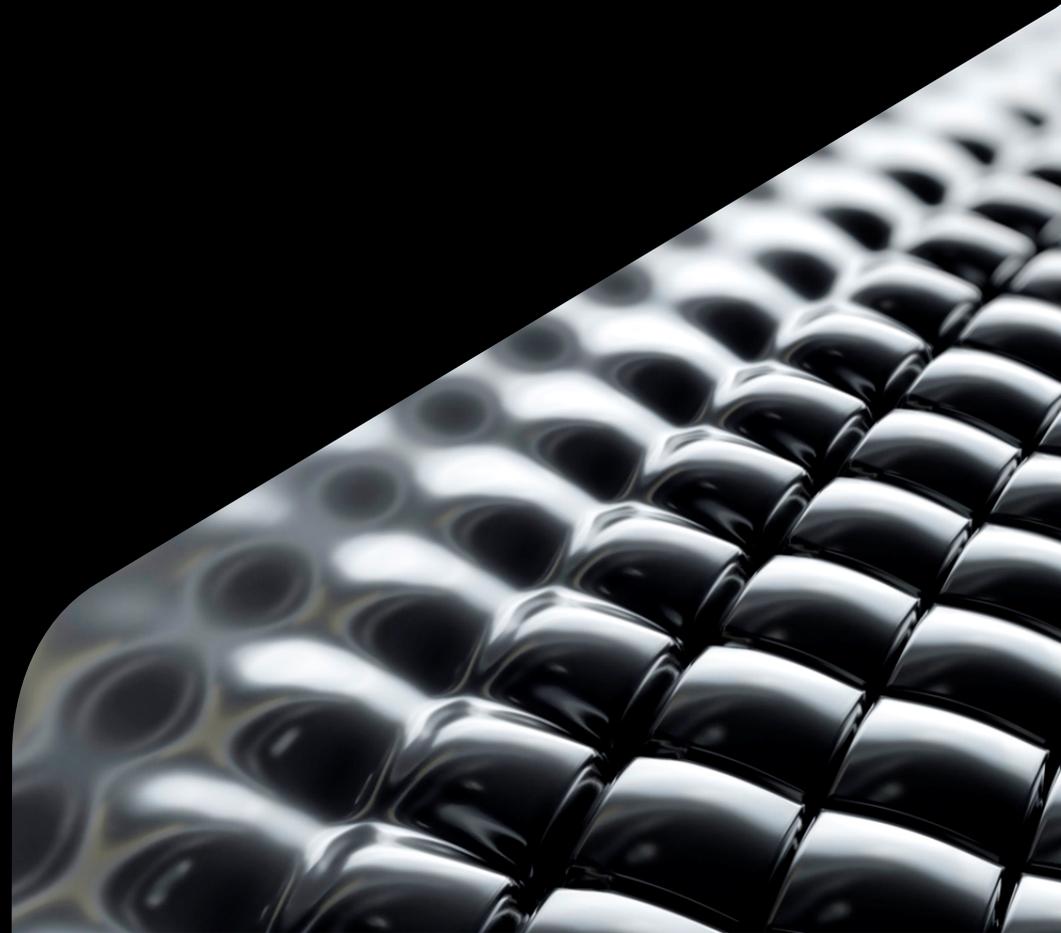




Demystifying Digital Twins

BLD501424

Lisa Neal
Senior Engineer Emerging Technology
@Lisa Neal, CM-BIM





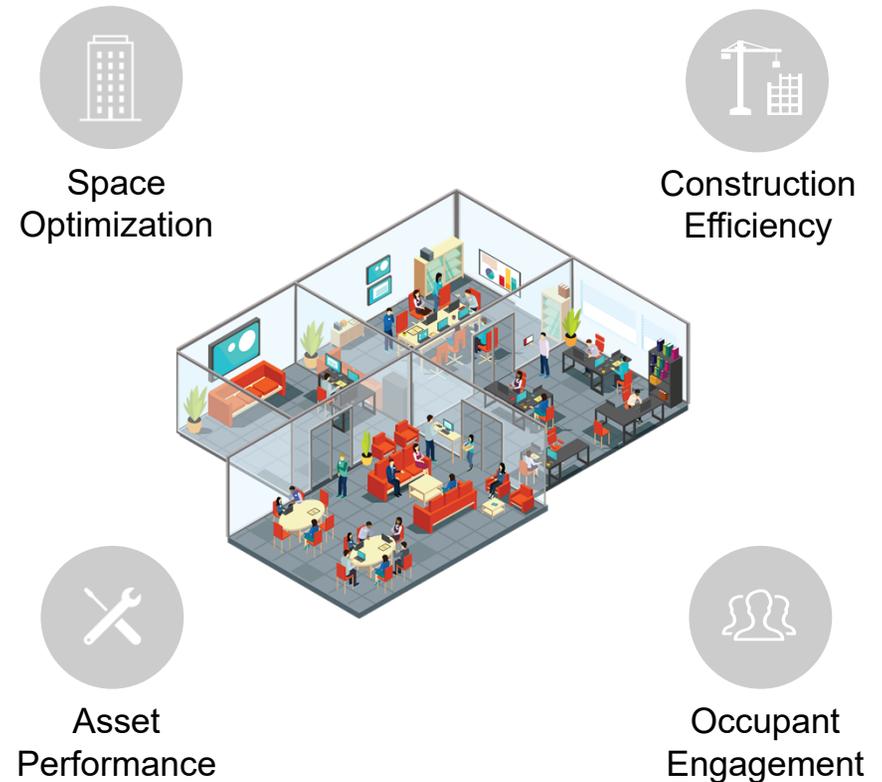
Definitions

it's not one size fits all

Defining Digital Twin

🔊 **dig·i·tal twin** /'dijɪdɪl twin/ *verb*

1. a **process** used throughout the project life-cycle
2. a **strategy** that connects the past and the future
3. a **collaboration** between industry leaders and innovators



See Also:

 **B·I·M** /'bim/ *noun*

1. Building Information Modeling. The foundation of a digital twin.

smart build·ing /'smahrt bil-ding/ *noun*



1. a **product or offering**; a building management system integrates with the digital twin and IoT technologies to enable predictive analytics and improved tenant experience.

The Devil's in the Data

- Over half the world is online, producing 2.5 quintillion bytes of data per day
- The global datasphere has surpassed 33 Zettabytes and is expected to reach 125 Zettabytes by 2025
- Data is common, but not trivial
- Other examples of common, vital things:

Water

Air

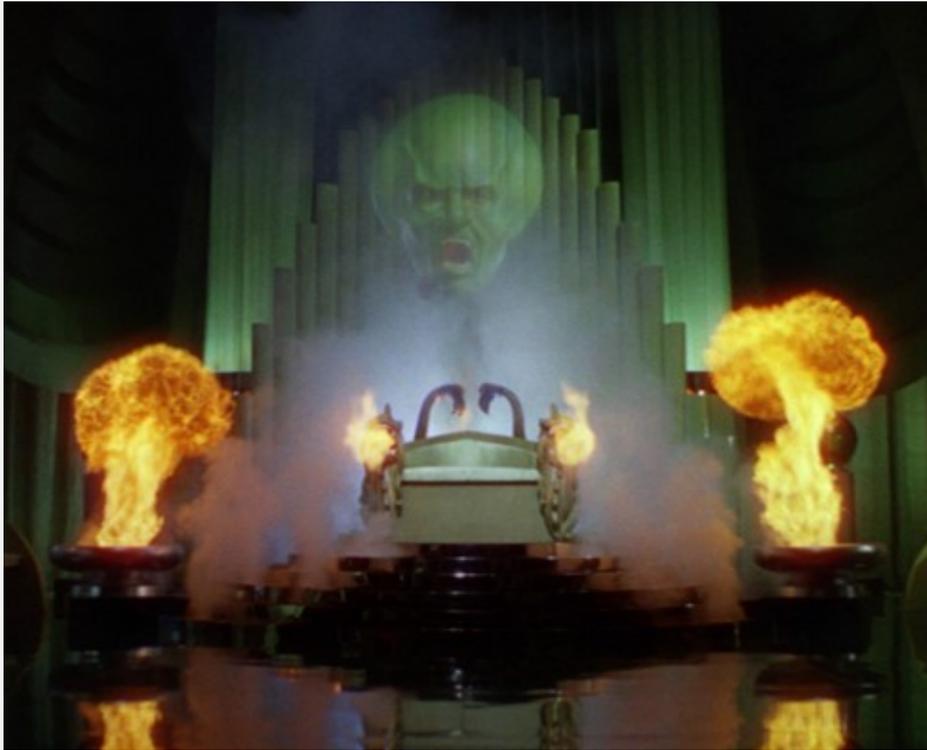
Stars

- Data makes up our digital universe!
- A quality digital twin requires quality data



An Analogy

What you see



What you get



*Tip: If you call it an analogy instead of a meme, Marketing will let you keep it in your presentation.



Some Perspective

+ miscellaneous things you need to know

Stakeholders Say

Turnover

We receive volumes of asset information at turnover, but it is costly and difficult to organize it so that it is usable.

Maintenance

The asset information we need in order to perform maintenance is not readily available or easily accessible.

Visualization

We would leverage 3D visualization more frequently if the as-built model contained the asset information we need.

Model Mgmt

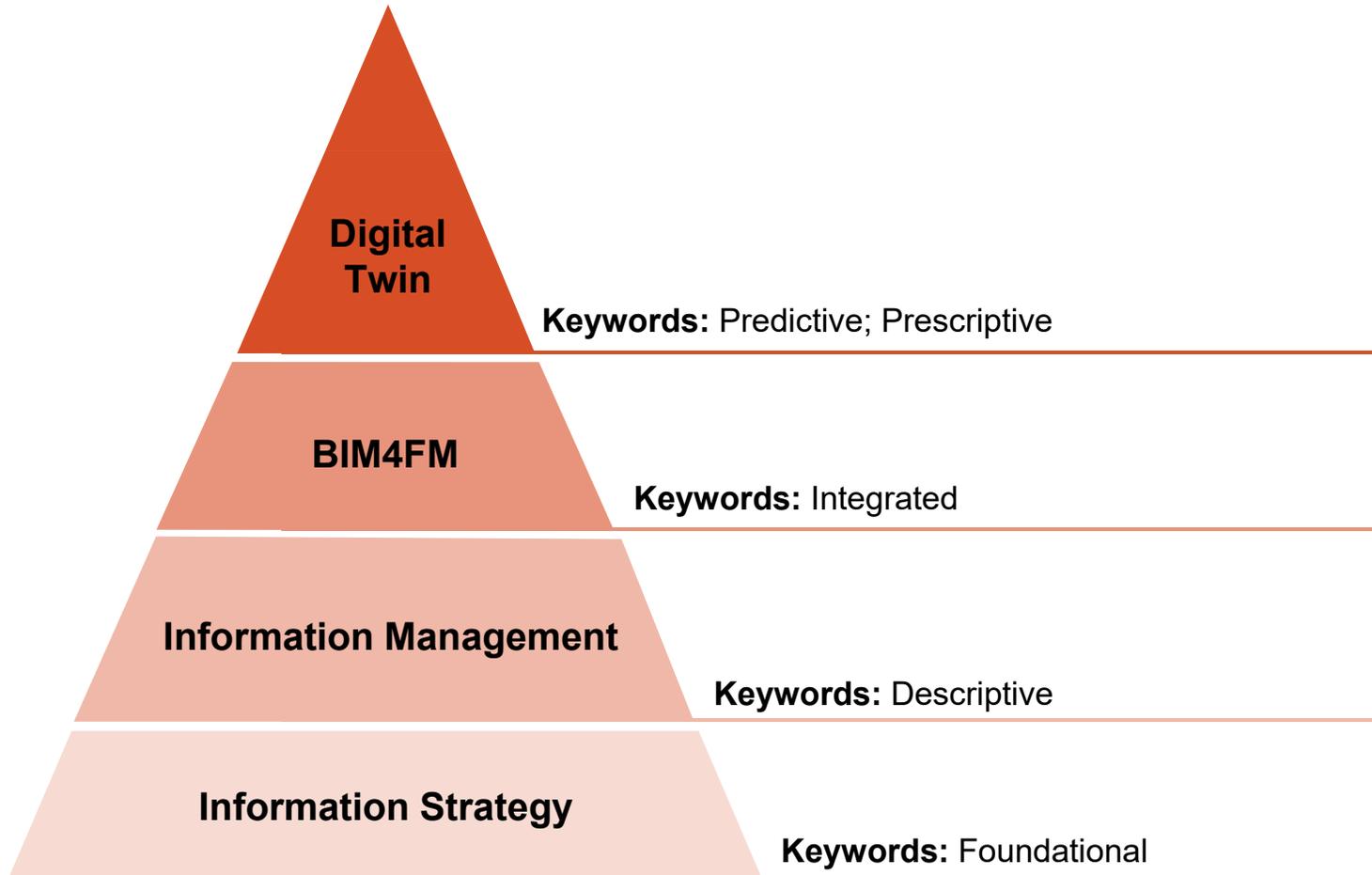
The as-built model falls out of alignment with existing conditions and loses value when it comes time to expand or renovate facilities.

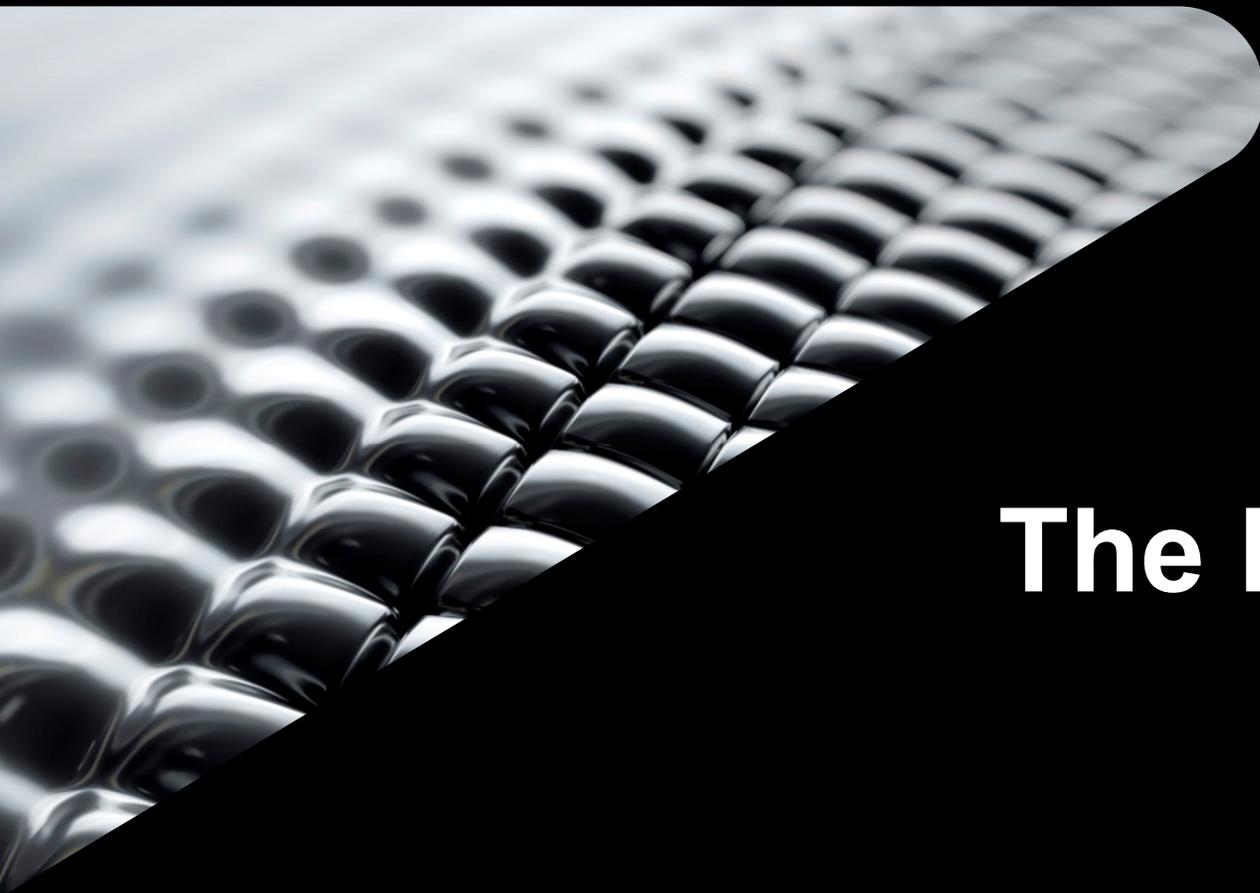
The Future

Models are becoming increasingly valuable to supporting our facility management processes and workflows, and we want to adapt.



The Power of the Pyramid

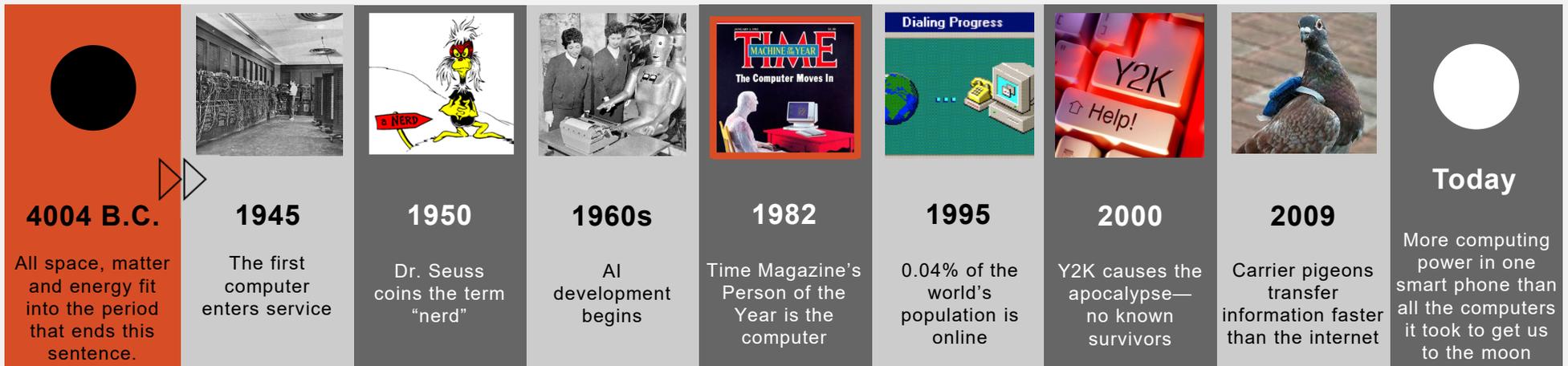




The Here and Now

and everything that lead to it

Tech Timeline



- Fast and flexible solutions
- Satisfy unknown future requirements
- Catch up and push ahead

Gaps

ICS > 93 > 93.010

ISO 19650-1:2018

Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) — Information management using building information modelling — Part 1: Concepts and principles

ICS > 03 > 03.080 > 03.080.10

ISO 41001:2018

Facility management — Management systems — Requirements with guidance for use

ICS > 25 > 25.040 > 25.040.40

ISO 8000-1:2022

Data quality — Part 1: Overview

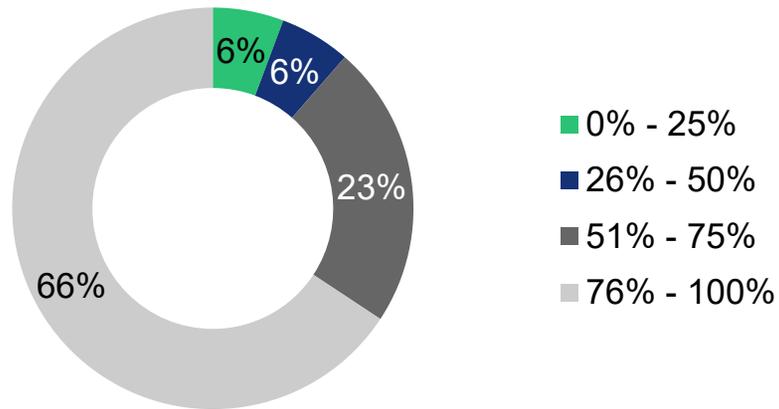
ICS > 03 > 03.100 > 03.100.01

ISO 56002:2019

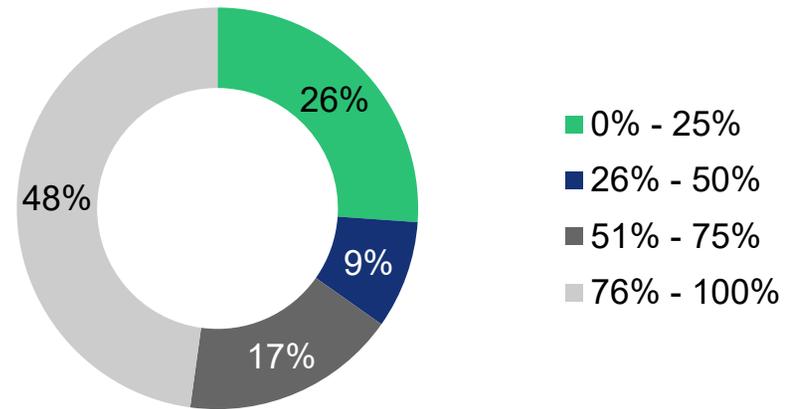
Innovation management — Innovation management system — Guidance

Lag

At what schedule % complete was closeout log created



At what schedule % complete were closeout items requested





The Future

stats and stakeholders

Gartner Says

\$48B

FORECAST

Estimated industry value
by 2026

75%

PLANNED USAGE

Use or plan to use digital
twin

13%

ACTUAL USAGE

Already using digital twin

1/3

CONSTITUENTS

Respondents say digital
twin serves multiple
constituents

Surprise Cameo | Stewart Germain

Stewart Germain

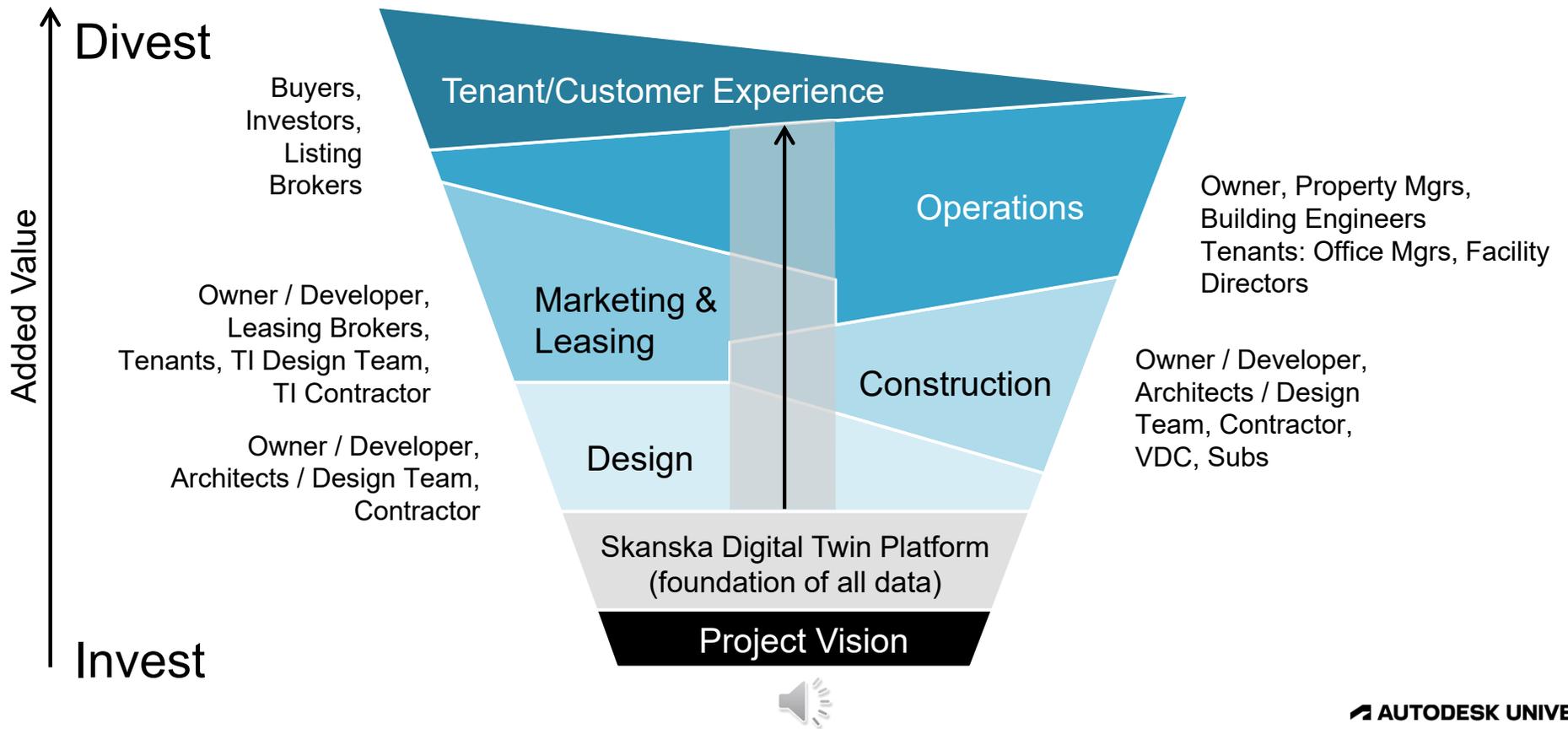
Director of Innovation

Skanska USA Commercial Development

@Stewart Germain

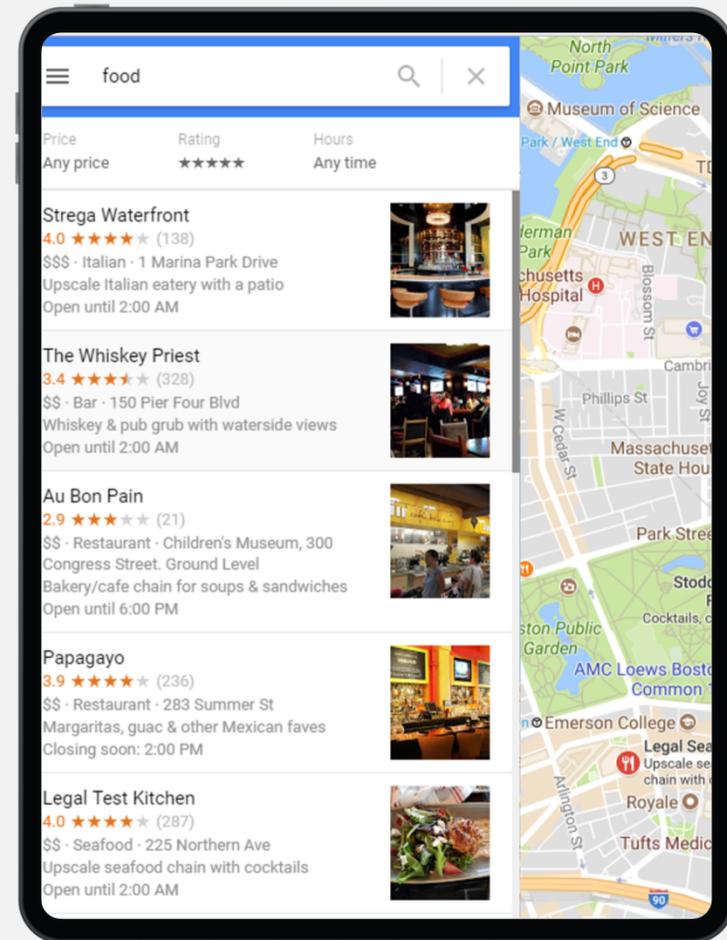


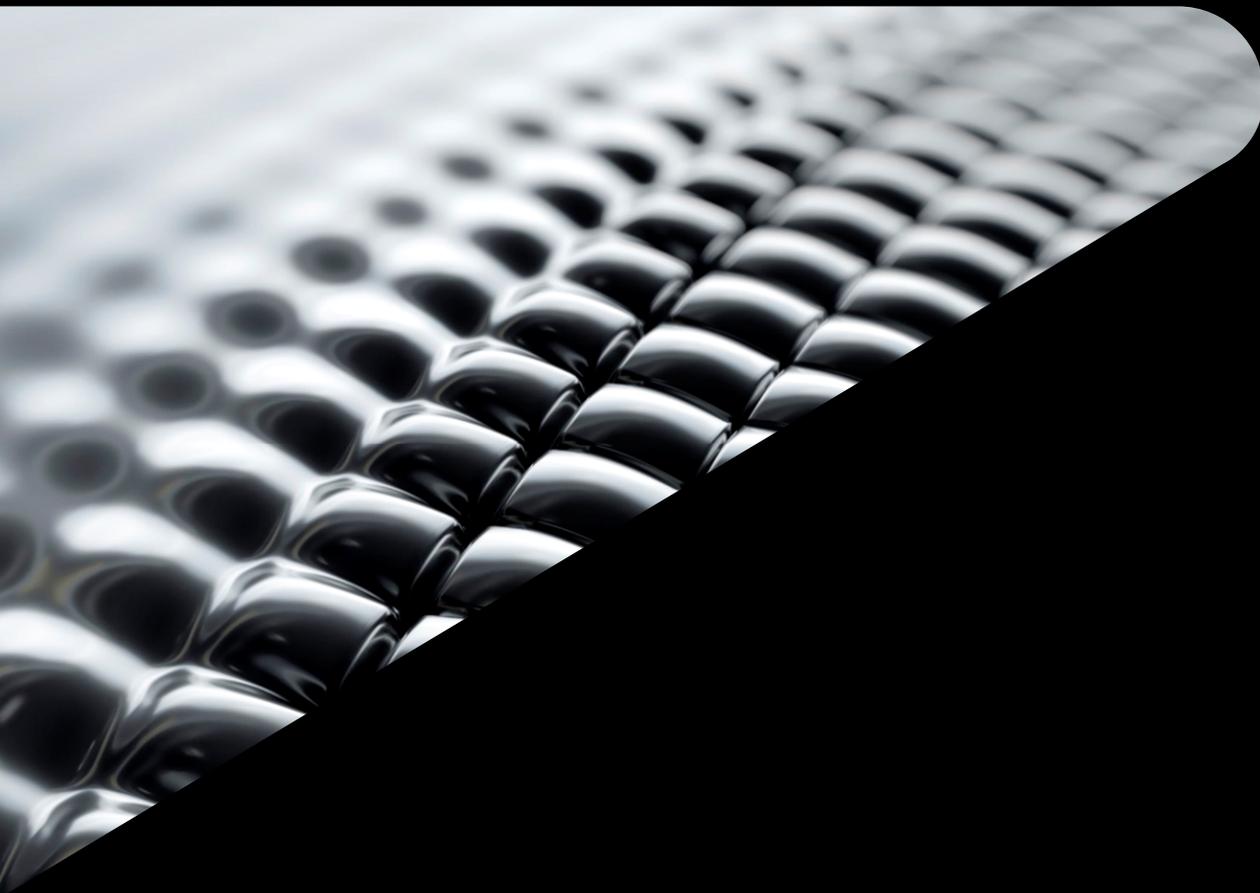
Speaking of Constituents



Where the Industry is Headed

- Geometry and visualization as the primary interface
- Contextual information, pulled from numerous other systems through open APIs
- Filter, search and tailor information
- Easily access and action the data





The Why

value to builder and buyer

Surprise Cameo | Danielle O'Connell

Danielle O'Connell

Senior Director of Emerging Technology
Skanska USA Building

@Danielle O'Connell



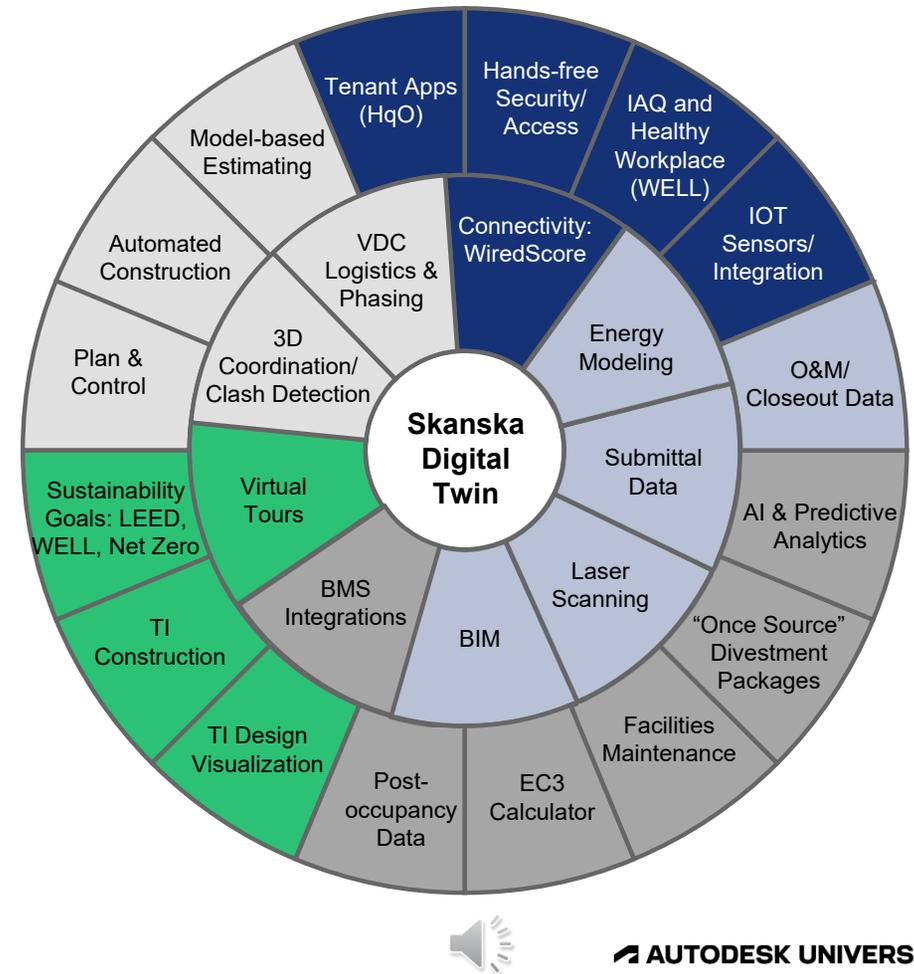
Ponderings and Potential

Anticipatory Questions:

- Does a digital twin require a new or custom platform?
- Isn't this supposed to be simple? Software and service providers make it seem easy.

Digital twins have a lot of potential but require planning and effort to accomplish. We should leverage existing initiatives and capabilities to build momentum.

- Foundational
- Construction Efficiency
- Leasing Advantage
- Tenant Experience
- Divestment Advantage





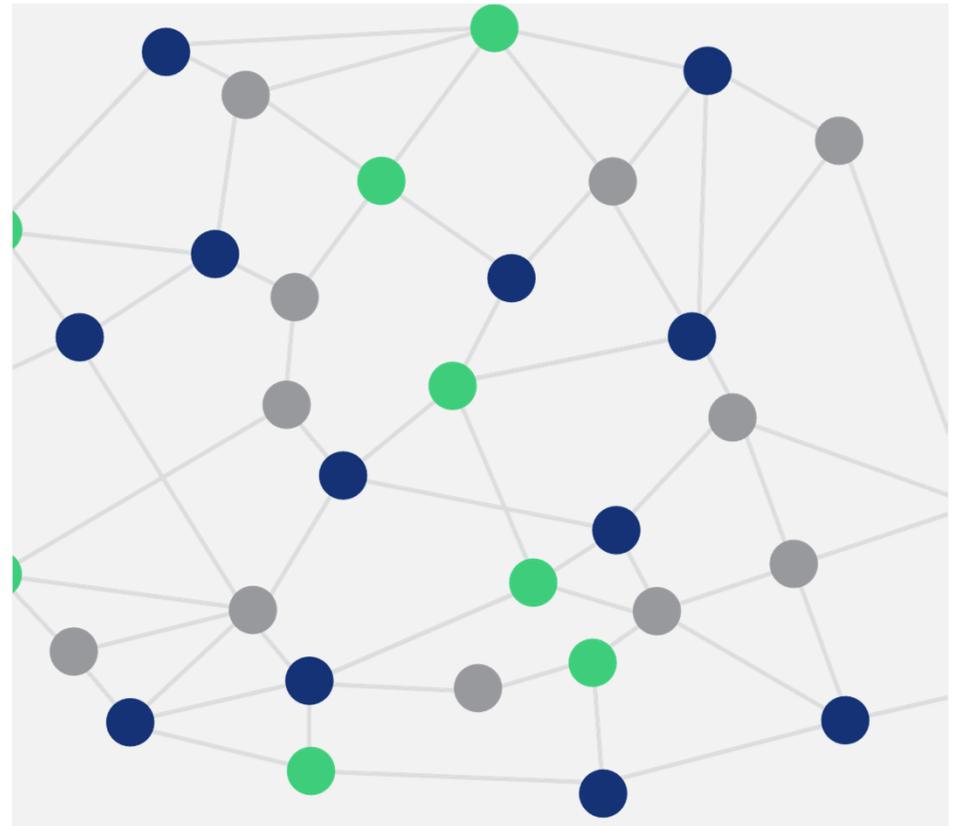
Traps

don't say I didn't warn you

Common Pitfalls and How to Avoid Them

- Waiting for the “right time” to research and invest in a digital twin strategy
- Trying to digital twin on your own
- Not knowing what you need
- Not tailoring the fit
- Underestimating the data requirements
- Saving closeout for the end

*Not specific to digital twin: “123456” is the most common password in the world. Don't do this.



**“...selling cures that don’t work
for things you don’t have...”**

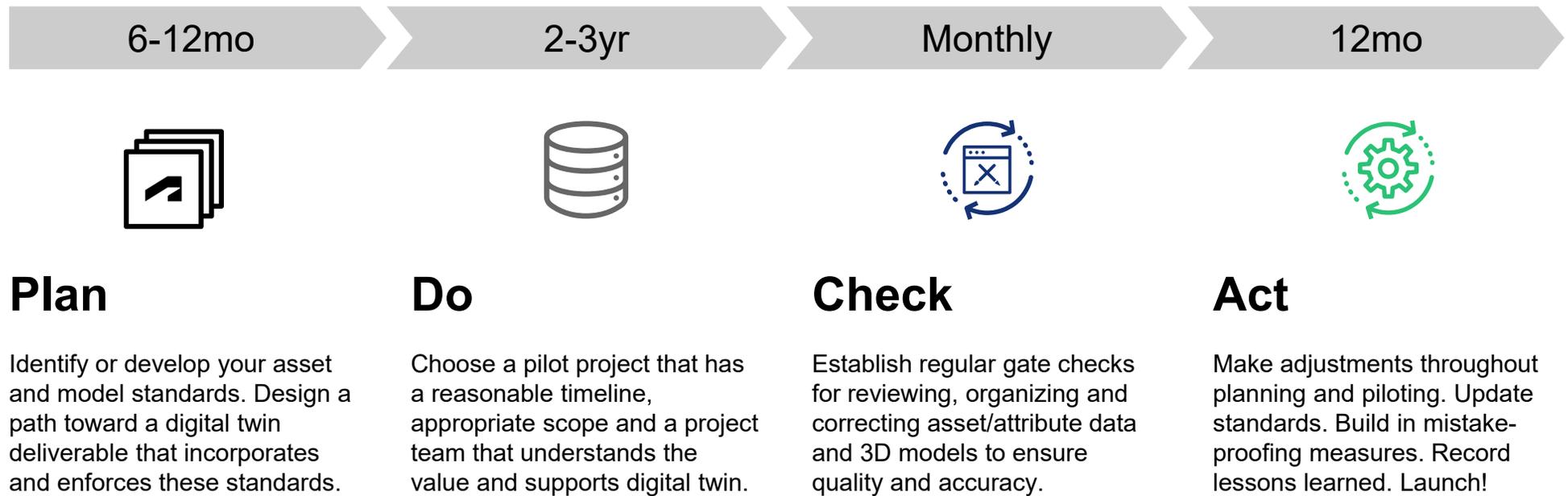
—Lucy Foley



Tips & Tricks

life hacks for digital twinning

Sample Digital Twin Timeline



Total Time to Deliver: 4-5 Years

Tips for Digital Twinning

- 1** | Find common ground, standardize, and increase sharing, learning and collaboration
- 2** | Make a business out of digital twin; productize and standardize what has already been developed
- 3** | Connect skilled people from IT and other business units
- 4** | Learn from software and service providers
- 5** | Define what digital twin means to you and your company
- 6** | Garner support and investment from your leaders
- 7** | Evaluate scalability for digital twin solutions
- 8** | Look at synergies across the company to accelerate; be opportunistic



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