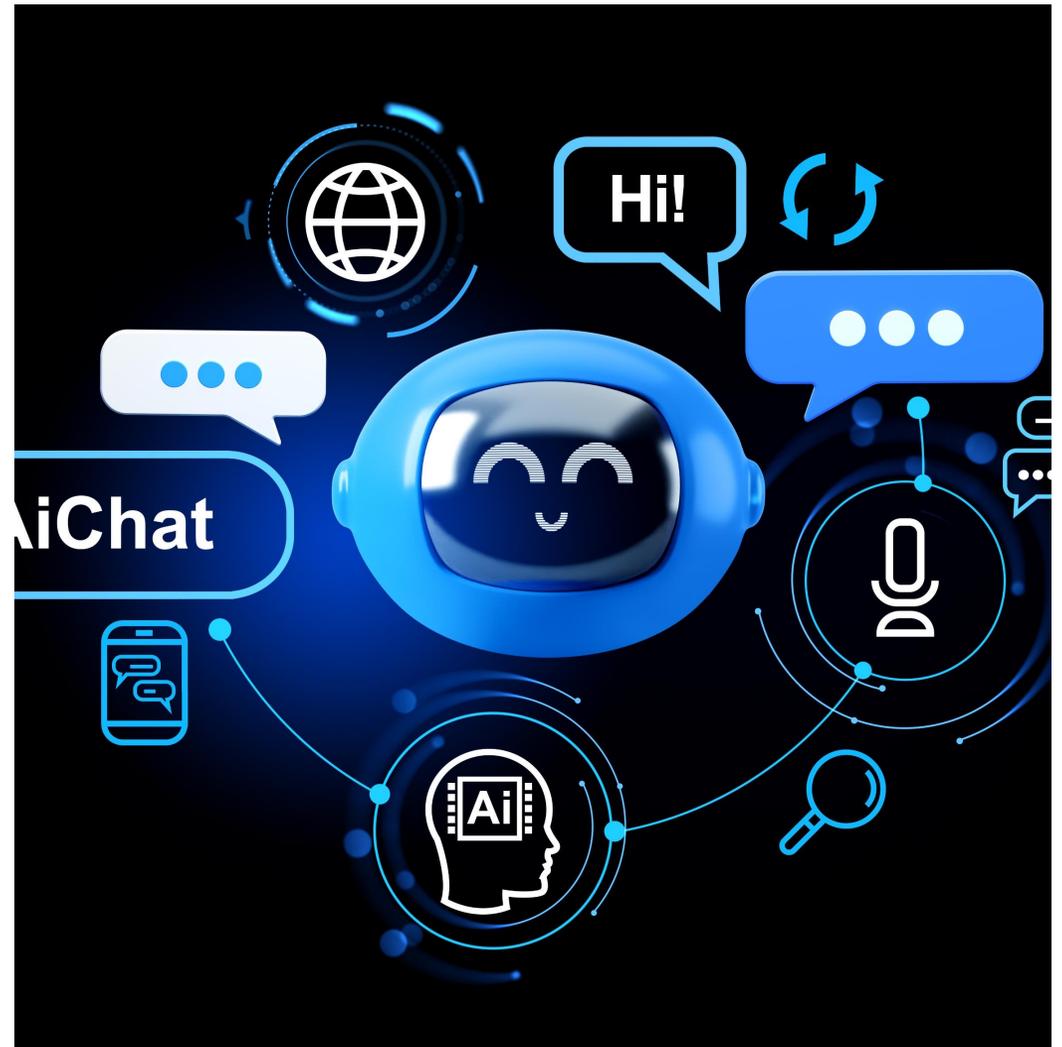
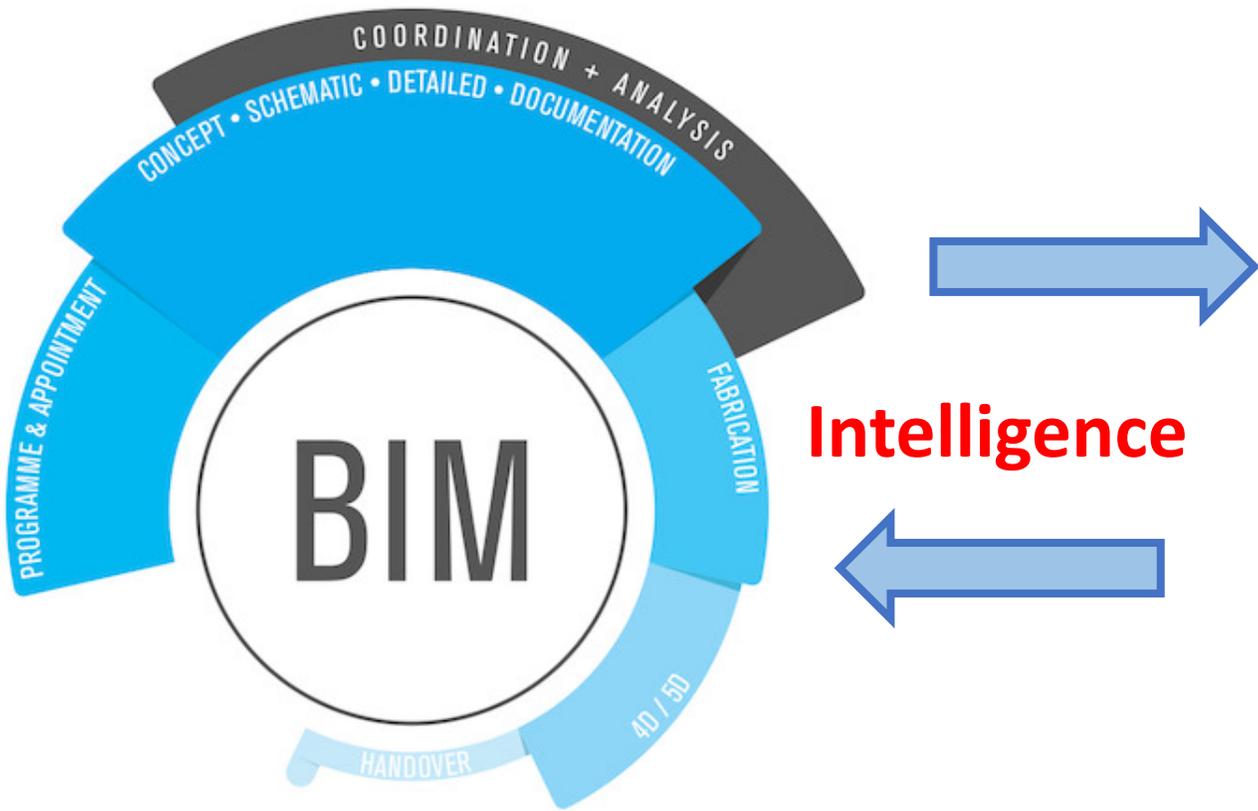
**A Progressive Strategic Approach is Best?**

“While the AEC sector has traditionally been slow in adopting new digital tools compared to other industries, there lies a vast, untapped potential in **no-code and low-code platforms to enable innovation at scale.**

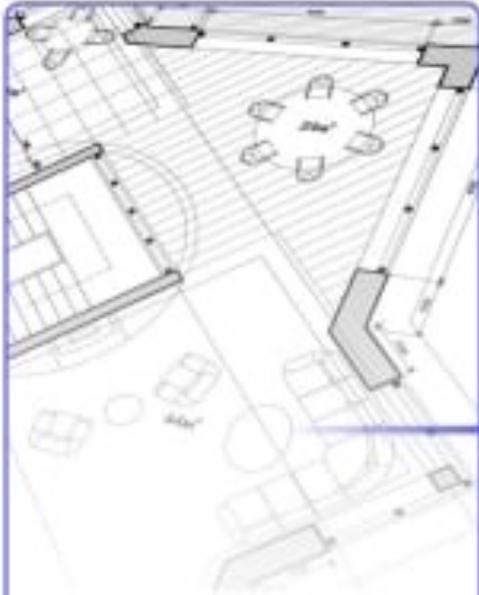
Despite the current limited use of these tools in AEC, there’s a latent opportunity waiting to be harnessed, especially considering the industry’s exposure to **BIM, visual scripting**, and more recently **cloud platforms, web-based technologies, and AI**”.

Design tools are evolving  
rapidly to support **Process  
Automation and AI  
integration...**

...and the means to create **AI workflows** and in-process **Design Assistance** regardless of infrastructure?



 AUTODESK



CAD



BIM 1.0

3D parametric modeling



BIM 2.0

cloud connected

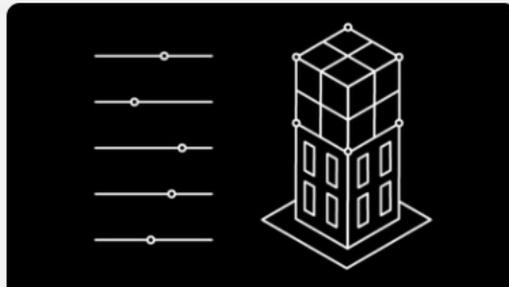


FUTURE OF BIM

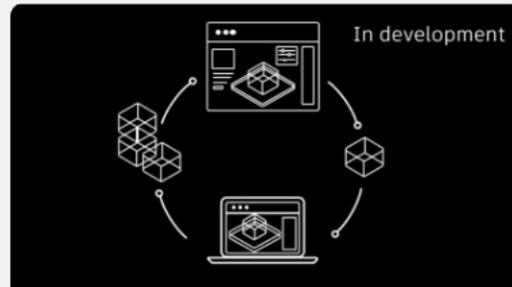
# Forma



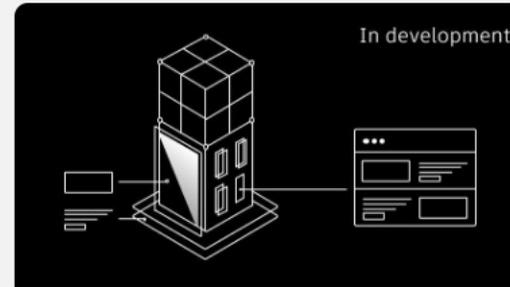
## Capabilities of the Autodesk Forma extensions and APIs



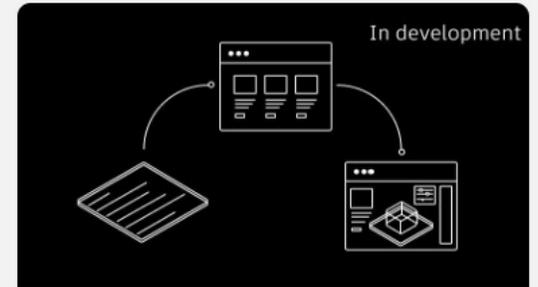
**Automate complex workflows with custom logic**



**Connect your favorite modeling tool**



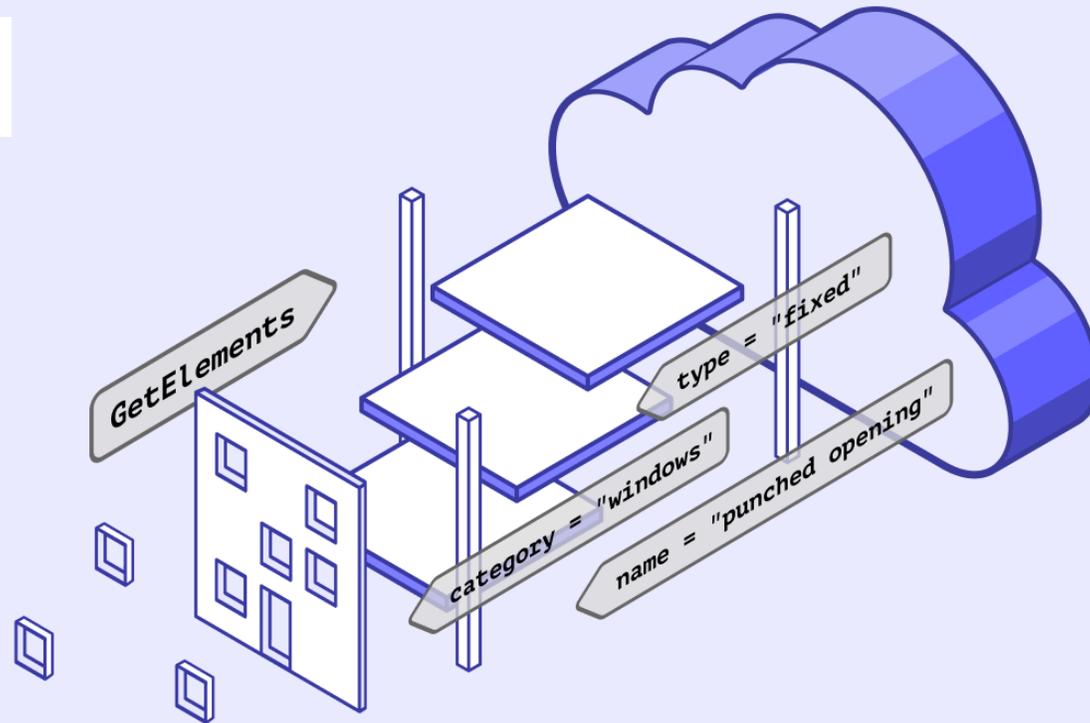
**Custom analyses for better outcomes**



**Transform context data into business opportunities**



## AEC Data Model API (Beta)





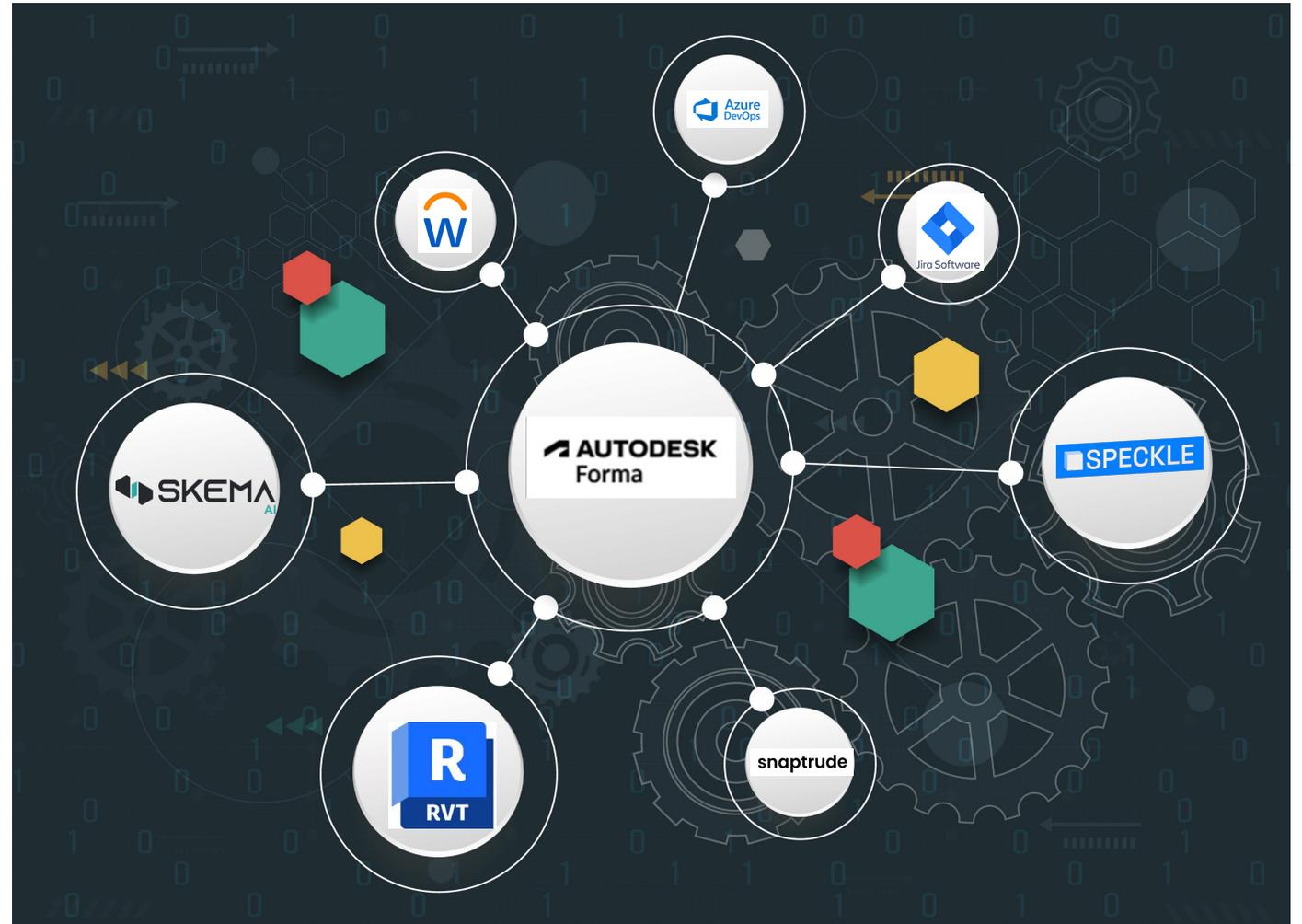
**TVS**

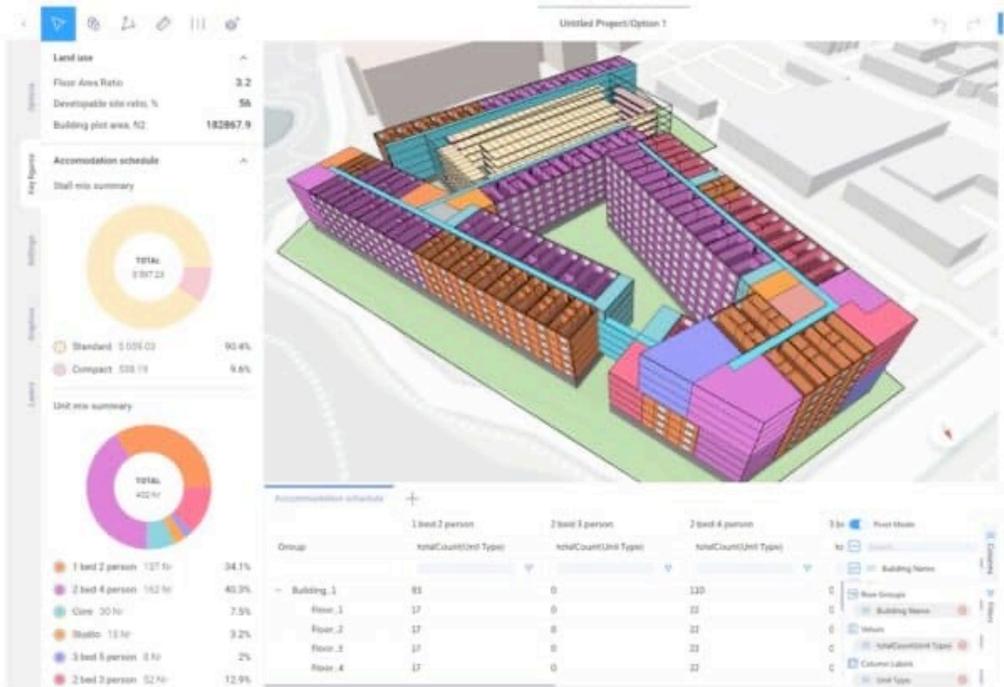
## DevOps for AI at TVS, now:

Data Infrastructure

Tool Development

Optimized Processes





Options

Land use	
Floor Area Ratio	1.2
Developable site ratio, %	0
Building plot area, ft2	132987.98

Key figures

Accommodation schedule

Unit mix summary

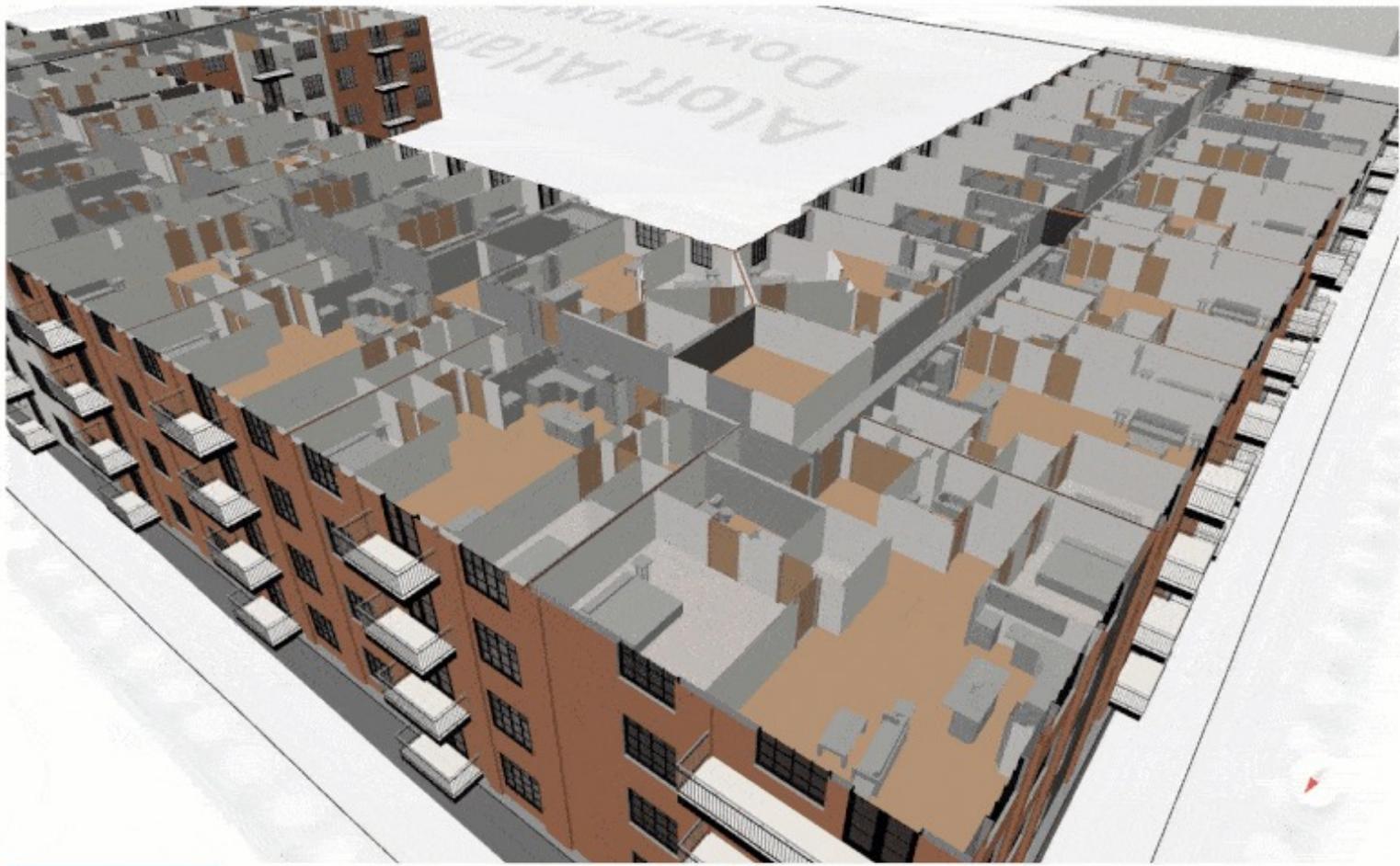
1 bed 2 person	76 Nr	45.2%
2 bed 4 person	68 Nr	40.5%
Core	24 Nr	14.3%

TOTAL 168 Nr

Area Schedule Summary

Residential	142 815.43 ft²	86.6%
Circulation	22 141.34 ft²	13.4%

TOTAL 164 956.77 ft²



3D view

View

2D

Camera type

Perspective

Terrain

Map

Cameras

Default(2)

Analysis

Sunlight VSC Daylight

Accommodation schedule

Group	sum(Unit Area)
Untitled	420736.61
Undefined	255784.77
Unspecified	164951.84

Pivot Mode

Search

Row Groups

Building Name

Values

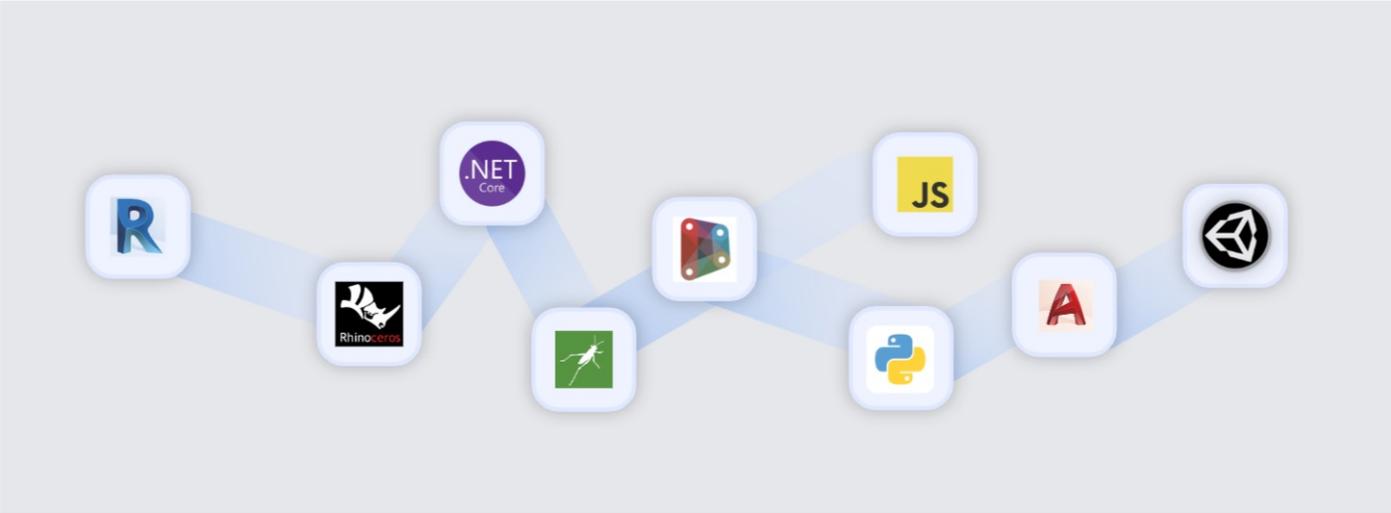
sum(Unit Area)

Column Labels

Drag here to set column labels







Seen in the wild at

ARUP



WOODS  
BAGOT™

SASAKI

Henning  
Larsen —

UNS  
UNSTUDIO

BIG



SOM

àurecon

We live in an era of technological disruption that is rapidly changing how we live and work.

While [McKinsey's Technology Trends Outlook 2023](#) shows how quickly technology is evolving, leading organizations are also rapidly adopting new and improved ways to better manage technology.

[From McKinsey Digital's "Hitchhiker's guide to technology: 42 shifts that matter to enterprise tech leaders" | McKinsey](#)

**TRVS**

Listen. Solve. Deliver.