

Guide to **Digital Transformation**



Scalable Digitalization for Asset Integrity Management

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- +12 Years Experience in Process Industries
- Variety of roles including Owner's Engineer at some of the largest Oil & Gas and Petro companies in the world
- Licensed Professional Engineer and Certified API 510 Pressure Vessel Inspector
- Specializes in helping plants achieve digital transformation by implementing, optimizing and maintaining robust MI practices

Jared Williamson

Lead Mechanical Integrity Engineer

grsaeng.com



- +40 Years Experience in Asset Integrity Management (AIM)
- Global keynote speaker and executive level strategist on AIM, Risk Based Inspection, Digital Twin and IIoT
- 20+ Publications on AIM, RBI, IIoT, Digitalization, Digital Twins, Connected Worker
- Digital Strategies advisor for major companies in the Oil & Gas, Power, Chemical, and Pharmaceutical sectors

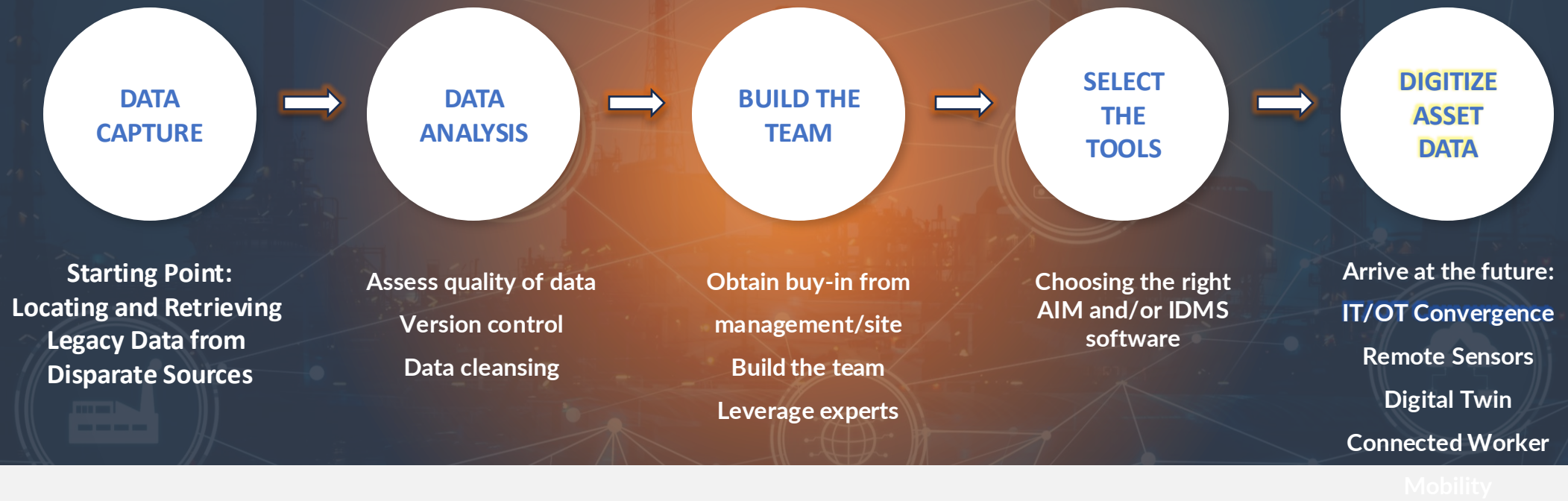
Floyd Baker

Vice President, Antea (Americas)

antea.tech

Understanding the journey to

DIGITAL TRANSFORMATION



Before you begin:

ASSESS WHERE YOU ARE

The start point of this journey looks different for every operator.

The end results can still be the same.

The key to arriving at the destination is to understand **where the journey begins.**

Then, a strategic and scalable plan can be formulated according to the unique needs of your organization.



Before you begin:

IDENTIFY THE FINAL GOAL



START FROM THE BEGINNING WITH THE **END IN MIND**

- **Identify the final goal**
 - Without an understanding of where you are headed, you won't know when you arrive
- **Be realistic**
 - E.g., don't plan on going to RBI if you have no previous data

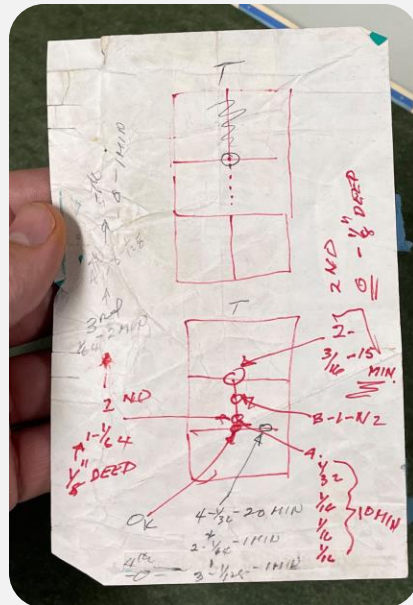
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Stage 1:

DATA CAPTURE

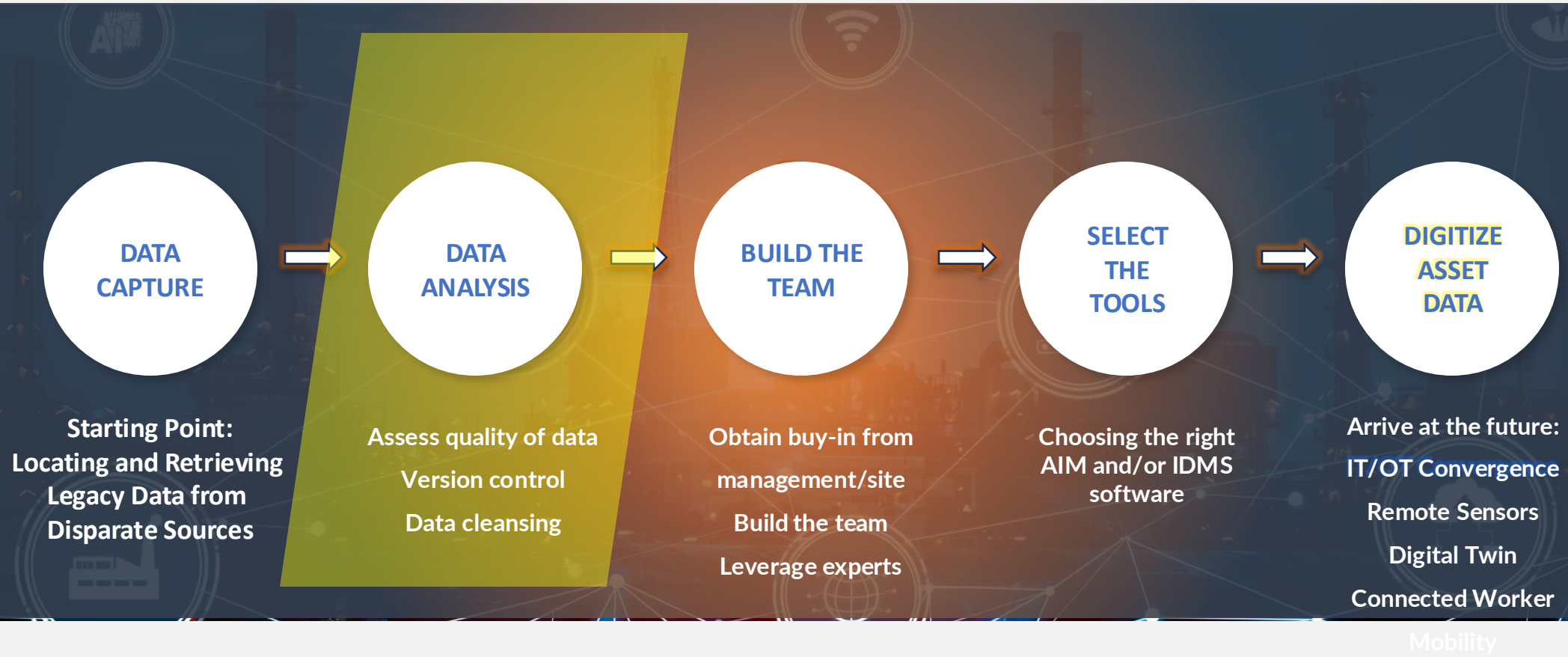


UNDERSTAND THE CURRENT STATUS

- What is the health and quality of your asset history and inspection program?
 - Do you already have accurate drawings and reports?
 - Where are they stored? Hard copy folders?
 - Are they already digitized, but in multiple folders and obscure “team-specific” network drives?
 - Is the inspection program already mature, but being managed from a spreadsheet or archaic IDMS/AIM software?

Understanding the journey to

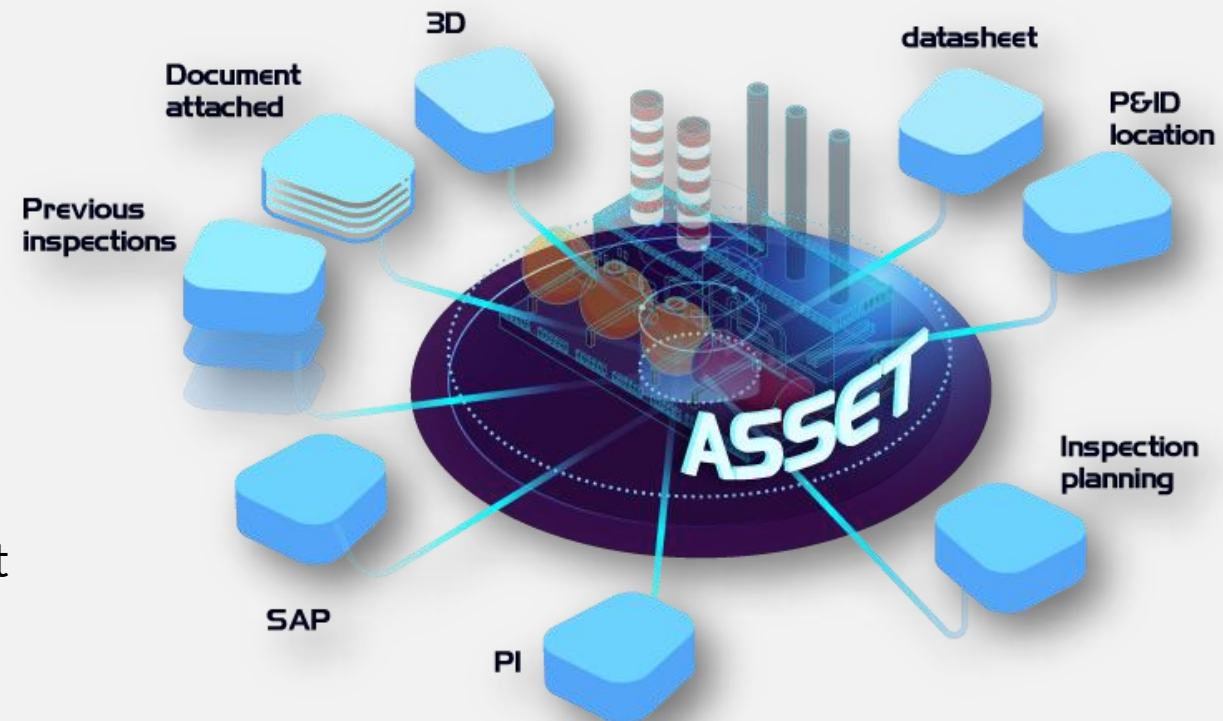
DIGITAL TRANSFORMATION



DATA ANALYSIS

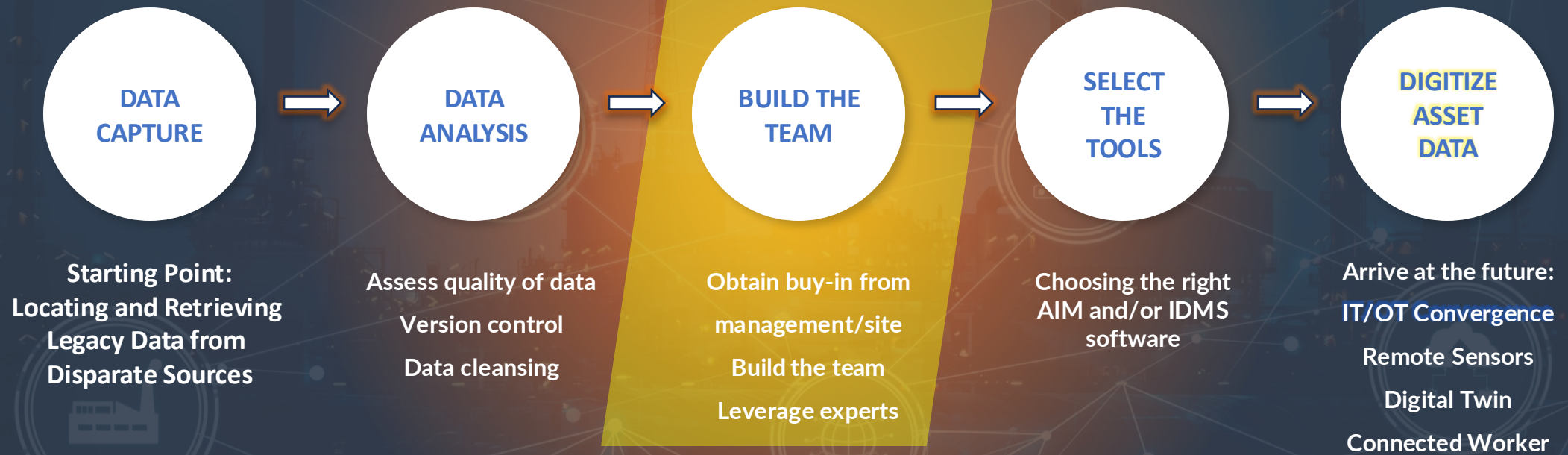
UNDERSTAND THE QUALITY

- What is the quality of the documents?
- Has there been a structured MOC process, or are things a mess?
- Are the drawings accurate?
- Do P&IDs exist?
- Are the P&IDs accurate?
- How reliable is the historical inspection data – if it exists?
- Once analyzed, **cleanse the data** to prepare it for migration & digitization



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Mobility

Stage 3:

BUILD THE TEAM

SECURE THE BUY-IN

Obtain Management Support

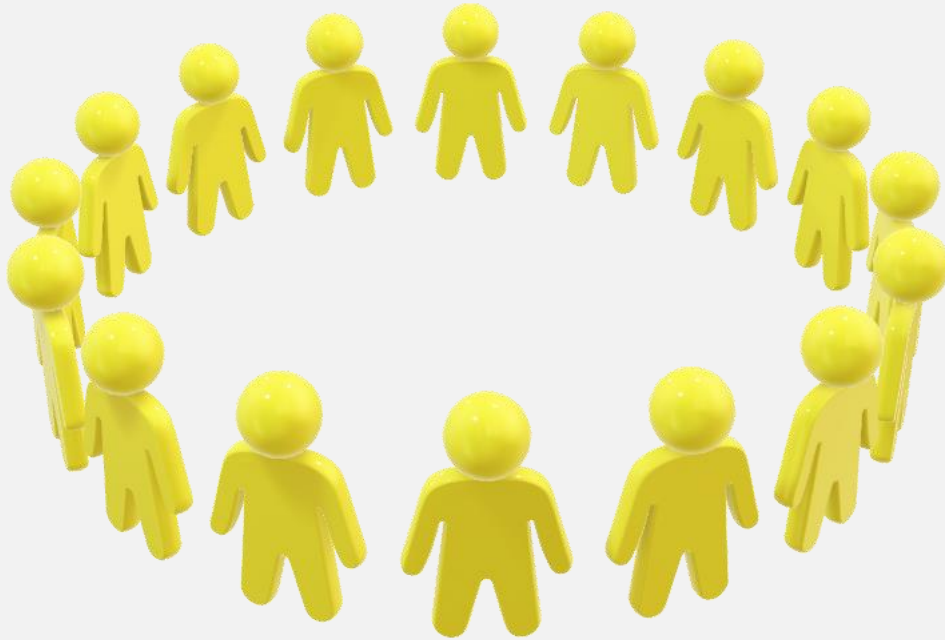
- Without a driving force behind you, it will be a difficult uphill battle
- Work with the affected people to help them understand the impact that poor document management has on efficiency and safety

Justify the Expense

- At first the cost can seem prohibitive, until you do the math

BUILD THE TEAM

ASSEMBLE A TEAM



- Once you understand where you are and what the goal is, you can begin assembling your team
- Understand that it is highly unlikely that you have all the resources you will need at your site
- Make sure that the consulting firm you get has been thoroughly vetted and they understand ALL the aspects of a healthy inspection program. Don't be afraid to ask them specific questions!

BUILD THE TEAM

LEVERAGE THE EXPERTS

Inspection & Engineering Consultants

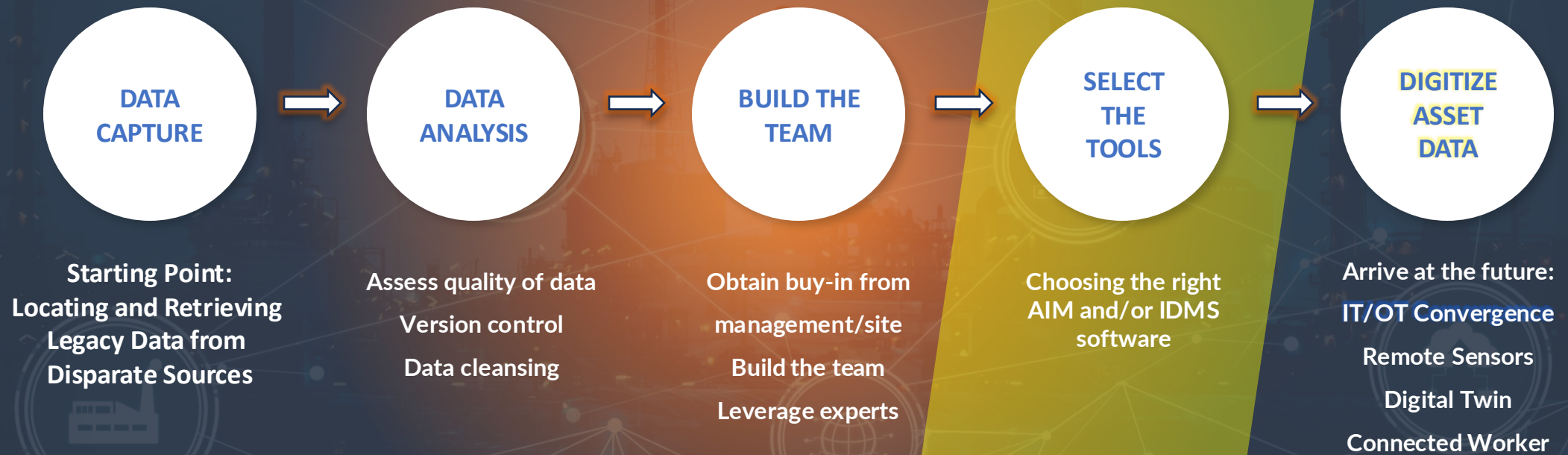
- Bring in consultants that specialize in mechanical integrity as early in the process as possible
- Seek consultants with experience/expertise in digital transformation

Align the Goals

- Make sure they are on board with the goals you have
- If you need it, let them help you develop the plan and your path forward

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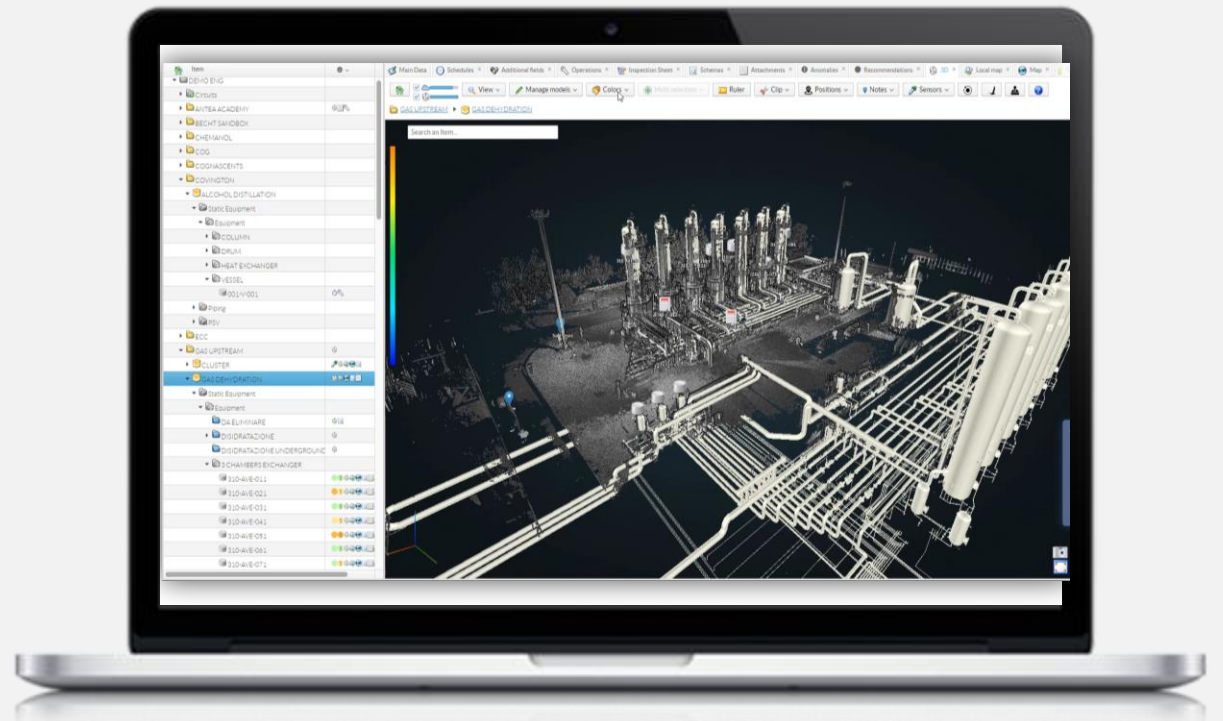
Mobility

SELECT THE TOOLS

THE IMPORTANCE OF ASSET INTEGRITY SOFTWARE

Choose an AIM or IDMS software that:

- is **scalable** to grow with you on the journey
- is **configurable** to tailor functionality and workflows according to your needs
- includes optional **add-ons** for future requirements as you are ready for them (e.g. RBI, IOW)
- is **equipped** with IIoT technologies like Digital Twin and Mobility to keep you **future-ready**
- **integrates** with all IT & OT sources



SELECT THE TOOLS

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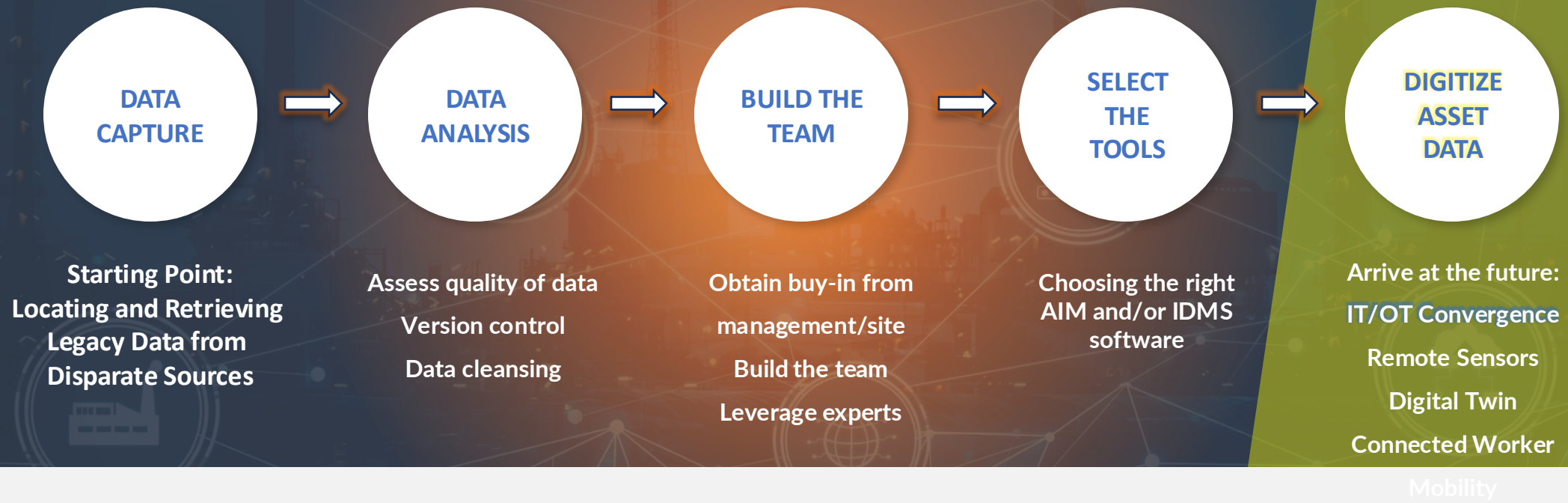
During selection, ensure:

- The provider sets up a demo for you. Go through each step of the process to make sure you understand how it functions and the typical workflow
- Ensure the software works for you not the other way around
- Get your consultants involved in this step if possible. Many times they have seen and worked in several different software platforms and can bring valuable insight to the software selection process



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Stage 5:

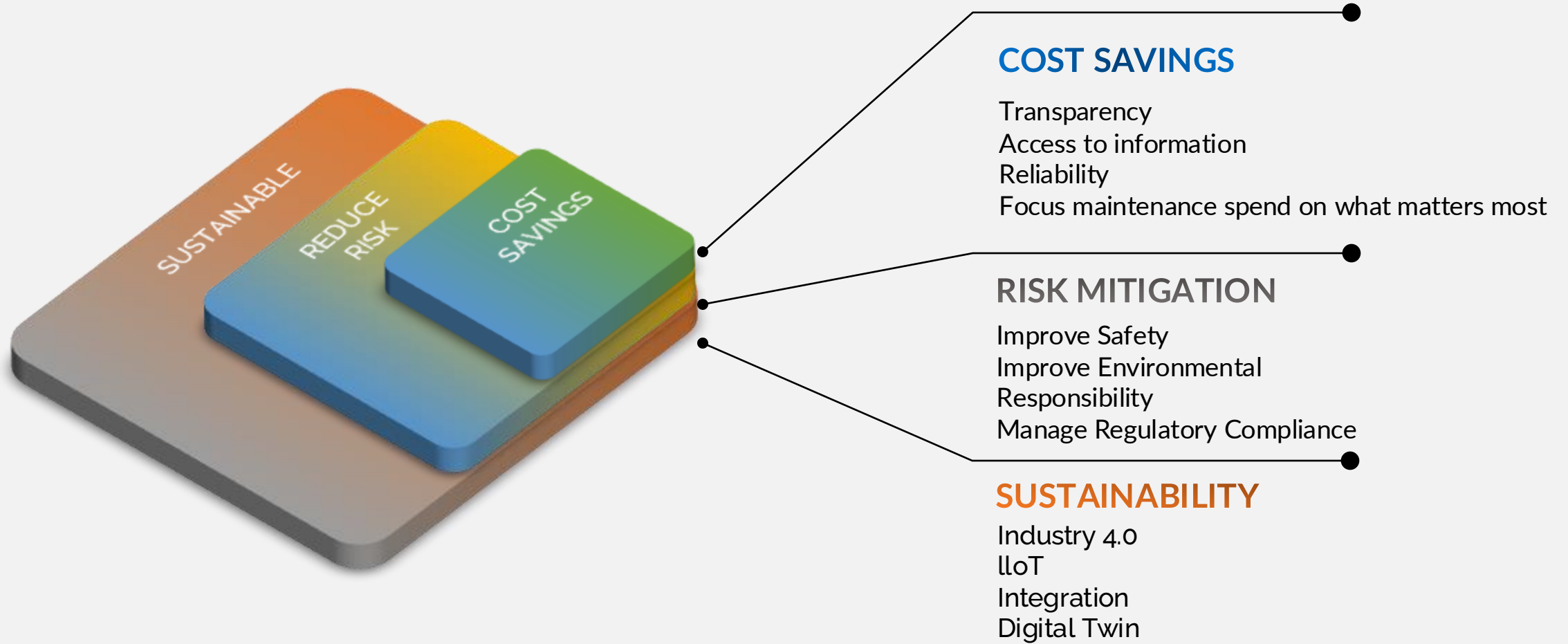
DIGITALIZE ASSET DATA

SINGLE VERSION OF THE TRUTH

- Data Migration – upload cleansed and analyzed data into the AIM software
- Scalability – digitalization in stages
- IT Integrations
- OT integrations
- Digital Twin
- Mobility
- Remote Sensors
- Predictive Analytics



BENEFITS



BENEFITS

CASE STUDY

Average Savings of \$3.2 Million Per Year

CHALLENGE

14 operators were surveyed about the cost savings observed after digital transformation with AIM software vs. before embarking on the journey. These are the normalized results.

RESULTS

Insurance Premiums	\$ 50,000	Data Entry from External Sources	\$100,000
Time to Find (TTF)	\$1,800,000	Systems Coherence and Extension	\$100,000
P&ID Management, Maps and Drawings	\$ 100,000	Operator stress and Loss of Production	\$150,000
Report Distribution and Duplication	\$100,000	Production Capacity Reduction/Shutdown	\$650,000
Geo-spatially Indexed Data Optimization	\$100,000	Document Reconstructions	\$ 50,000

TOTAL ANNUAL SAVINGS \$3,200,000



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QUESTIONS?



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