

Esri Indonesia Petroleum User Group

GIS trends in Oil and Gas: A global perspective

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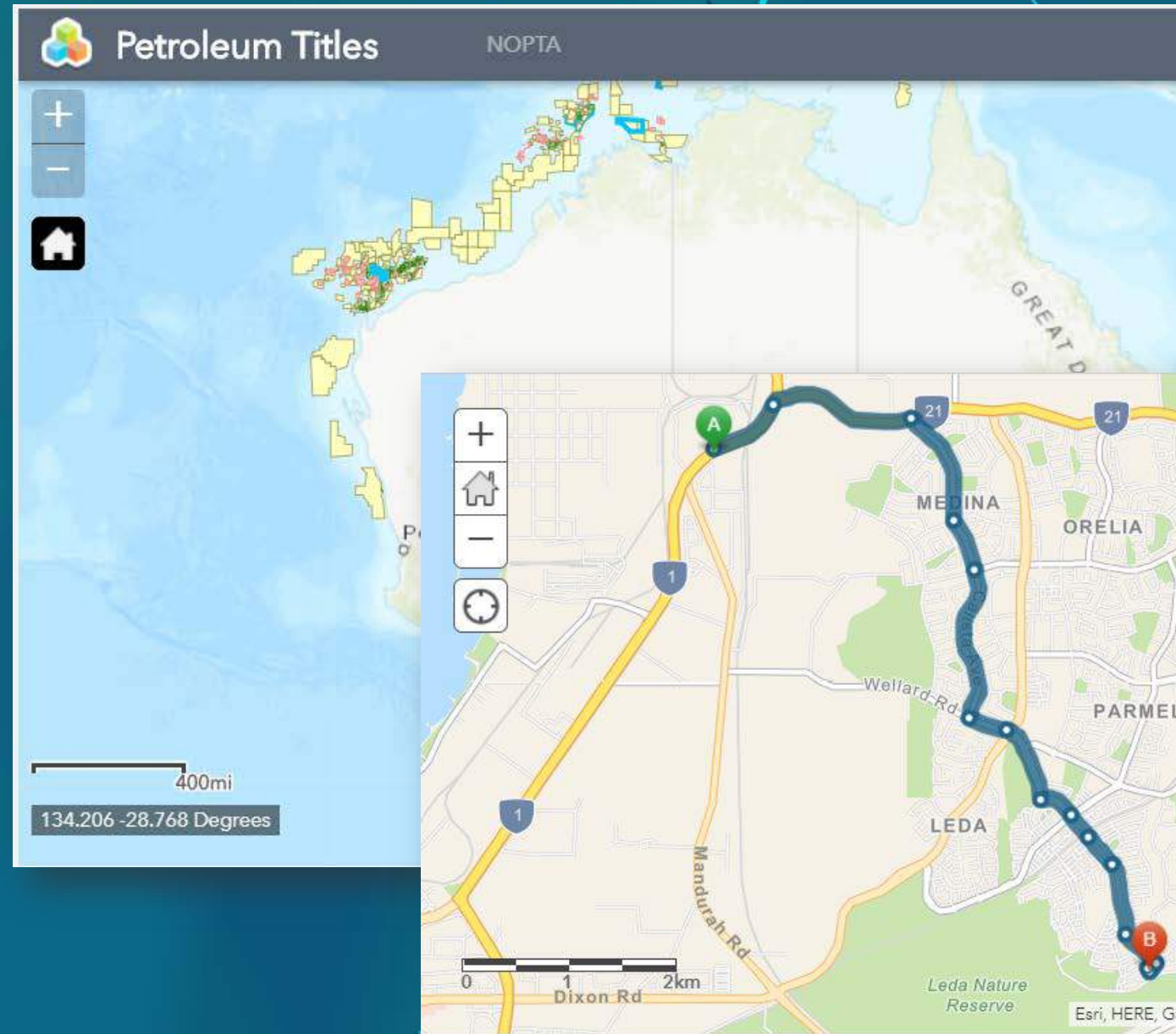
Introduction

- **Energy and Natural Resources**
 - Oil and Gas
 - Mining
 - Agriculture/Forestry/Fisheries
 - Government
- **Solution focussed**
 - Define, Evaluate, Deliver
- **Diverse Experience**
 - Utilities and Public Sector



Introduction

- Western Australian
 - Born and Raised
- Commodity Rich State
 - Natural Resources was a natural fit



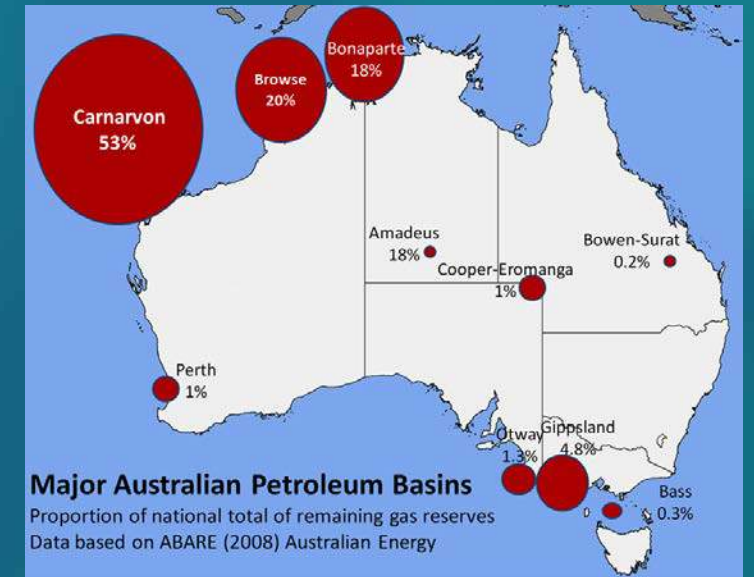
Topics

- **Oil and Gas Industry in Australia**
- **Global and local trends driving the industry**
 - **The Why**
- **Digital Transition vs Digital Transformation**
 - **The How**
- **Spatial Solutions**
 - **The What**
- **Takeaways/Conclusions**
 - **The What Next?**

Oil and Gas in Australia

Oil and Gas Industry in Australia

- Predominantly Offshore
 - Some Shale and Coal Seam Gas'
- National and International Organisations
 - Woodside
 - BHP
 - Quadrant
 - Shell
 - Inpex, etc



Focus of Operators in Australia



Strong priority business strategies

	2015	2016
Reducing cost	85%	90%
Managing risk		54%
New products/services/markets	21%	44%
Increasing cashflow	56%	60%
Expanding organically	21%	35%

Source: The Deloitte Global CPO Survey 2016

Focus of Operators in Australia

- **Social License to Operate**
 - **Natural Resources as a Whole**
- **Increased Scrutiny**
- **Perception vs Reality**
- **Fundamental to long term succes**



Trends in the Oil and Gas Industry

Global Trends

- **Energy Hungry**
 - Demand is growing
 - Energy mix is still unknown
- **Digitally Enabled**
 - Sensors, Analytics, AI
 - Integration challenges
- **More costly and complex**
 - Resources harder to find
 - More complex plays
- **Socially Concerned**
 - Manage Public Sentiment
- **Carbon Constrained**
 - Government regulation, subsidies, and rapid cost reductions

Advantages of the Australian Industry

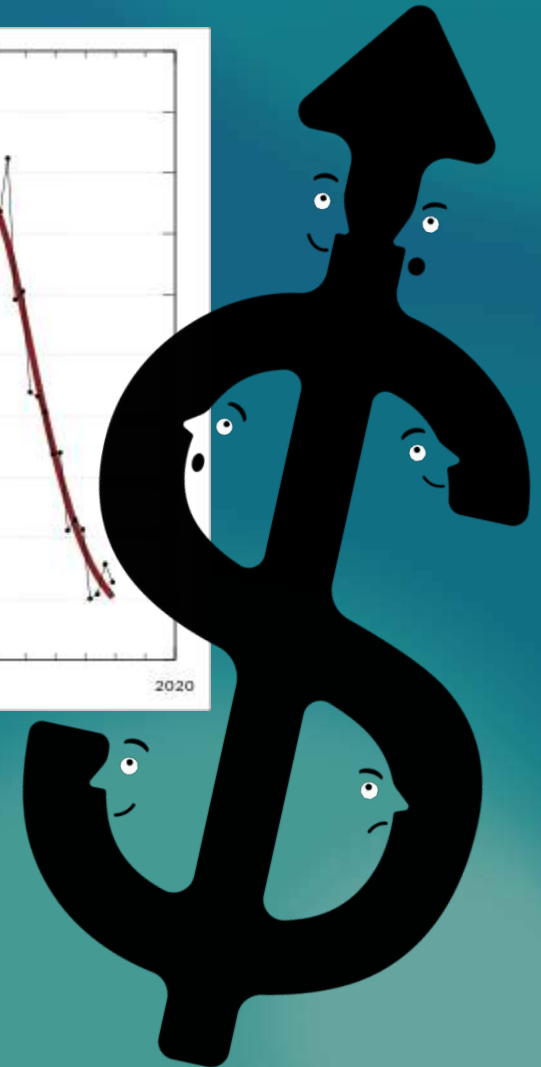
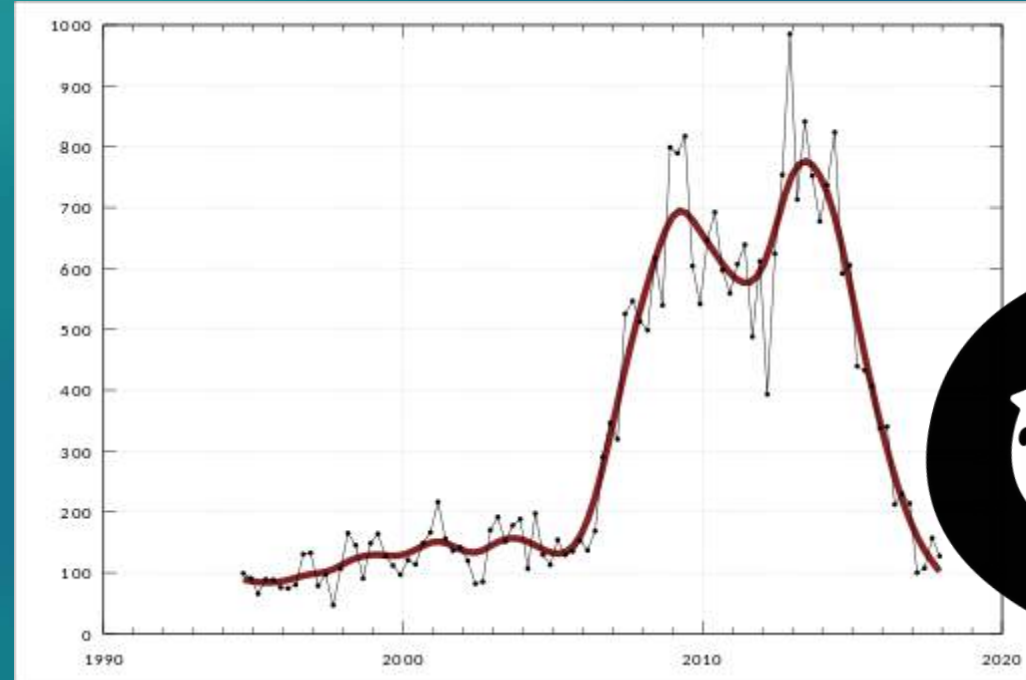
- Strong in LNG
- Considerable conventional resources
- Untapped unconventional resources
- Proximity to Asian markets
- Research institutions and Capability



Challenges to the Australian Industry

Challenges

- High cost environment
- Regulatory uncertainty
- Social Scrutiny
- Declining Exploration
- Limited domestic innovation



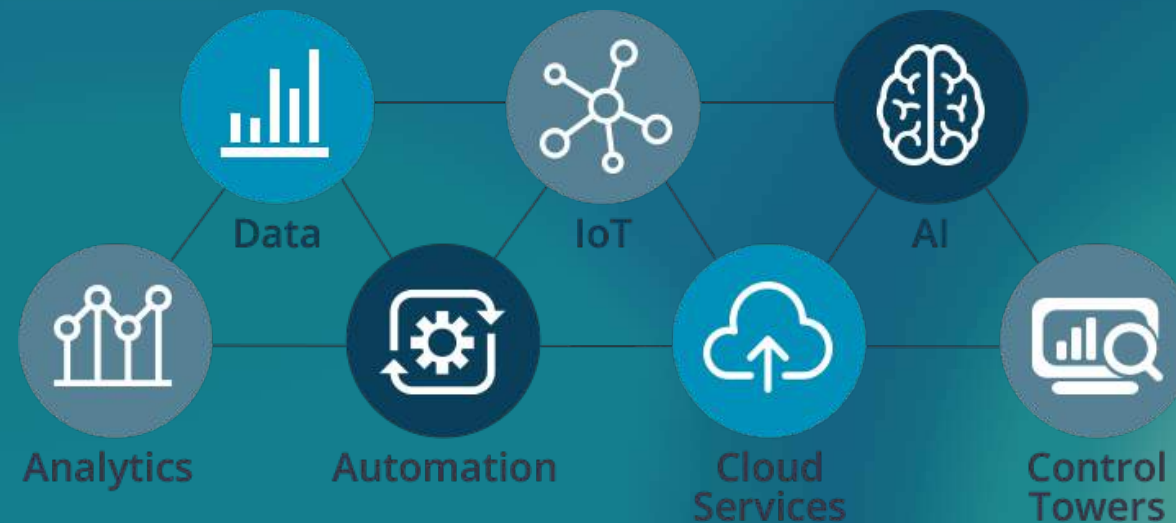
Digital Transition vs Digital Transformation

Transition

- Analogue to Digital
 - Incremental
- Project by project

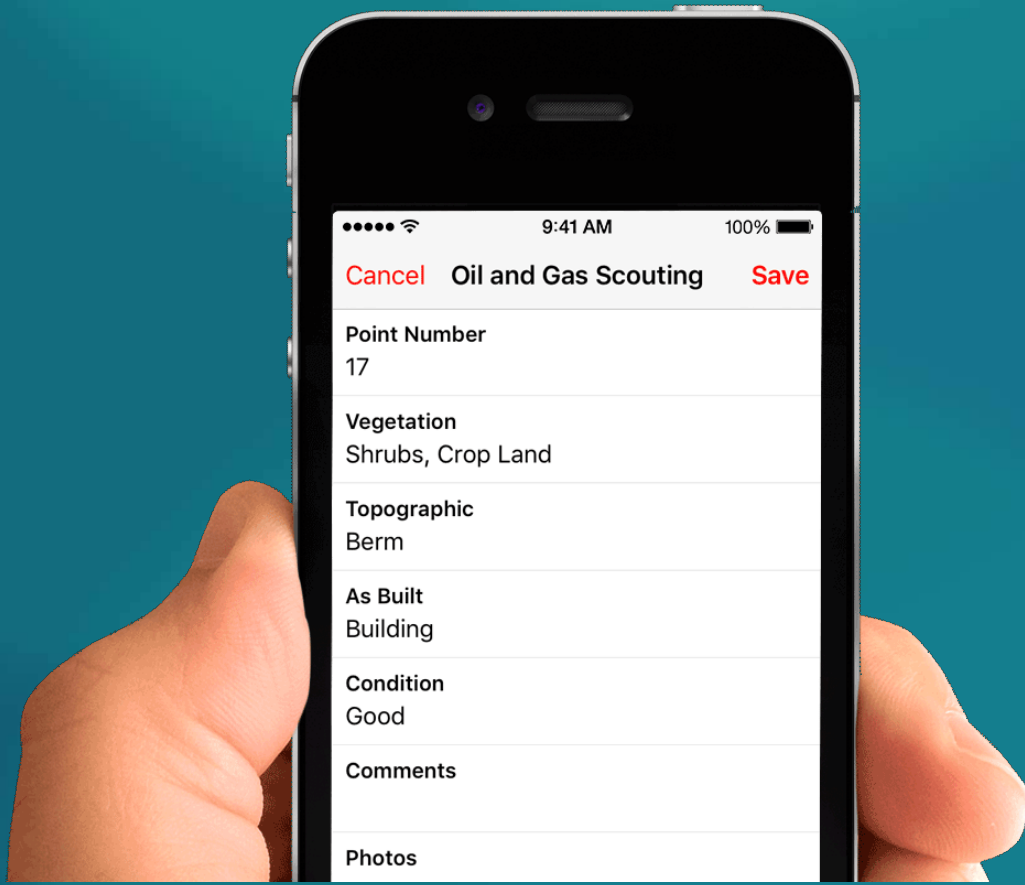
Transformation

- Organisation Wide
 - Step Change
- Disruptive



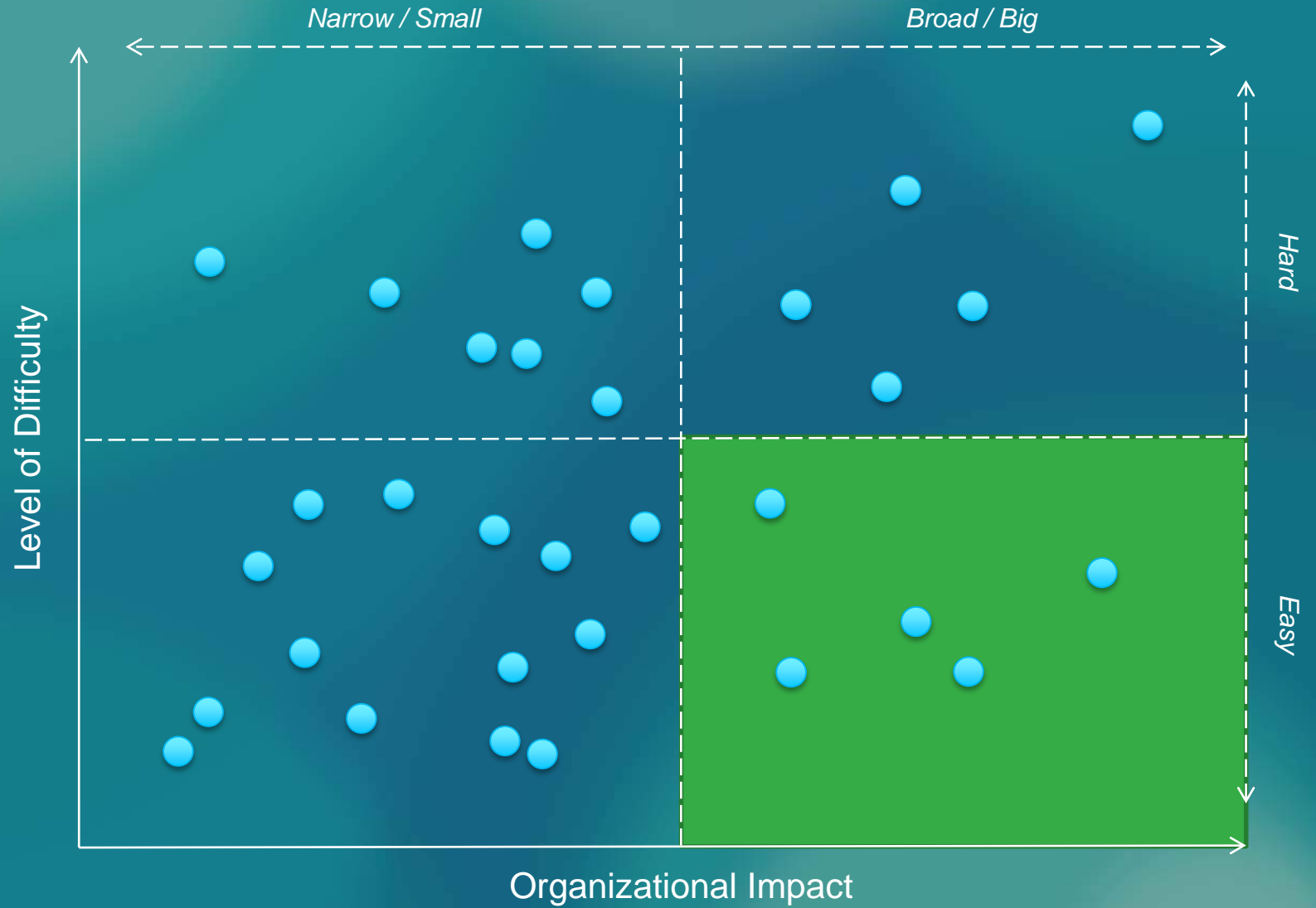
Transition

Transformation



Transformation

Transition



Spatial Solutions

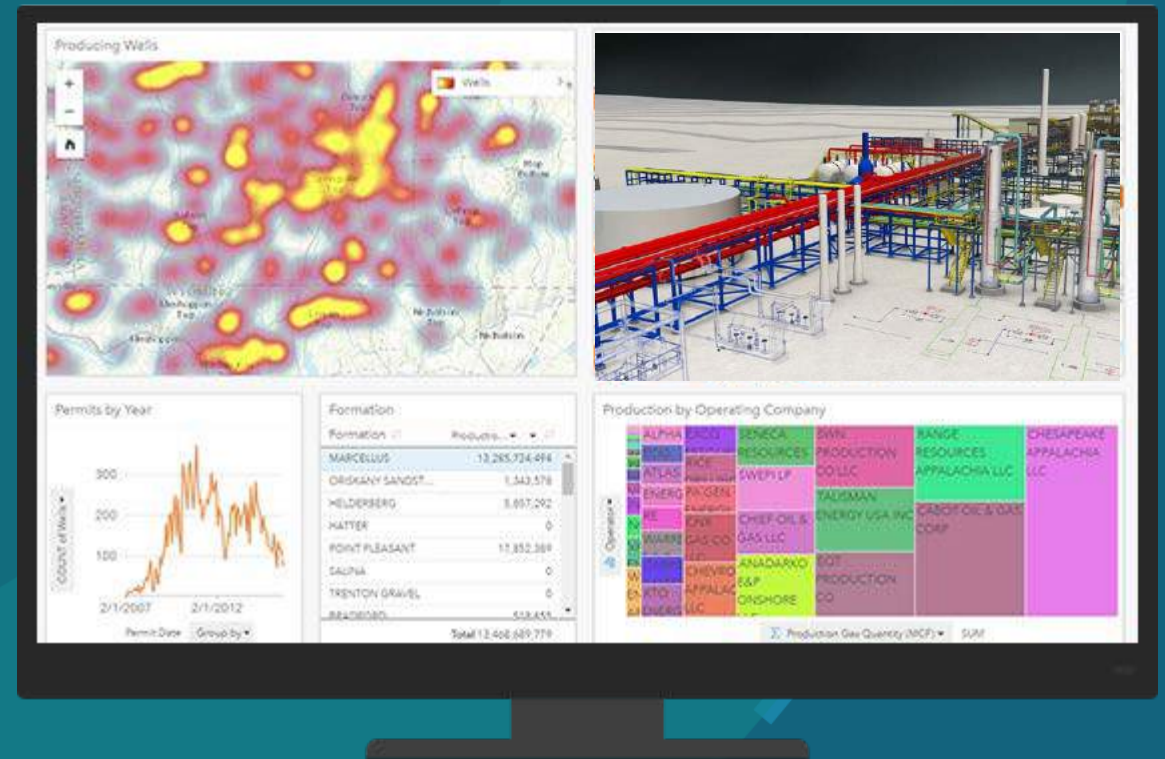
Process Automation

- **Shift from manual to automated control**
 - IoT, Real Time and Big Data
- **Reducing risk**
- **Accelerating**



Process Automation

- Maps and Spatial Dashboards
 - visualise and monitor digital processes
- Provides context
- 3D Digital Twin
- Access and Engagement
 - Efficiencies

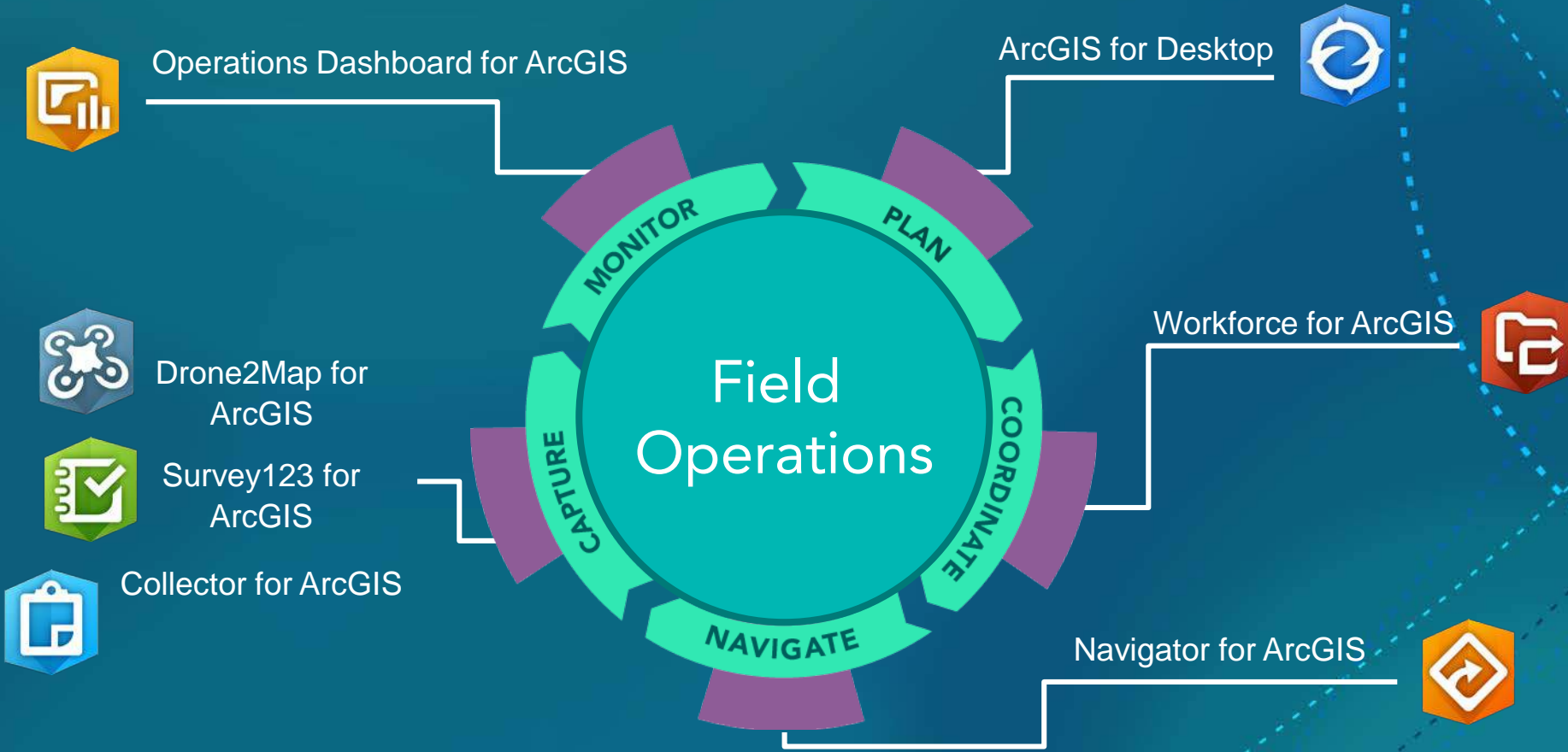


Field Force Enablement

- **Mobile and On-Demand**
- **Traditional Workflows**
 - Paper based
 - Poor quality and Data duplication
 - Expensive and full of risk



Field Force Enablement



Gulfport Energy

- ✓ Configurable field solutions
- ✓ Leverage existing technology
- ✓ Automation

Environmental Excellence

Business Workflows



Sump Inspection

Select the Pad Name *

Blues

Select the well pad activity *

Post-Construction

Drilling

Completion

Production

Limbo

Impoundment

Are E&S Controls operational? *

Yes

No

Are any of the sumps on the pad open? *

Yes

No

Date first sump valve opened



\$2 Million

- ✓ Cost Reduction Strategies
- ✓ Operational Efficiencies
- ✓ Environmental Leadership

Marathon Oil

- ✓ Cost Reduction
- ✓ Operational Efficiencies
- ✓ Increase Knowledge

Business Systems



- 
- ✓ Synergistic Business Interest
 - ✓ Integrating Spatial Analytics
 - ✓ Leveraging Existing Investments

Perception is not reality...

95%
62%

Cloud

- **Capital, Skills, Innovation**
- **Define core business**
 - **Outsource the rest**
- **As-a-Service Approach**
- **Common across multiple industries**

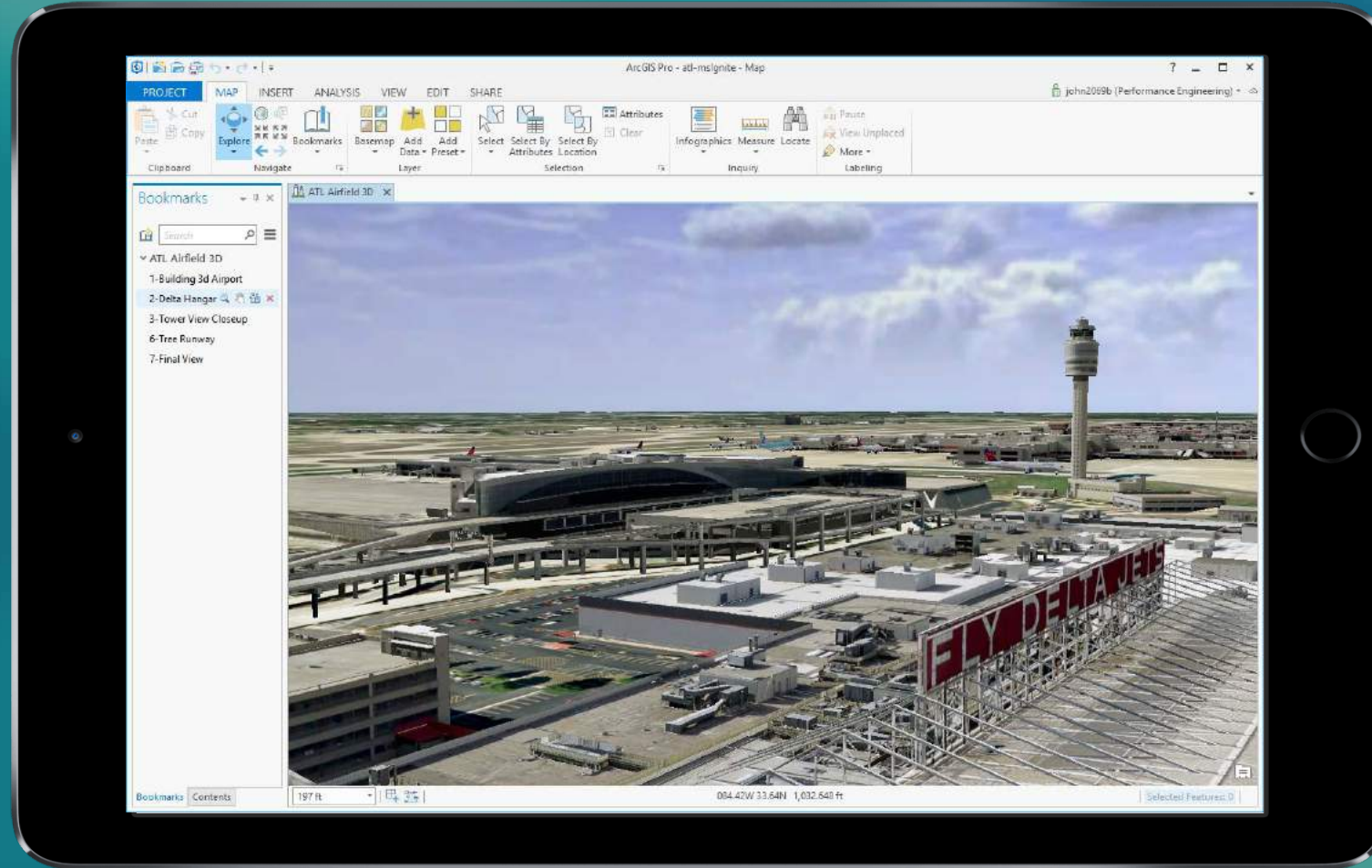


Cloud

- GIS-as-a-Service
- Work
 - Anywhere
 - Anytime
 - Any device
- Cloud
 - Remove infrastructure
 - Powerful engine
 - FLEXIBILITY



Cloud



Data Driven

- Adoption of Industry 4.0
- Traditionally
 - Data seen as an expense
 - Silo'd by business function
 - Few mechanisms for sharing and analysis
- Data discovery up to 40% of effort



Data Driven

- Data is an asset
 - Maybe THE asset
- Every person needs ready access to the data
- Reports are good
 - But not enough



Data Driven

- **Companies starting to see and leverage THE asset**
- **Leading companies looking at a critical dimension**
 - Location
- **Uncover hidden value**
 - Patterns and trends
- **Primary mechanism for distribution of data**

QGC

- ✓ Health and Safety responsibility
- ✓ Real-time data driven decisions
- ✓ Integration

Workforce Safety





QGC

- ✓ Health and Safety responsibility
- ✓ Real-time data driven decisions
- ✓ Integration

Workforce Safety





- ✓ Realtime Staff Location Capability
- ✓ Command and Control Interface
- ✓ Informed and Accurate Outcomes

Takeaways/Conclusions

- **The global trends are what drives Oil and Gas organisations and digital projects that align, solve or capitalise on these projects will offer the greatest value.**
- **Think big and respect the value digital transformation can bring to your organisations. However don't forget to take some easy wins along the way. They shows progress and value quickly, offers learning opportunities, and incrementally improve organisations.**
- **Have a position on Cloud. SaaS, Public Cloud, Managed Cloud. Prioritize the model that suits your organisations strategic direction. Flexibility and freedom for your talented team is the real win from cloud adoption.**
- **Field Workflow Automation is achievable today with low cost configurable solutions. Efficiencies in what is a costly function for most operations can have a significant impact on the bottom line.**
- **We are living in the data age and it's only accelerating. Collecting it is only the first step. Data needs to be authoritative, accessible, and digestible to lead to data driven decision making.**



Terima kasih

