

THTH Association
Autumn 2024

Going Beyond Digital Twins to the Smart Digital Reality

Adrian Park, VP Presales



```
char __cdecl sub_100000000(v1, v6);  
return 0;  
v1 = v6;  
v4 = 0;  
v5 = v4 == 0;  
v2 = 0;  
ZwClose(Handle);  
return v5;  
  
v0 = stdcall DriverEntry(PDRIVER_OBJECT DriverObject, nt a2, unsigned nt a3)  
{  
    KeEnterCurrentIrql();  
    sub_10542();  
    sub_10300();  
    ...  
}
```

```
return v5;  
ZwClose(Handle);  
return v5;  
  
//----- (0001034C) -----  
void __stdcall DriverEntry(PDRIVER_OBJECT DriverObject, nt a2, unsigned nt a3)  
{  
    KeEnterCurrentIrql();  
    sub_10542();  
    sub_10300();  
    ...  
}
```

Digital Twins

Facilities can have multiple Digital Twins

Physical Twin



Process Twin



Geospatial Twin

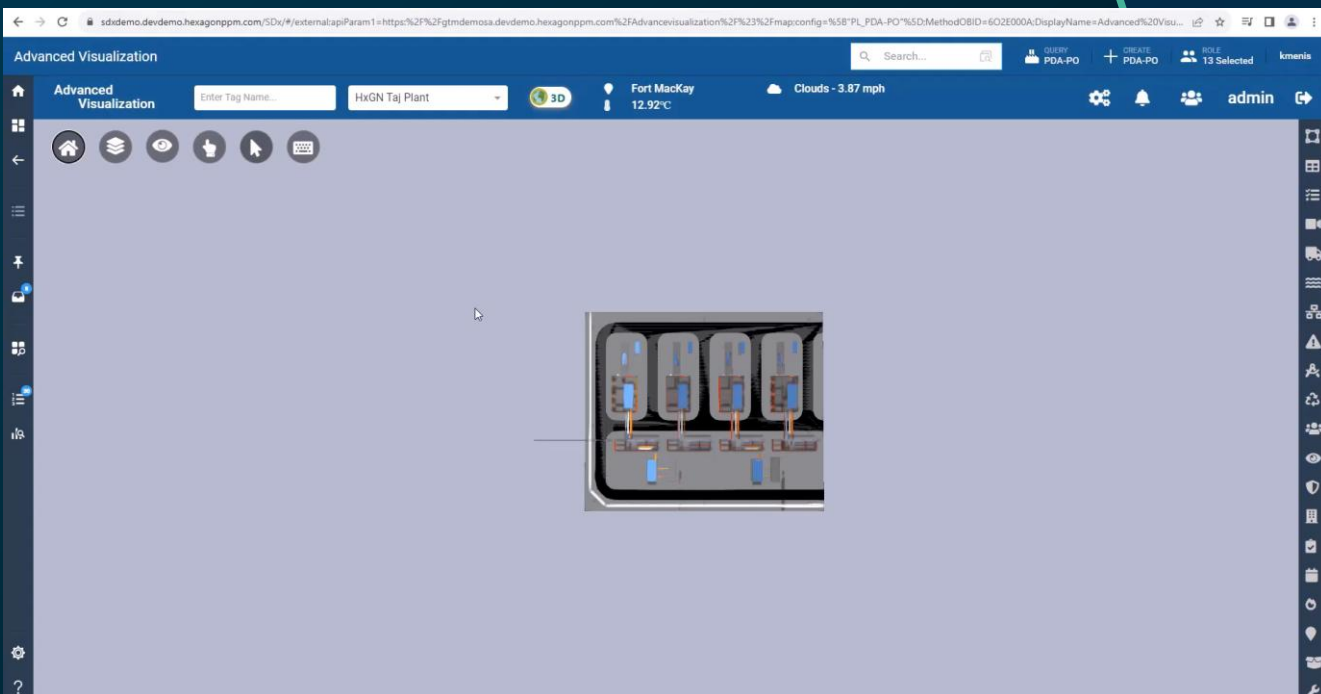


Facilities can have multiple Digital Twins

Physical Twin

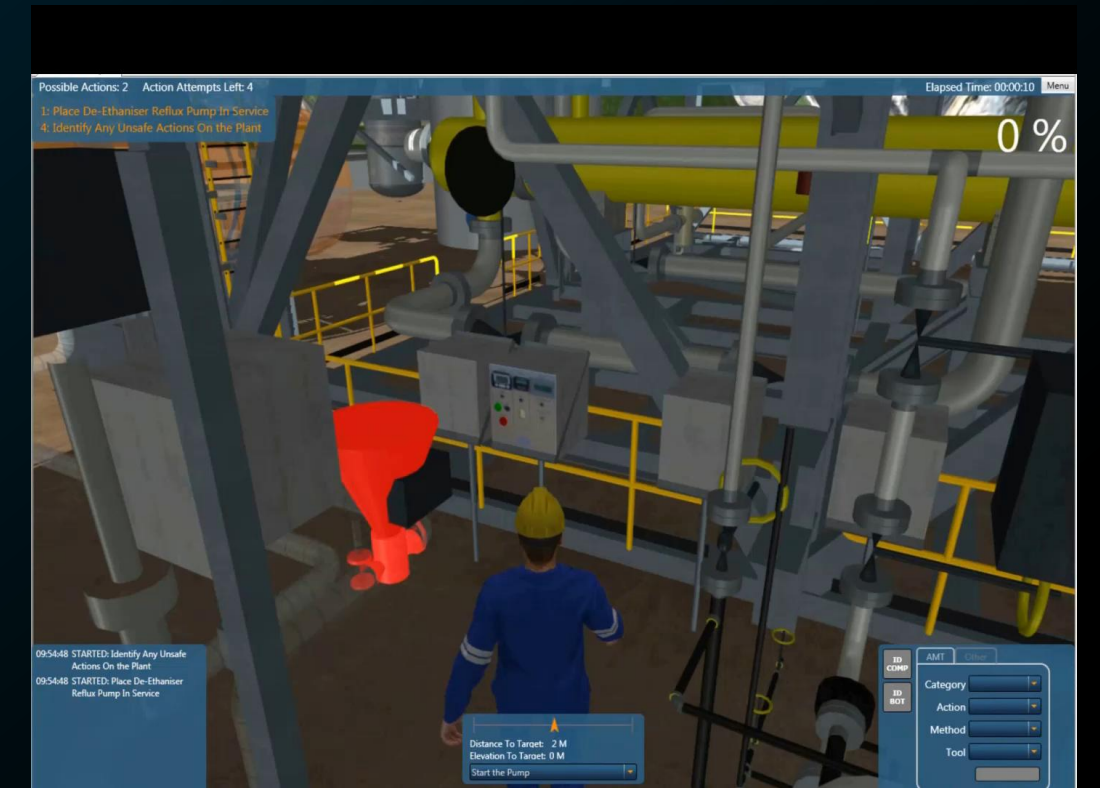


Geospatial Twin




Digital Twin

Process Twin



Physical Twin provides foundation and context





8 out of 10

organisations say their digital twin is helping reduce their carbon emissions

Digital twins are having a sizeable impact on organisations' financial health

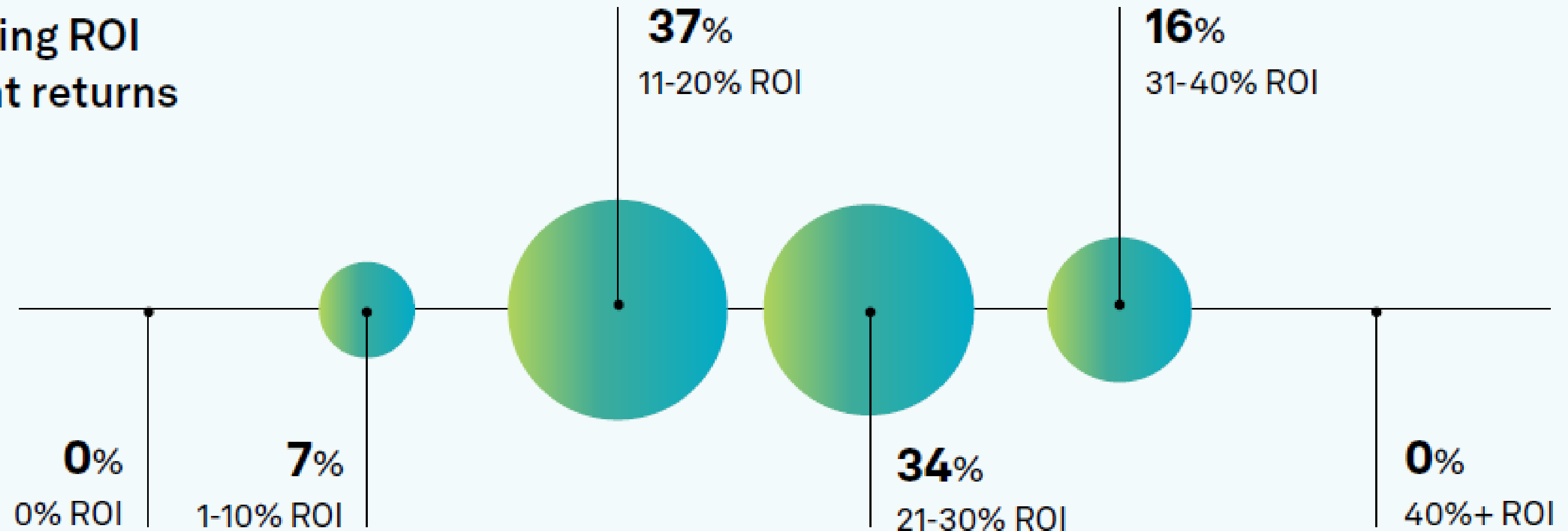
Average cost saving

19%

Average revenue growth

19%

Those that are tracking ROI are seeing significant returns

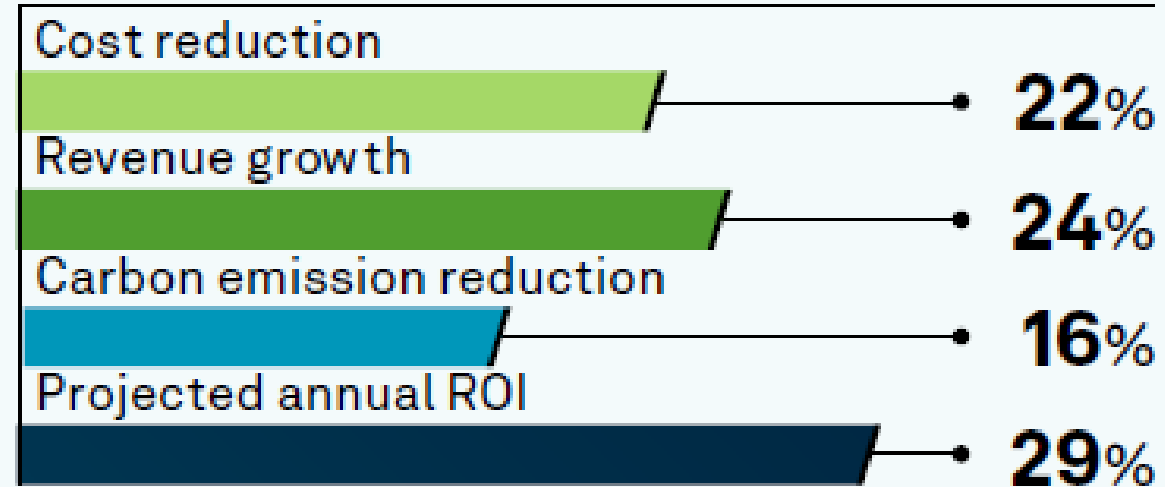


Survey of 660 Senior Executives across 11 industries
Hexagon - November 2024

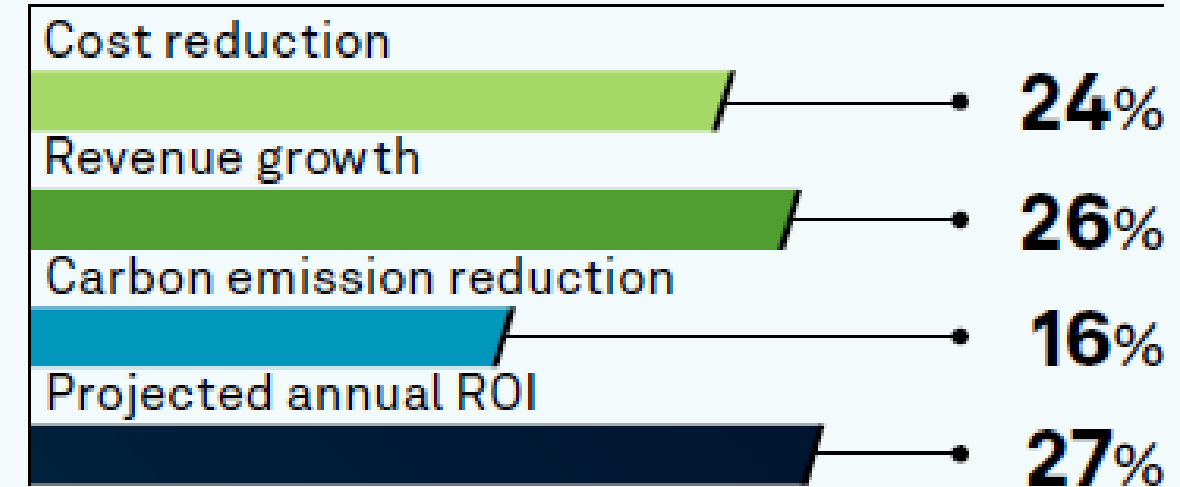
Digital Twin benefits – industry examples

Survey of 660 Senior Executives across 11 industries, Hexagon - November 2024

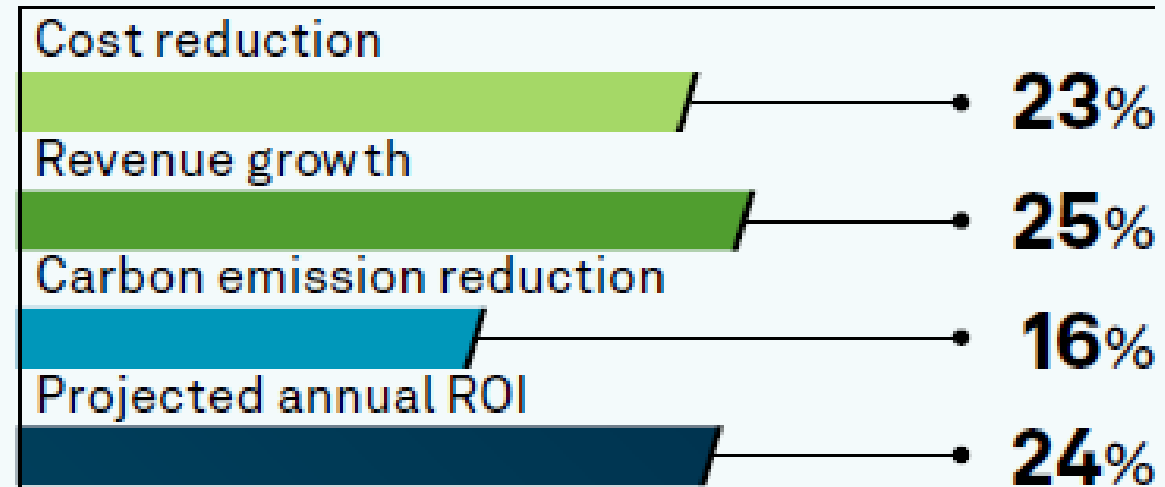
Mining



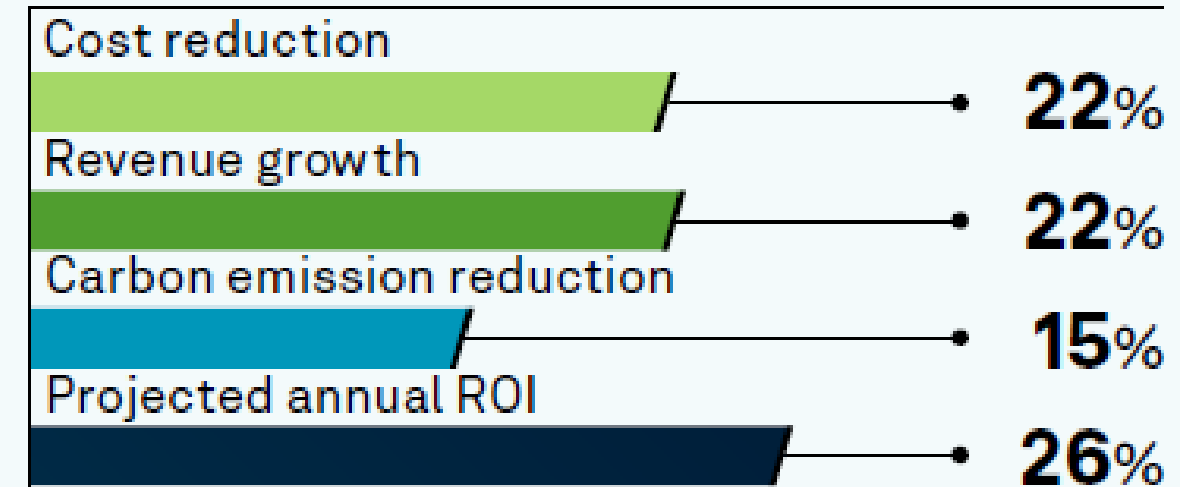
Oil and gas



Chemicals/petrochemicals and refining/manufacturing



Infrastructure

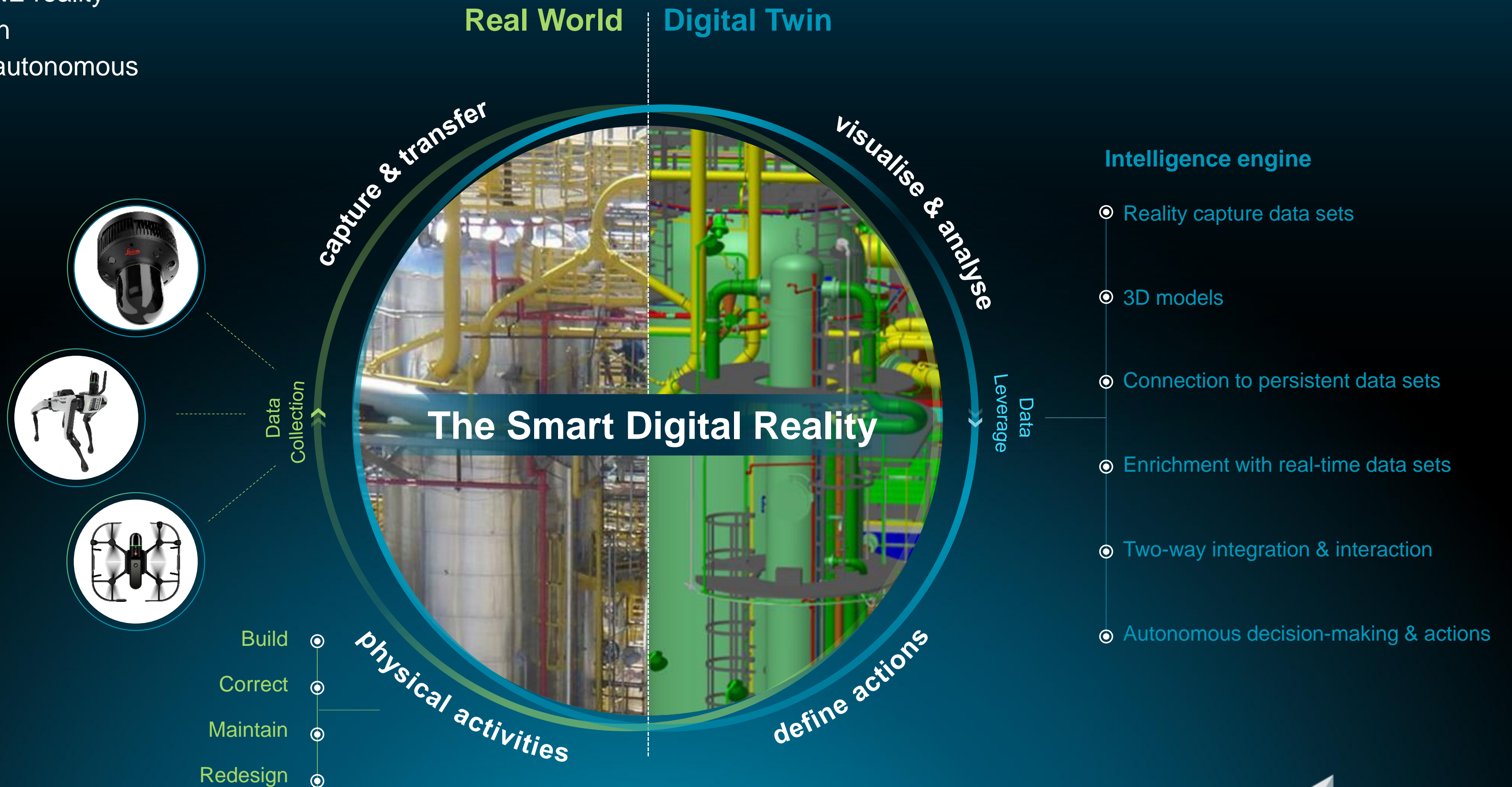




Smart Digital Reality

The Smart Digital Reality

Two worlds, ONE reality
Workflow-driven
Real time and autonomous



The future is already here



Hexagon's Leica BLK2FLY named one of TIME's Best Inventions of 2022

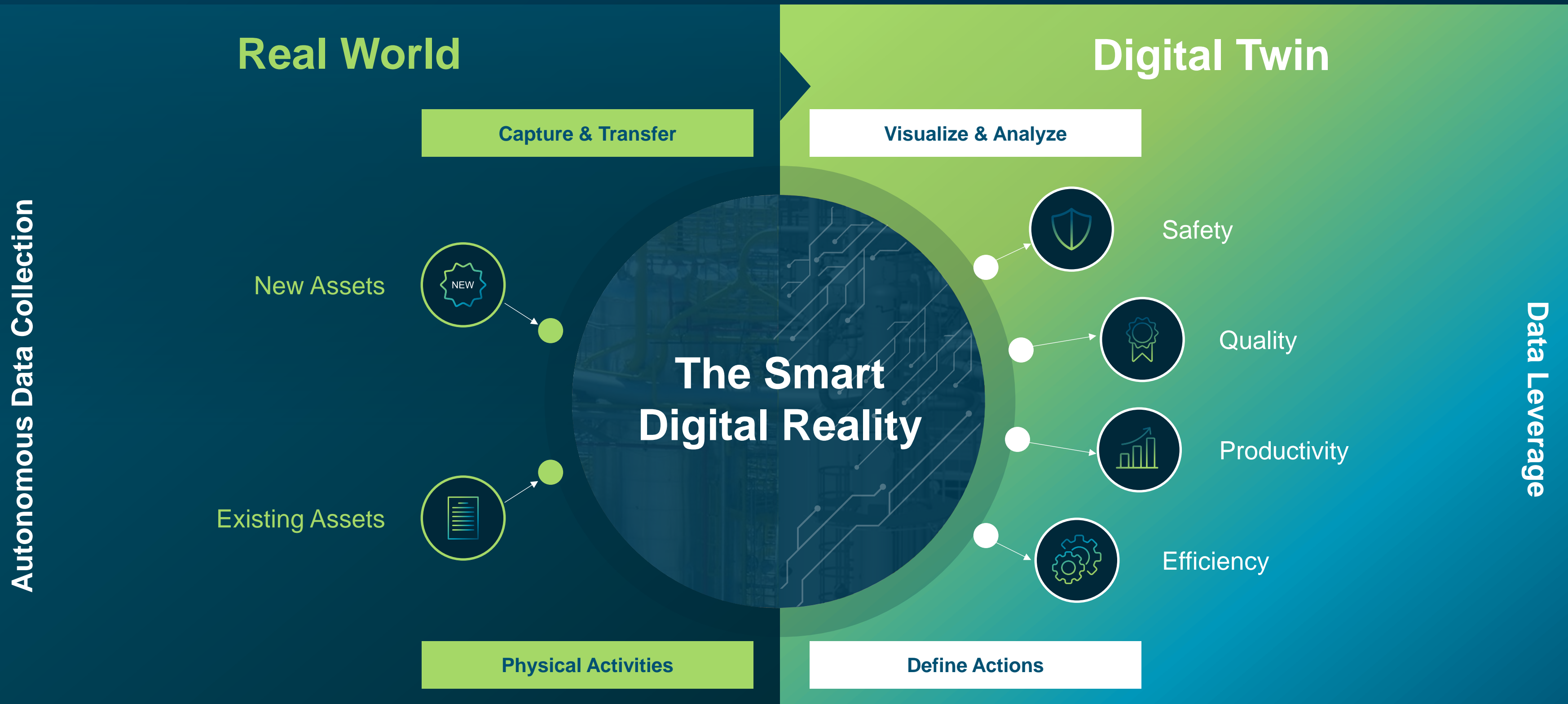
November 15, 2022 - By Tracy Cozzens



Photo: Leica Geosystems



Industrial Facilities – Realizing Value from Your Data



Role-Based Single Pane of Glass, empowered by the Smart Digital Reality™



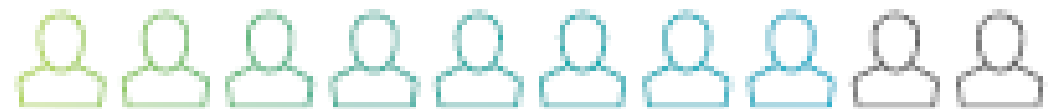


Application of AI

Digital Twins, Smart Digital Reality and AI

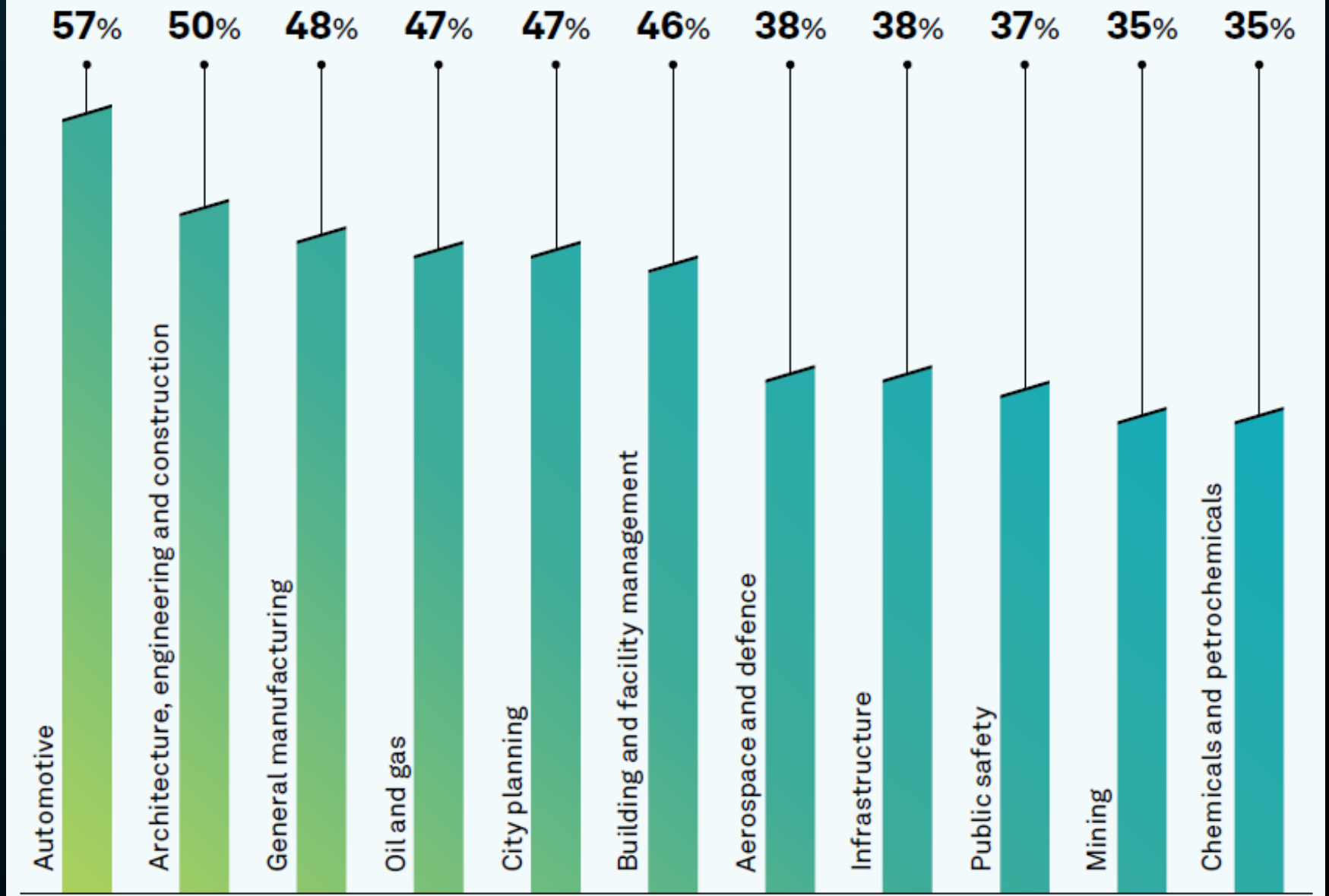
Survey of 660 Senior Executives across 11 industries, Hexagon - November 2024

80%



of respondents say AI has made them more interested in digital twin technology

Plans to add AI functionality varies substantially across sectors



“[...] data is the most under-valued and de-glamorised aspect of AI [...]”

Google

The economics of AI points to value of good data

Felix Martin, Reuters 29.06.2024

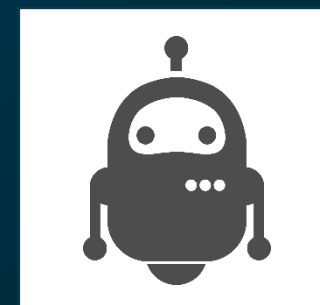
Strategic AI focus areas



Simplified tag and meta-data / content extraction using conventional AI approaches and large language models (in progress)



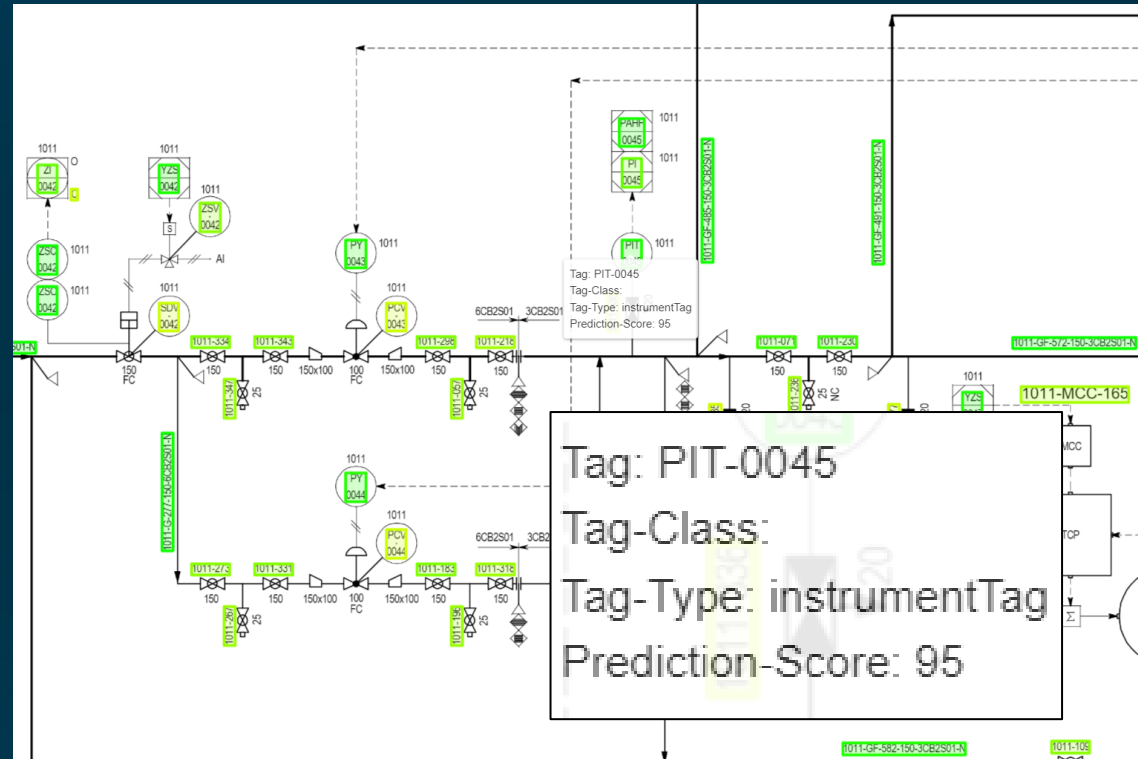
Eased access to asset data and information including LLM-based conversational data interface (planned)



Support or automation of tasks in our solutions, possibly enabled by generative AI (planned)

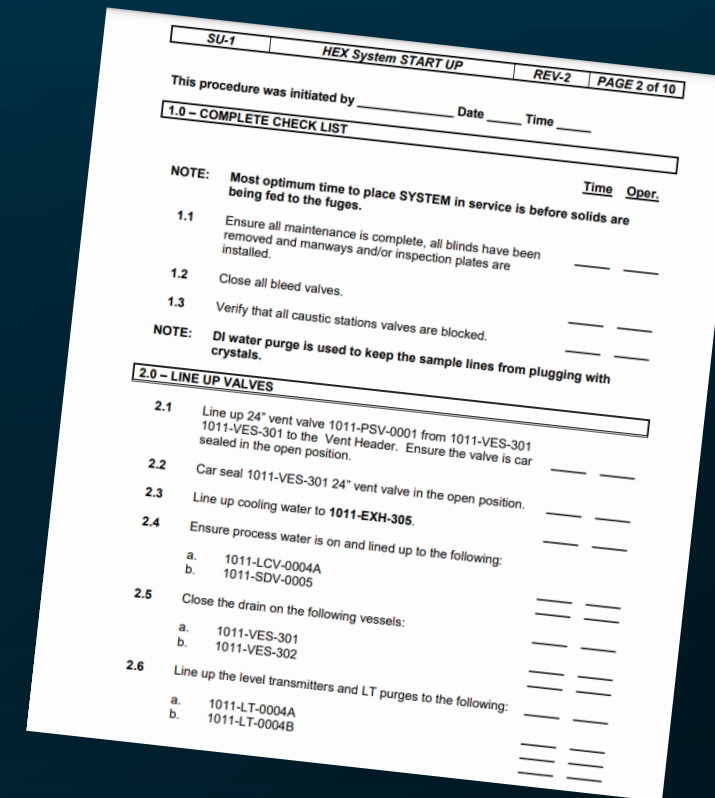
AI for Industrial facilities - Data take-on improvements

Providing faster asset information consumption



**P&ID Smartification
Extract Tags & Classify**

- High configuration effort, multiple cycles to capture all tags
- AI can reduce this significantly
- Saving man hours in rule configuration



**Bulk document upload and
classification
Tag Extraction**

- Effort to classify documents high, effort to create additional tag extraction rules even higher
- Technology allows us to capture key project documentation and contextualize it



**Identify tags in Laser-scans &
panoramas**

- Manually tagging is very time consuming
- Automatic detection could save upto 400 hours for 50k tags

Extracting and Blending Data to Extract More Value

uploading a set of unstructured files

| ITEM NO. | DESCRIPTION | UNIT | QTY |
|----------|-------------|------|-----|
| 1E | BRN | 13 | BRN |
| 1F | 100 | 100 | 100 |
| 1G | 100 | 100 | 100 |
| 1H | 100 | 100 | 100 |
| 1I | 100 | 100 | 100 |
| 1J | 100 | 100 | 100 |
| 1K | 100 | 100 | 100 |
| 1L | 100 | 100 | 100 |
| 1M | 100 | 100 | 100 |
| 1N | 100 | 100 | 100 |
| 1O | 100 | 100 | 100 |
| 1P | 100 | 100 | 100 |
| 1Q | 100 | 100 | 100 |
| 1R | 100 | 100 | 100 |
| 1S | 100 | 100 | 100 |
| 1T | 100 | 100 | 100 |
| 1U | 100 | 100 | 100 |
| 1V | 100 | 100 | 100 |
| 1W | 100 | 100 | 100 |
| 1X | 100 | 100 | 100 |
| 1Y | 100 | 100 | 100 |
| 1Z | 100 | 100 | 100 |

View 1011-VES 301 in AllObjs1

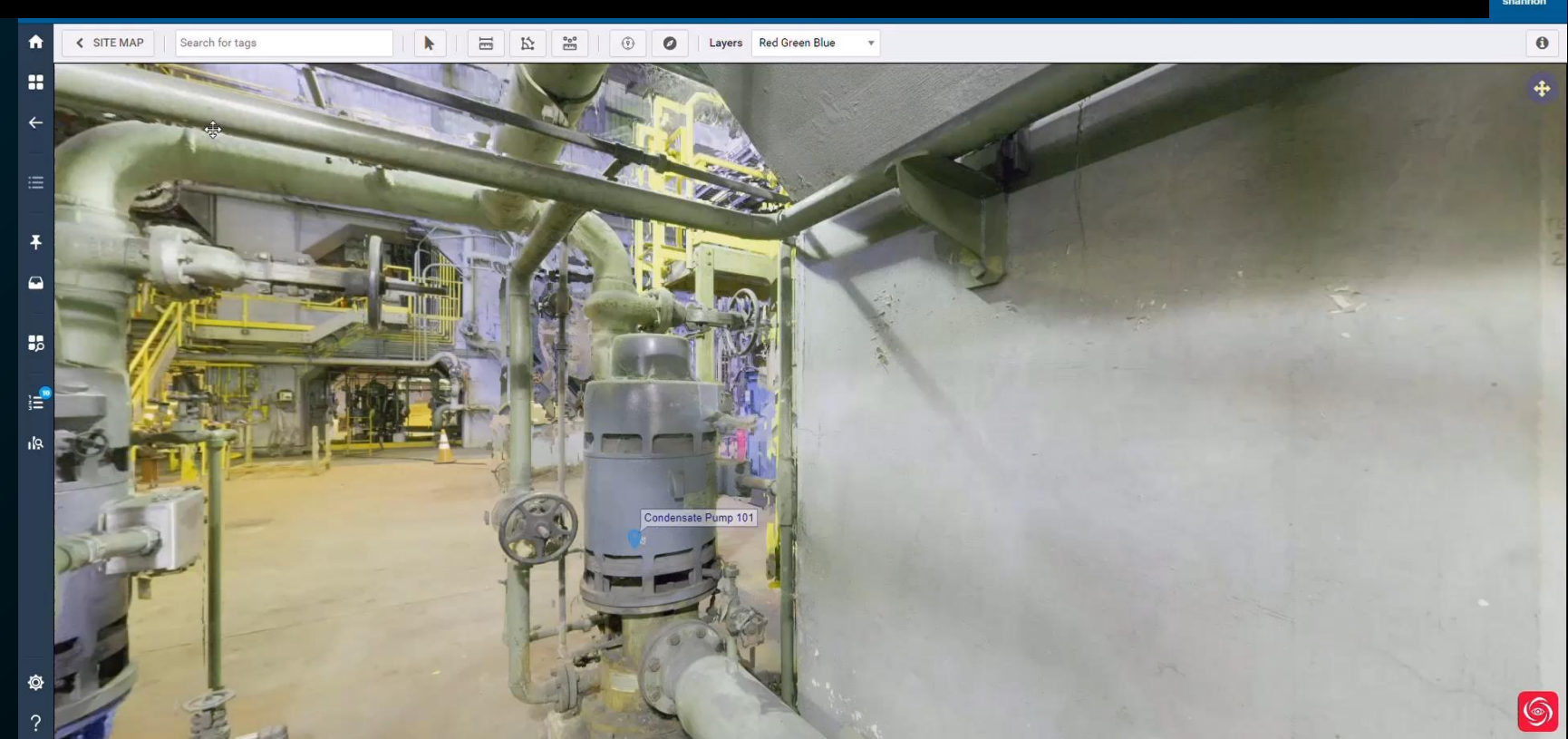
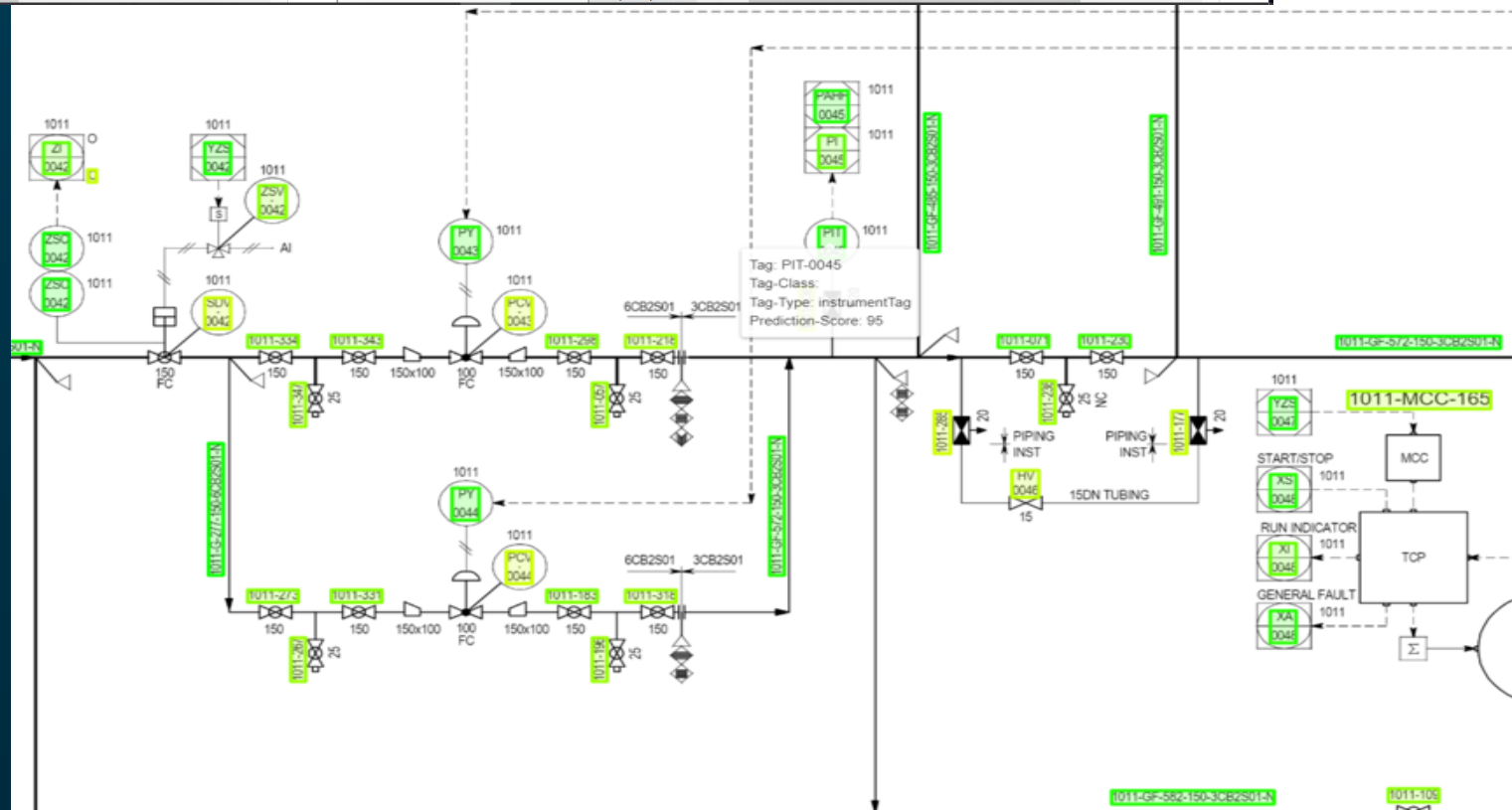
Equipment *VES*

Visual Intelligence

- Search
- Reports
- Equipment by Type 1
- Tags with Inconsistencies

Snapshot Gallery - 0 Snapshots

1011-VES 301 in VDS





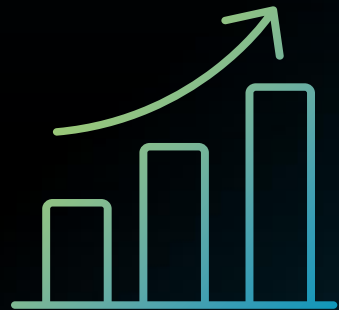
Business Strategy
Innovation
Branding
Solution
Marketing
Analysis
Ideas
Success
Management

In conclusion.....

Conclusions



Digital twins are well established and have proven their business value.



The value of Digital Twins can be greatly enhanced through integration with real-time reality capture and sensors to provide a Smart Digital Reality



AI/ML focus on data capture and validation provides a solid foundation for building conversational user interfaces, co-pilots and autonomy.





Q&A

Thank you.



HEXAGON

empowering an autonomous future

