



# ENERGY, OIL AND GAS BLUEPRINT

## Objective

Re-architecting business processes to a distributed, interconnection-based platform enables energy, oil and gas companies to quickly deliver customized utility offerings to clients in increasingly digital environments. These include:

- Upstream — Research, exploration and utilization efficiency.
- Midstream — Refinement, storage and distribution optimization.
- Downstream — Energy exchange and marketplace revenue opportunities.

## Design Principles

Global location coverage — Ability to place secure control points near clients, partners and things for responsiveness and compliance.

Interconnection and ecosystems — Greatest choice in networks, clouds, partners and ecosystems with dynamic exchange options.

Integration and control — Proximity and low latency enable private integration of physical and virtual services from a marketplace of leading partners.

### Enterprise

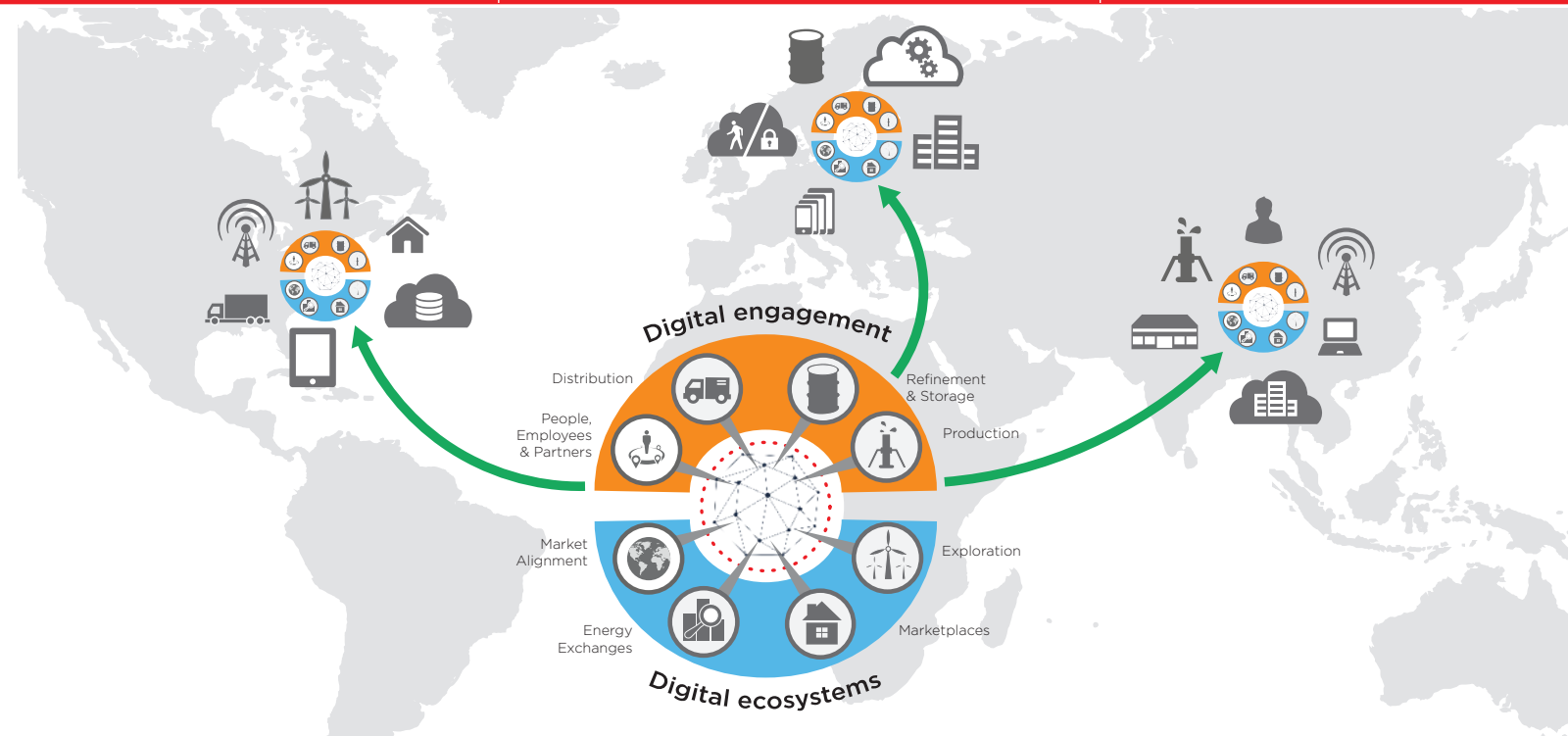
Energy, oil and gas companies can integrate digital engagement solutions and ecosystems to extend reach, accelerate innovation and rapidly deliver new business models.

### Provider

Network, SaaS, content and other providers enable new platform capabilities and energy data exchanges by deploying services that support highly scalable, pay-as-you-go business models.

### Managed Services

MSPs can help energy, oil and gas companies transform their businesses and integrate third-party solutions to enable rapid delivery of expanded digital capabilities.



## Advantages of a Digital-Ready Platform

## Capabilities

- Customer-centric engagement — Customer data can be used to determine market wants and needs.
- Aggregated data — Interconnected data lakes enable structured and unstructured data to coexist.
- Distributed access — Reach can be extended via the digital edge.
- Operational insight — Operational effectiveness enabled with locally-generated insights.

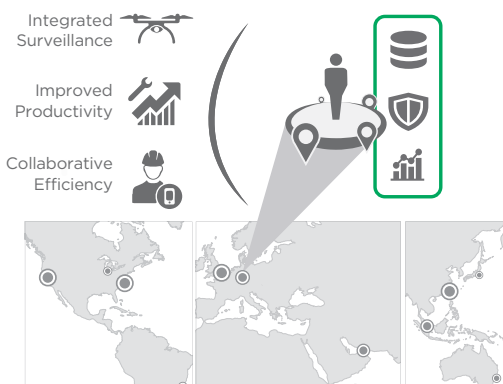
## Benefits

- Enhanced customer experience.
- Global integration.
- Dynamically connected partner ecosystems.
- Distributed analytics processing.
- Enhanced prediction capabilities.
- Real-time collaboration.

## PLAYBOOK STRATEGY

### 1ST Differentiate the User Experience

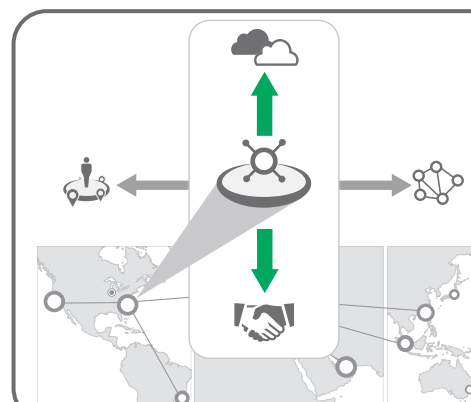
Build a differentiated experience through interconnection. Deliver consistent and cost-effective performance through a strategic global presence adjacent to partners, data exchanges and things. Extend reach globally while improving user experience and information access.



- Establish a secure localized presence.
- Tailor services and customize delivery of digital services based on local needs.
- Leverage proximity to users for increased performance and efficiency.

### 2ND De-Risk the Business

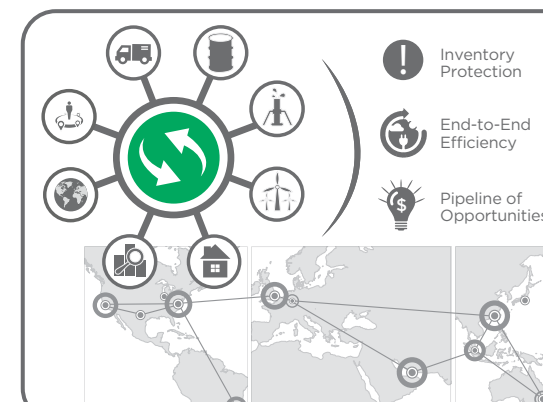
Reduce business risk with an interconnection platform. Simplify and standardize on a single global platform that enables consistent IT policies and enforces compliance. Enhance collaboration and streamline innovation.



- Standardize connection to cloud partners through aggregation and exchange points.
- Simplify connection model to business partners enabling dynamic growth.
- Apply policy enforcement controls as collaboration and innovation grow.

### 3RD Scale Through Ecosystems

Scale through interconnected data insights and ecosystems. Locally harvest, process and exchange client-centric data for timely intelligence. Expand the value chain with partners and data to achieve digital-ready operations and enhance customer experience.



- Harvest and process data where it is generated for real-time intelligence.
- Dynamically adapt value chain based on client and user requirements.
- Scale delivery leveraging ecosystem access across all points of presence.



# Differentiate the User Experience



## Problem

Geographic sprawl and the data challenges it creates restrict energy, oil and gas business and revenue growth, limit real-time interaction with clients, and slow time to market. These challenges increase demand for flexible digital business infrastructure that can be delivered by multiple partners and providers.



## Solution

Energy, oil and gas companies are transforming from traditional centralized IT infrastructure to a geographically distributed presence in metro areas with dense clusters of networks, clouds, partners and things. These companies are strategically identifying metros where growth and collaboration can be maximized and expansion requirements supported. They are transforming their business models to deliver services locally. This local presence removes latency and complexity, allowing for services to be customized based on local insights and tailored for delivery to customers, users and devices.



## Constraints

1. Energy, oil and gas business systems are trapped in centralized, high-latency architectures, resulting in poor customer experience.
2. Centralized services are often designed independently of relevant networks, partners, things and customers with no technology integration.
3. New cloud services are architected as an extension of current IT architectures. The value of the cloud is not fully realized.



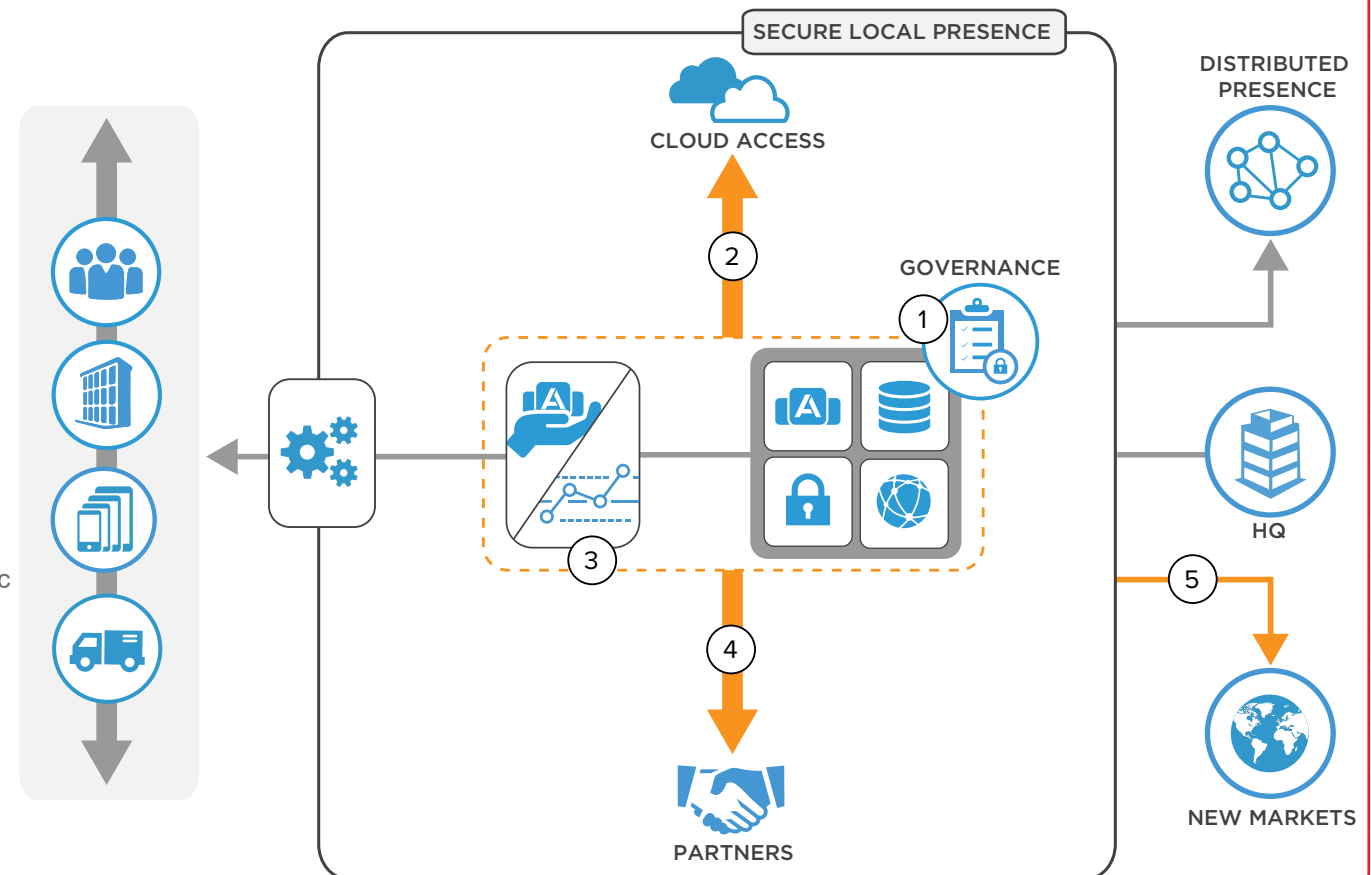
## Forces

- Pricing volatility and changing environmental rules force energy companies to integrate business processes to solve performance and safety requirements.
- New energy sources are replacing traditional revenue generation.
- Digital expectations require global collaboration.
- Volatile markets impact revenue projections, in turn affecting drilling and operations planning.



## Steps

1. Establish and distribute a secure localized presence — Choose metros where energy, oil and gas companies can benefit from access to a large variety of secure, densely interconnected clouds, networks, partners and things.
2. Optimize strategic logistics services locally — Migrate services and business processes to distributed locations adjacent to strategic energy exchange partners.
3. Customize delivery and tailor with local insights — Enable data exchange with partners to adjust to local business needs.
4. Adapt delivery to field and user device requirements — Scale delivery to meet the dynamic nature and geographic sprawl of disparate fields and things.
5. Distribute services across the supply chain — Allow services and data to be discovered and exchanged end-to-end with business process partners for enhanced services.



## Outcomes

- Improve user experience with local points of presence and enhance performance with reduced latency.
- Accelerate end-to-end energy data exchange with direct interconnections between partners, clouds and things.
- Enable global collaboration.
- Leverage localized data for real-time insights.



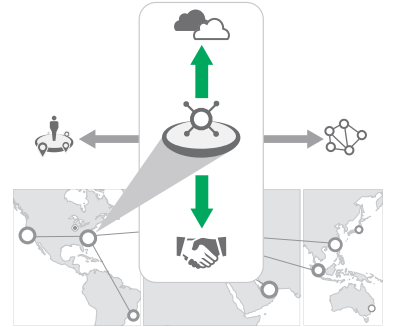
## Problem

The inability to collaborate across multiple cloud-based platforms and navigate remote sensor data collection prevents effective partner and user engagement. Rigid cost structures create inefficiencies, while technology partner integration and services expansion are complex and slow, discouraging innovation.



## Solution

Energy, oil and gas companies are reducing business risk with a single, global platform that enables consistent IT policies and enforces compliance while enhancing collaboration and innovation. Energy companies are also turning to artificial intelligence and other data insight-gathering strategies to optimize operations, accelerate new business models and increase revenues.



## Constraints

1. Traditional energy, oil and gas inventory and pricing management processes can't scale to meet demand.
2. Rigid business models are slow to adapt to changing requirements.
3. Siloed inventory restricts visibility, impeding ability to optimize dynamic supply and demand.
4. Increased regulation, safety and recovery exposure limit new business models and drive a need for localized insights.



## Steps

1. Standardize IT governance — Reduce business architecture complexity for effective and secure collaboration in a distributed environment.
2. Deploy business and policy controls — Proactively enforce policies for clients, users, sensors and data to meet regulatory requirements at local and regional levels.
3. Aggregate data for compliance — Gain a holistic view of the companies' adherence to business rules and regulatory requirements.
4. Dynamically engage partners — Integrate business processes with ecosystem partners to accelerate innovation and quickly deliver new service offerings.
5. Innovate models and test new markets — Quickly onboard new technology and business partners and extend reach to new locations.



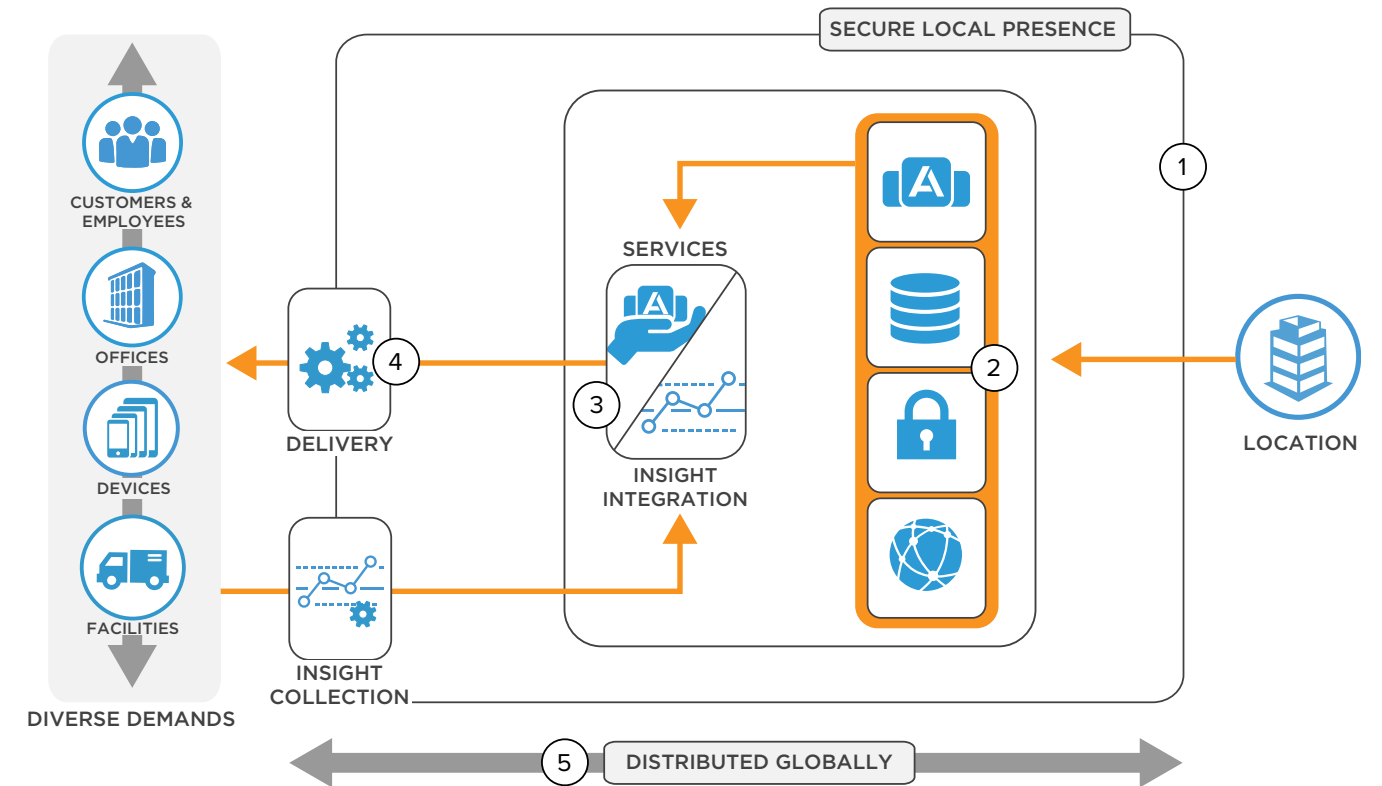
## Forces

- Increasingly distributed and dynamic marketplaces expose a need for real-time, detailed analytics that can improve decision-making.
- Shifting energy demands require the integration of local insights, cloud applications and new sources of digital content.
- Growing repositories of customer insight require new governance standards and policy management.



## Outcomes

- Reduce business risk by simplifying privacy and regulatory compliance with standardized IT policies and global visibility of audit data.
- Streamline business processes by integrating business partners through interconnection.
- Accelerate innovation by testing new markets and solutions without the need for significant capital investment or long-term commitment.







## Problem

Clients and partners are increasingly expecting optimized and cost-effective services. Traditional IT business architectures are slow or unable to adopt new technologies required to meet these rising demands.



## Solution

Energy, oil and gas companies must continually change their business models to remain relevant as disruptors enter the market with service-led product bundles. Digital energy, oil and gas companies are uniquely positioned to help their clients achieve new capabilities; however, they must simultaneously fend off disruptors of their value proposition. To achieve this balance, they must hone their ability to change business models through strategic partnerships. They can leverage ecosystems for collaborators and use deep-learning analytics to streamline process automation and outcome-based service and product delivery. A virtuous learning system will allow them to pivot in response to anticipated changes and automatically tailor solutions by industry and region, while ensuring end-to-end visibility.



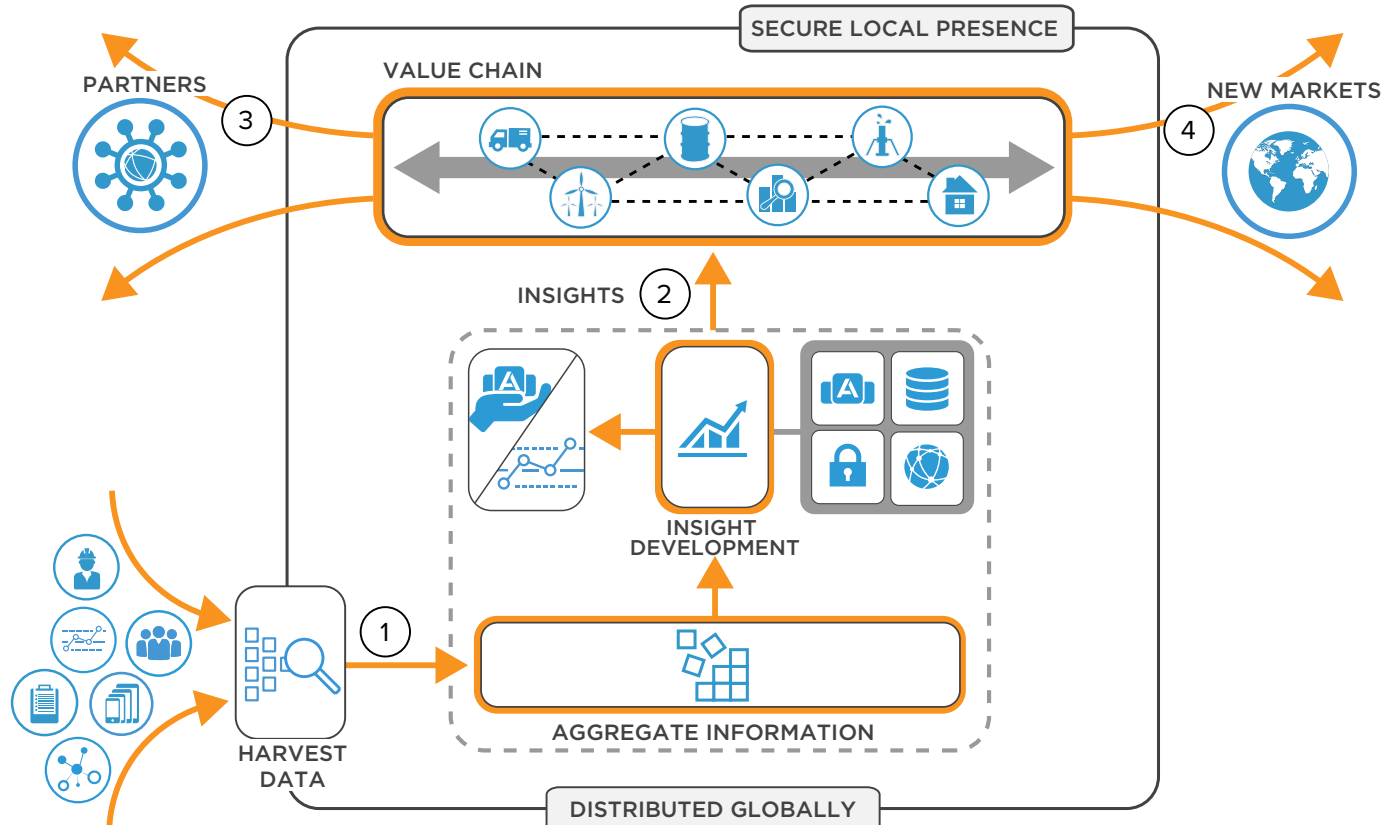
## Constraints

1. Central data warehouses with historical data (aged weekly, monthly or quarterly) make it difficult to leverage data for improvement.
2. Energy companies are limited by fixed engagement models.
3. Comprehensive and real-time insights are required to deliver personalized engaging experiences.
4. Alliance partners and suppliers cannot be quickly onboarded due to rigid value chain processes.



## Steps

1. Harvest real-time data — Collect, process and move data between locations to take advantage of timely information that enables business decisions.
2. Deliver omnichannel insights — Enable communication channels and content to interact seamlessly, regardless of the channel.
3. Adapt supply chain for strategic alliances — Dynamically onboard and offboard partners and providers to support combinations of services.
4. Introduce new revenue models — Transform field equipment for greater uptime based on data and analytics, and create new revenue-generating capabilities.



## Forces

- Customers demand new digital buying models with greater end-to-end visibility into energy-specific data.
- Real-time insights are enabling differentiation across multiple channels.
- Optimized operations, inventory and pricing increasingly require transformed value chains.
- Standard services and experiences are no longer acceptable.



## Outcomes

- Improved decision-making with real-time insights collected and processed near data sources.
- Enhanced user engagement regardless of the interaction channel.
- Accelerated time to market via simplified engagement processes with new technology partners.