

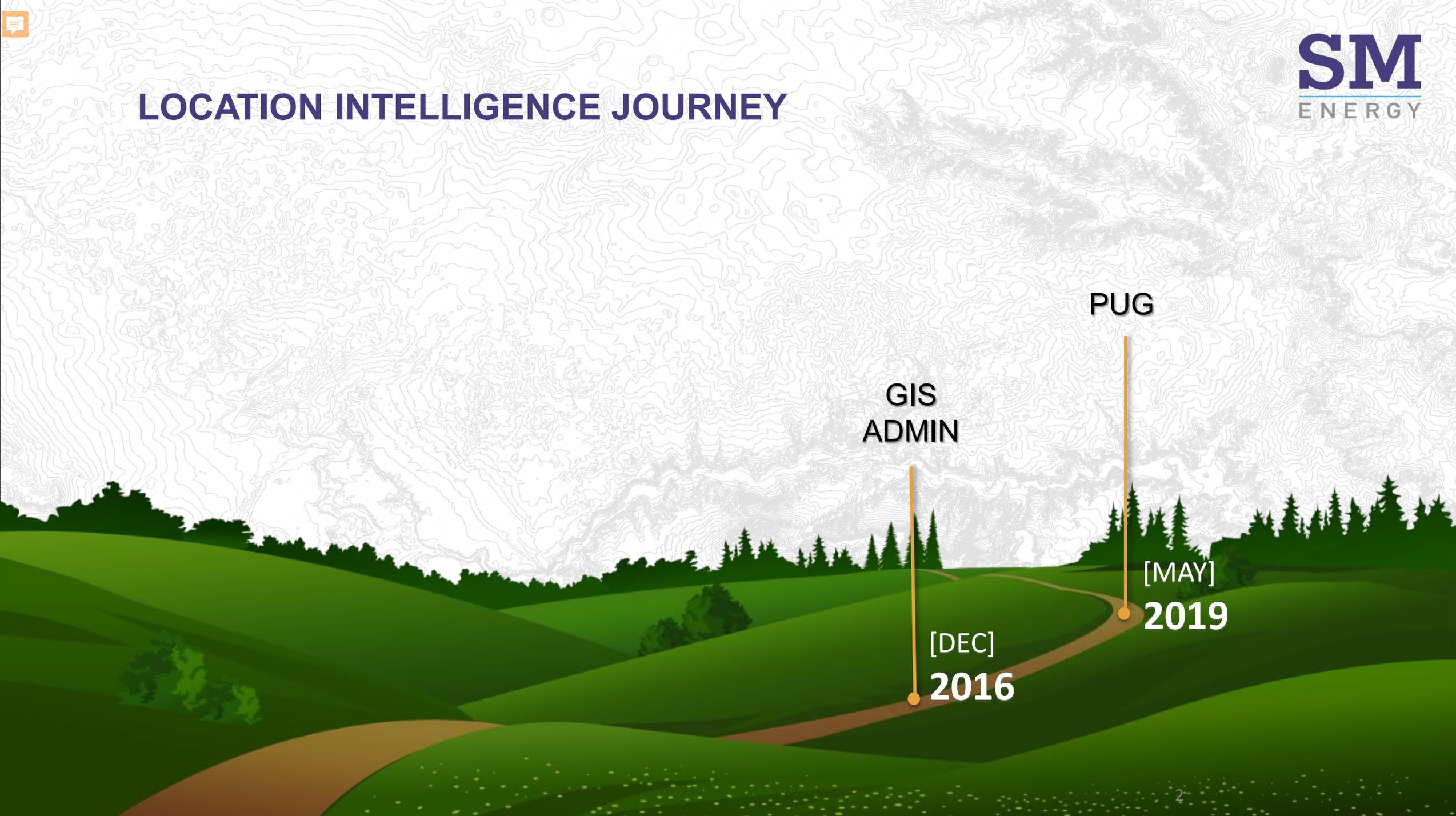


# COMMUNICATING BUSINESS VALUE WITH LOCATION INTELLIGENCE

MAY 31, 2019



# LOCATION INTELLIGENCE JOURNEY



GIS  
ADMIN

[DEC]  
**2016**

PUG

[MAY]  
**2019**



# LOCATION INTELLIGENCE JOURNEY

LAND  
TECH



[SEP]  
**2013**

GIS  
ADMIN



[DEC]  
**2016**

PUG



[MAY]  
**2019**



# LOCATION INTELLIGENCE JOURNEY

LAND  
TECH

[SEP]  
**2013**

GIS  
TECH

[FEB]  
**2014**

GIS  
ANALYST

[SEP]  
**2014**

GIS  
ADMIN

[DEC]  
**2016**

PUG

[MAY]  
**2019**

# LOCATION AWARENESS JOURNEY



PARTNER  
WITH  
BUSINESS



EMPOWER  
WITH  
TOOLS



MEASURE  
ROI



COMMUNICATE  
VALUE



IMPACT  
BOTTOM  
LINE



# LOCATION AWARENESS JOURNEY

Tools to Measure & Communicate ROI

Survey123

- H2S Chemical Equipment Efficiency
- Sand Production Volume

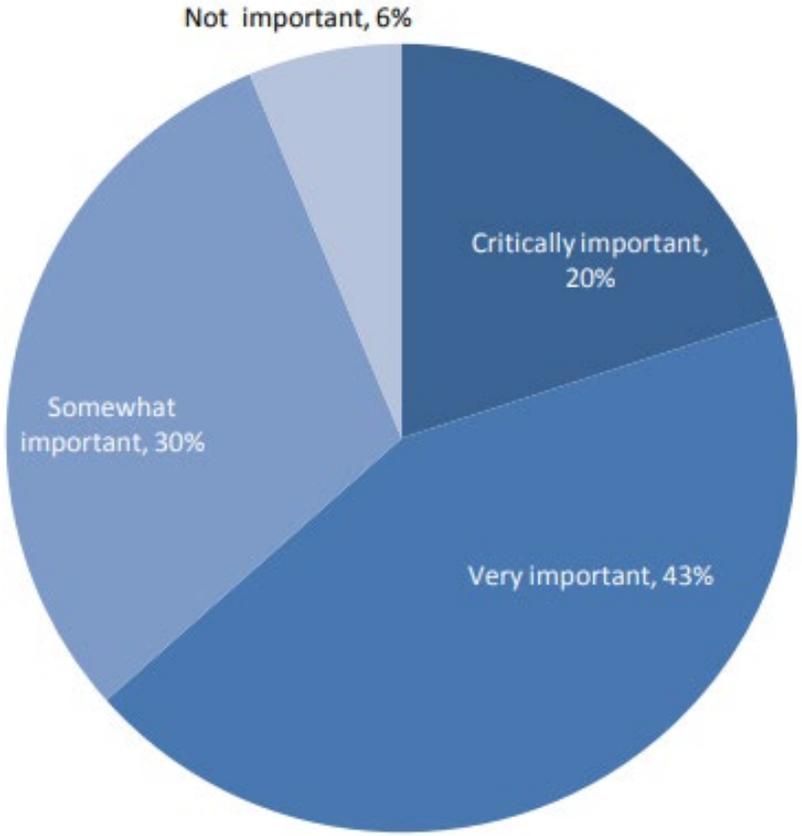
YOU ARE  
HERE

[MAY]  
2019





# LOCATION INTELLIGENCE IS CRITICALLY IMPORTANT



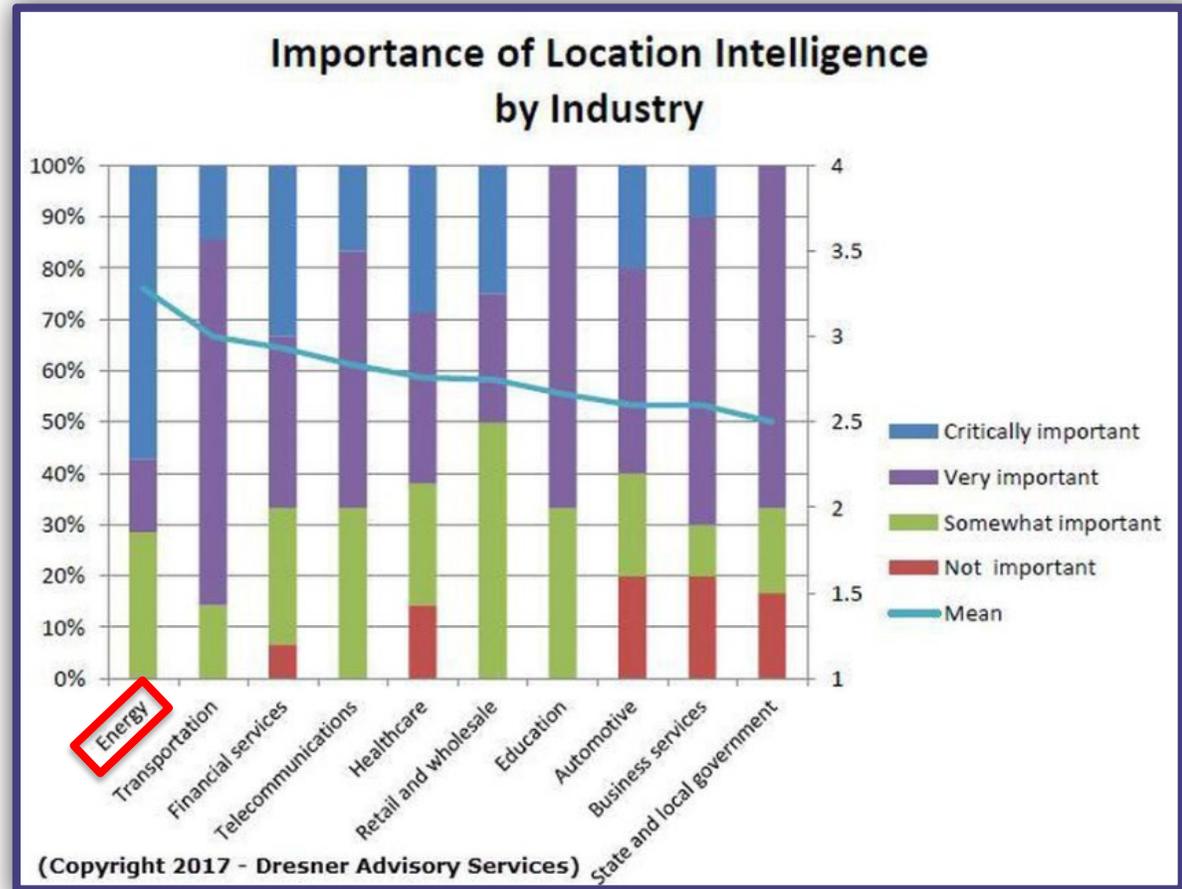
*“63% of all organizations rank Location Intelligence as either ‘critical’ or ‘very important’ to ongoing revenue growth strategies.”*

- Location Intelligence Market Study, Dresner Advisory Services, 2017

# OUR INDUSTRY UNIQUELY VALUES LOCATION INTELLIGENCE

Energy, of all industries surveyed, considers Location Intelligence as critically important.

- Location Intelligence Market Study, Dresner Advisory Services, 2017

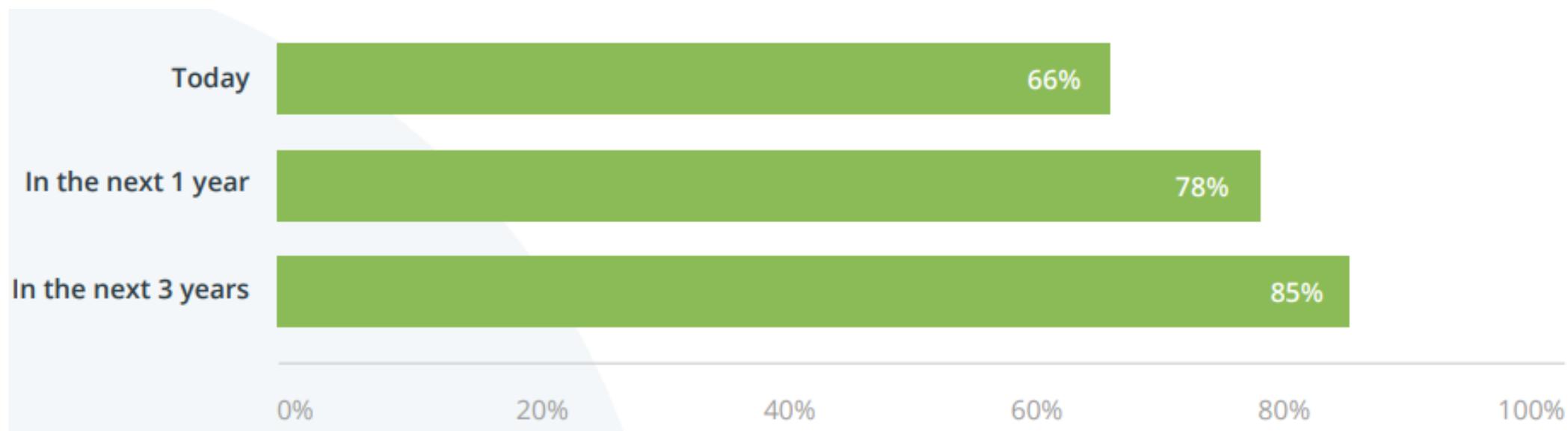




## LOCATION INTELLIGENCE IS CRITICAL IN THE LONG RUN

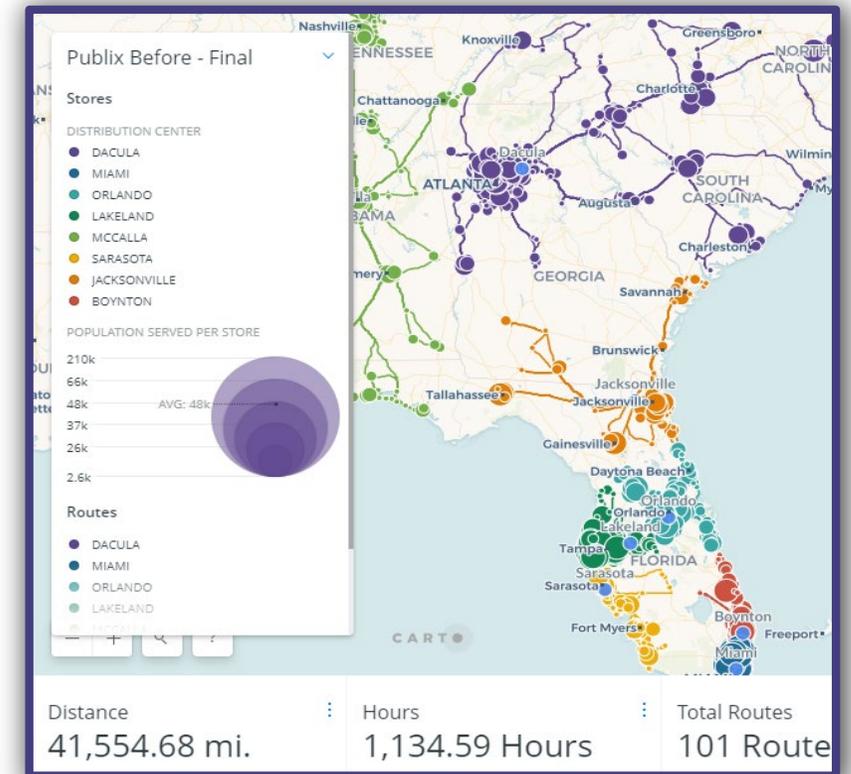
*“A majority of C-Level executives, managers, and analysts believe that Location Intelligence is ‘**very**’ and ‘**critically**’ important to their organization’s success, especially in the **long-term**.”*

- State of Location Intelligence, CARTO, 2018

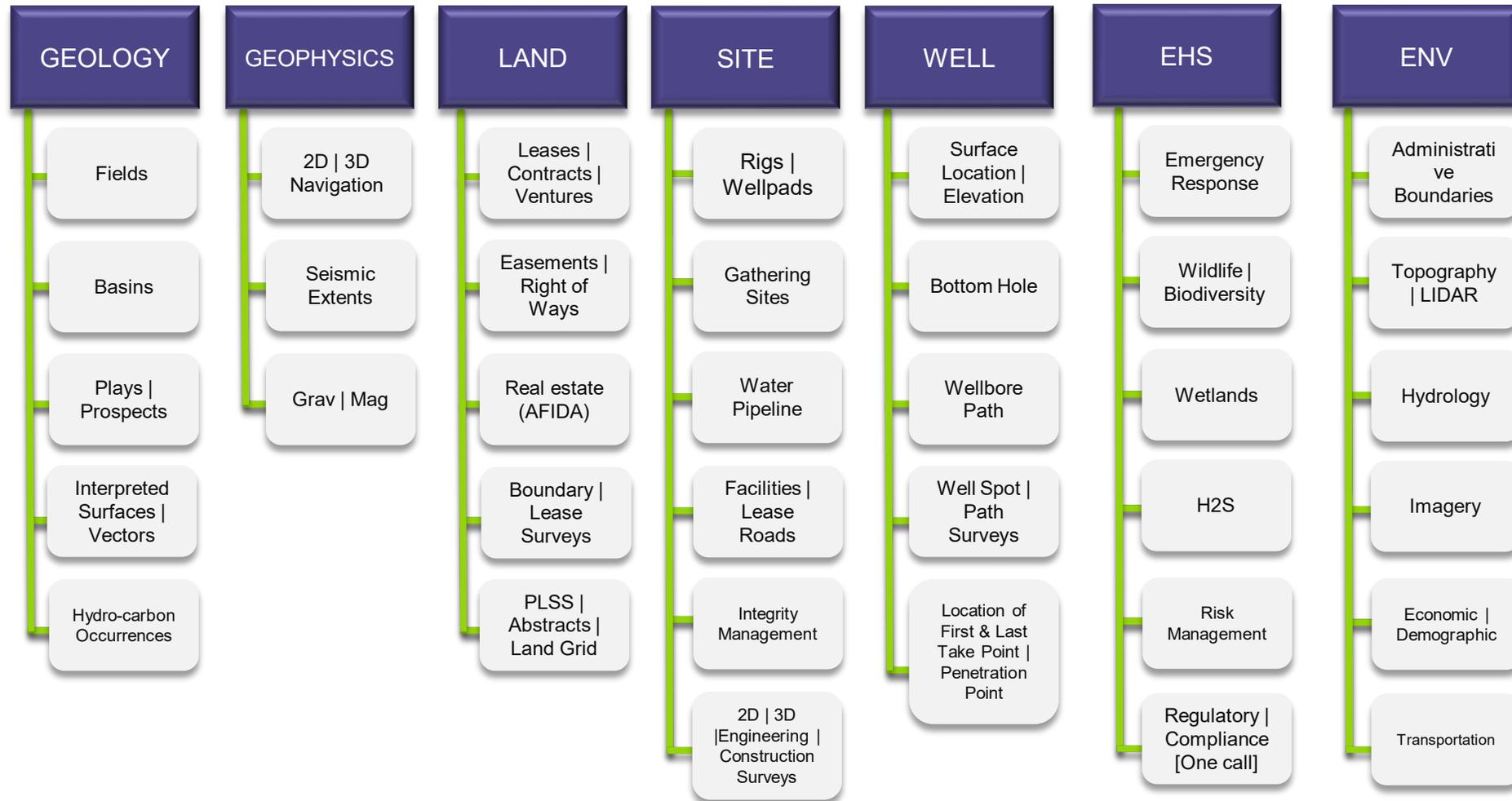


# UNDERSTANDING LOCATION INTELLIGENCE

- Form of Business Intelligence (BI)
- Geospatial data overlaid on an interactive map interface
- Discipline for turning location data into business outcomes
- Brings together tools and techniques from data science / spatial analysis
- Builds visualizations that optimize business functions



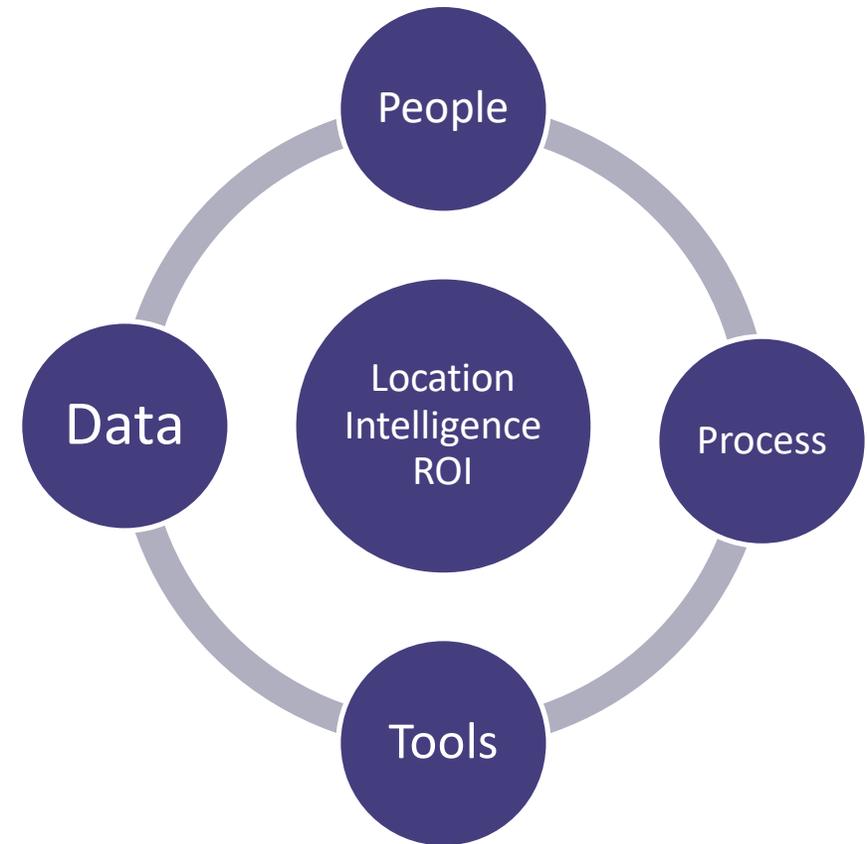
# LOCATION INTELLIGENCE AT SM



## Location Dependent Data Along the Well Life Cycle

## ALIGN WITH YOUR ORGANIZATION'S ROI OBJECTIVES

- ✓ Manage the \$'s we spend with high efficiency
- ✓ Measure ability to directly affect profitable and sustainable growth
- ✓ Ensure the cohesion of people, process, data and technology





# TOOLS FOR MEASURING ROI: START WITH A VISION

## VISION: A THOUGHT, CONCEPT, OR OBJECT FORMED BY THE IMAGINATION

### Value

- What business problem will be solved, OR
- What business opportunity does the idea provide? (Reduced costs, increased revenue, process improvement, resource efficiencies, ability to make better business decisions?)

### Impact

- How and how many SME folks does it impact?
- If the impact to the organization is high, can we successfully execute and support the solution?

### Sponsorship

- Do you have buy in from the right players?

### Implementation

- Is there a willingness and ability in the business to implement this idea?
- How can we fail quickly if needed?

### Ownership

- Who owns each step of the process? The business, outside consultants, IT?

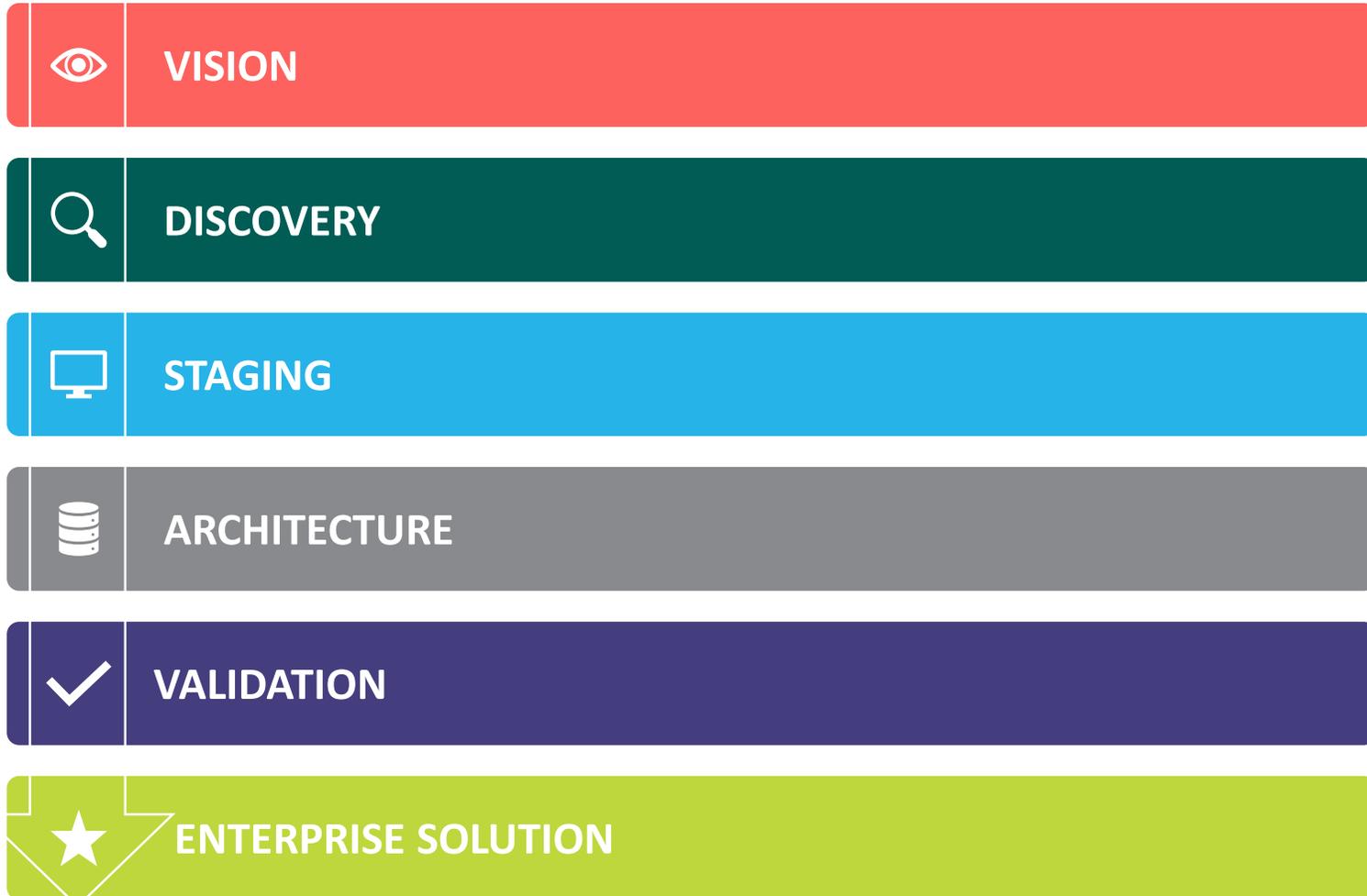
### Next Steps

- After answering the questions that make sense for the situation, what do you do next??



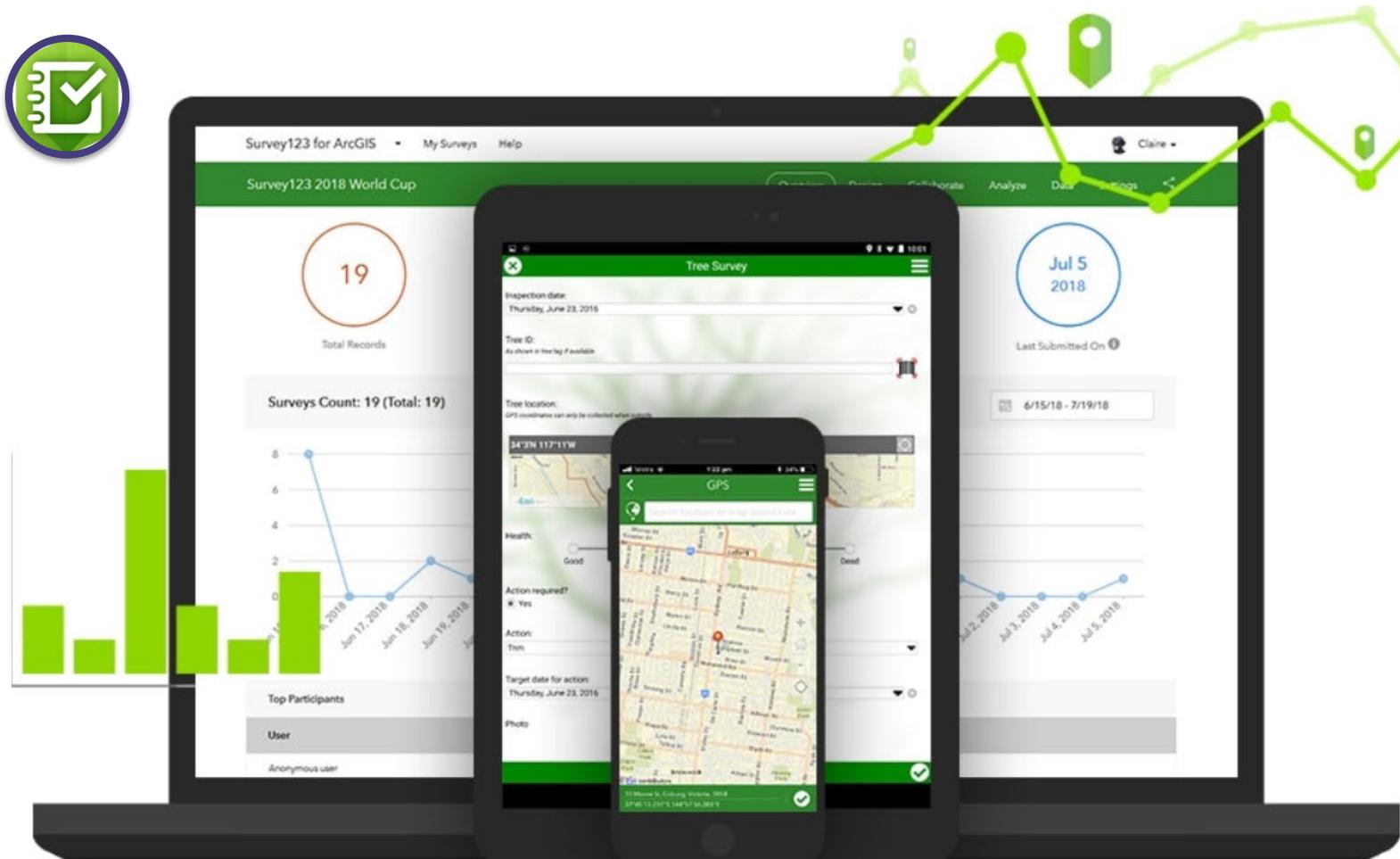


# TOOLS FOR MEASURING ROI: TAKE THE ENTERPRISE APPROACH





# SURVEY 123: BRIDGING THE GAP BETWEEN VISION AND ENTERPRISE





## 1) EASY TO USE

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- Allows real-time data collection in the field
- Uses location to streamline feature selection and pre-populate fields
- Works securely for both **SM** and **3rd** party personnel
- Has the ability to **store and forward** records and work in an “**off-line**” environment



## 2) EFFICIENT

- Replacing clipboards, cameras, and paperwork allows field collection with just a mobile device
- Connections to regularly updated field datasets enables immediate anomaly detection and efficiency calculations



$$R[L(T) + E(T)]$$

- $L$  = Lease Operator Rate (\$)
- $E$  = Engineer Rate (\$)
- $T$  = Time it takes to collect/analyze data (min)
- $R$  = Readings / Measurements

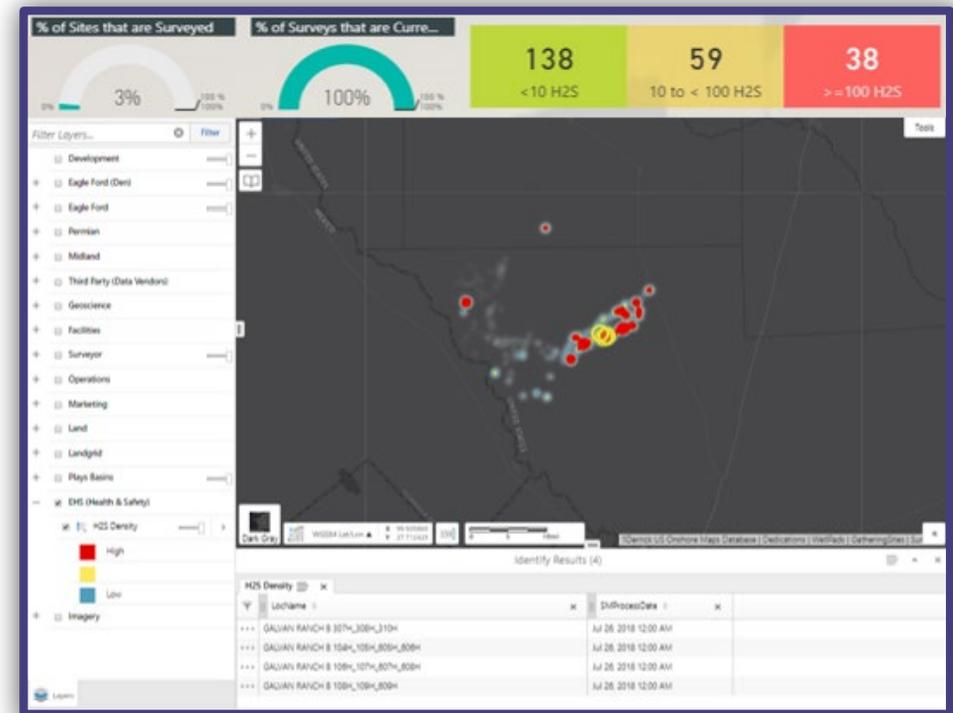




### 3) INTEGRATED

- Field captured data is made available for consumption across the enterprise using any systems that can leverage;

- ✓ **Direct SQL Database connections** (i.e. SpotFire Info Links, PowerBI reports)
- ✓ **Spatial file formats** (i.e. lat\long, shape file, feature class), or
- ✓ **Web Map Services** (i.e. Kingdom, Geocortex, GGX)





## H2S IMPACTS

- Naturally occurring, colorless gas, that can be lethal, impacting the safety of our workers and the communities where we operate
- Found at oil and natural gas well sites, at petroleum refineries and in pipelines used to carry crude oil and natural gas
- Level of H2S correlates to Chemical Injection rates





## PRE SURVEY123 ERA (2017):

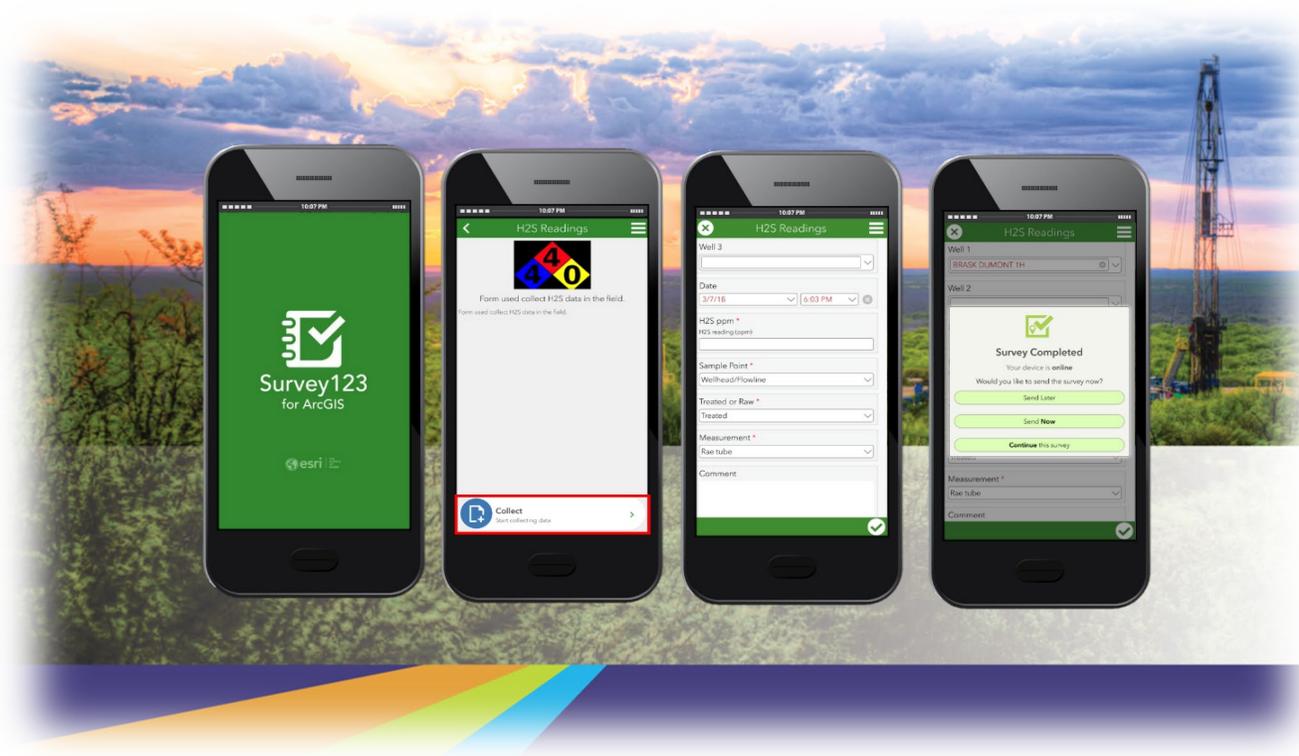
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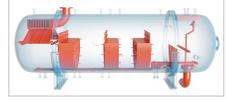
- Data collected through various means, stored in excel sheets or not collected at all
- Incomplete H2S data or restricted ability to measure chemical injection rates
- Limited options to identify and prevent problems in the infancy stages



# H2S CHEMICAL EQUIPMENT EFFICIENCY

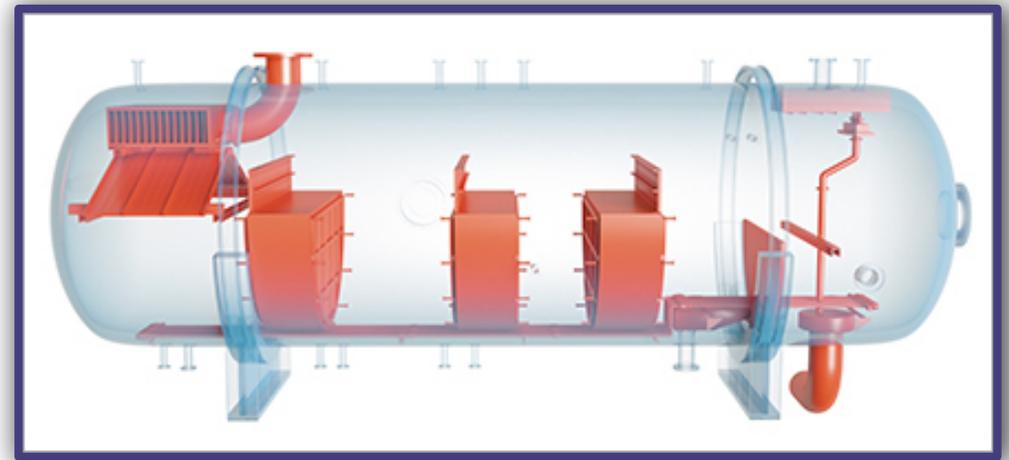
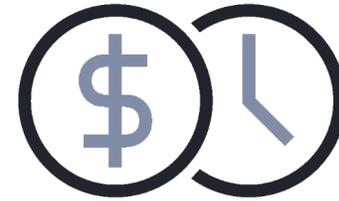
- H2S field data capture has saved an upwards of 30% on our current \$10MM Chemical Program

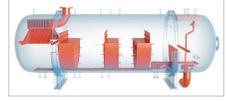




## SAND VOLUME PRODUCTION IMPACTS

- During flowback, sand is collected at the surface
- Common issue across the oil field
  - Equipment damage
  - Unnecessary relocation of separators
  - Increase to production watch time

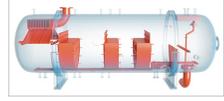




## SAND VOLUME REPORTING

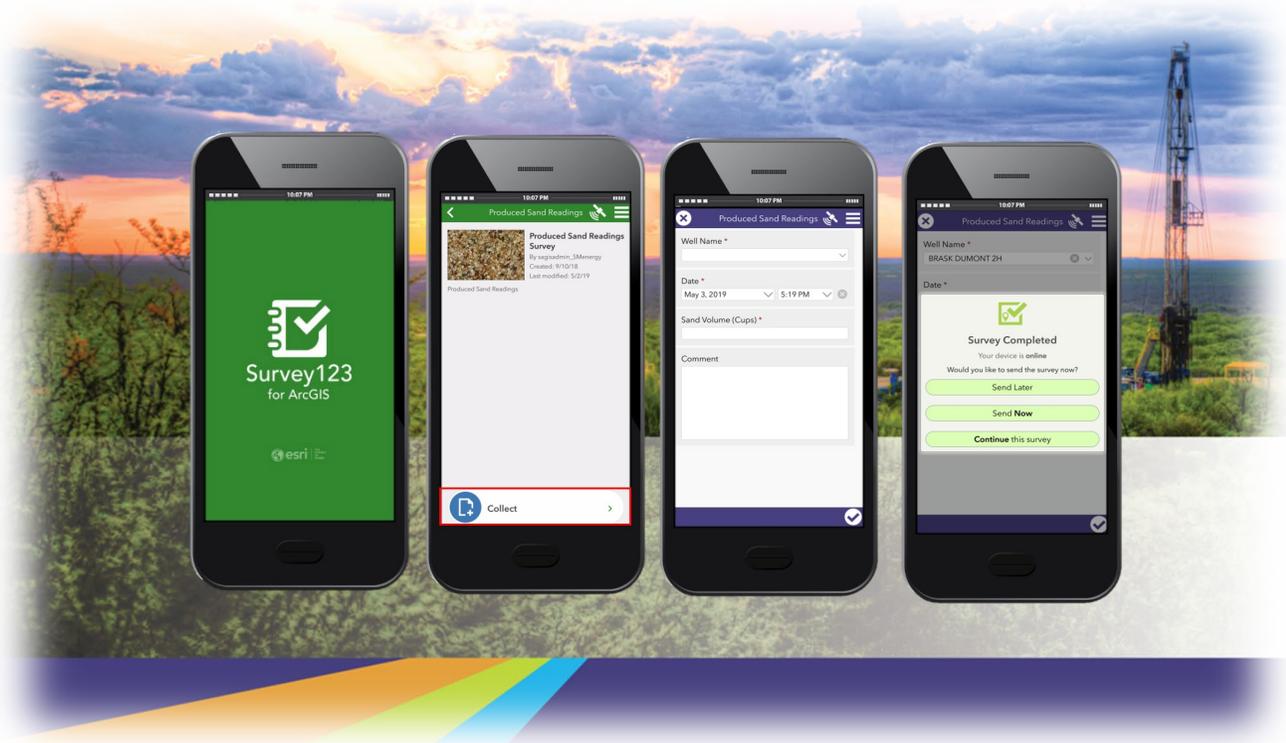
### Pre Survey123 era (2017):

- Sand volumes reported in emails or not at all
- Limited data to resolve costly impacts
  - Replacement of Separator equipment → **\$60M** per well
  - Fixing damaged equipment → **10%** of total LOE
  - Damage to gathering system lines and stations → **\$1MM**
  - Lost production and station downtime from downhole blockage
  - Safety and spill risk



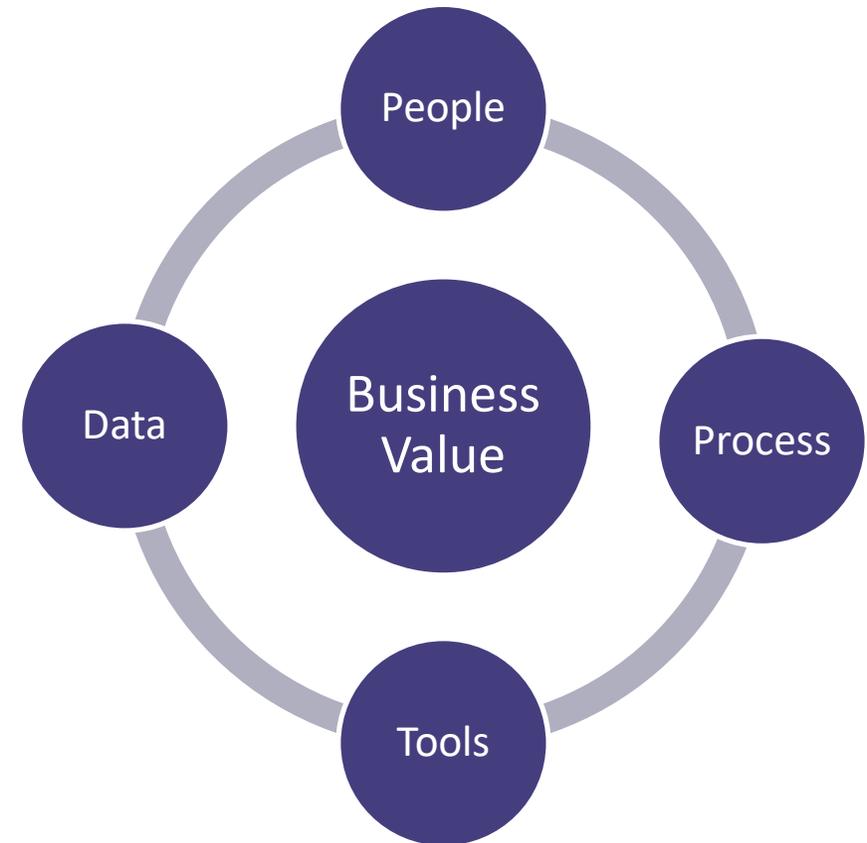
# SAND VOLUME REPORTING

- **Produced Sand Volume** data captured at flow back has dialed in our selection of sites in need of inspection and allowed a projected savings of **\$20M** per well annually.



# LOCATION INTELLIGENCE DRIVES BUSINESS VALUE

- ✓ Create a data driven enterprise vision that promotes standards, procedures, and initiatives with Location in mind
- ✓ Impact is only as powerful as how well its ROI is both measured and communicated
- ✓ Ensure the cohesion of people, process, data and technology
- ✓ Empower the business with the tools necessary to make the right decisions at the right time



*The best thing for Location Intelligence at SM is not what is already here, but **all that there is still to come.***

## ACKNOWLEDGMENTS

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- **SM Energy;**
  - **Blake Tilley**, Sr. Production Engineer
  - **George Tadla**, Sr. Software Developer
  - **Jared Allen**, Sr. GIS Developer ([Fast Polygon, LLC](#))
- **Louis Columbus**, Contributor (**Forbes**)
  - The State of Location Intelligence Analytics & BI, 2017
- **CARTO**
  - State of Location Intelligence, 2018
- **Tarun Chandrasekhar**, Geospatial Data Team Lead (**BP**)
  - Geospatial Data Management at BP, 2013