



AMI^{PLUS}

VALUE IS BEING LEFT ON THE TABLE



Shaun T. Rogers

REGIONAL DIRECTOR, TRYNZIC

Trynżic's Story



Origins of the Digital Transformation

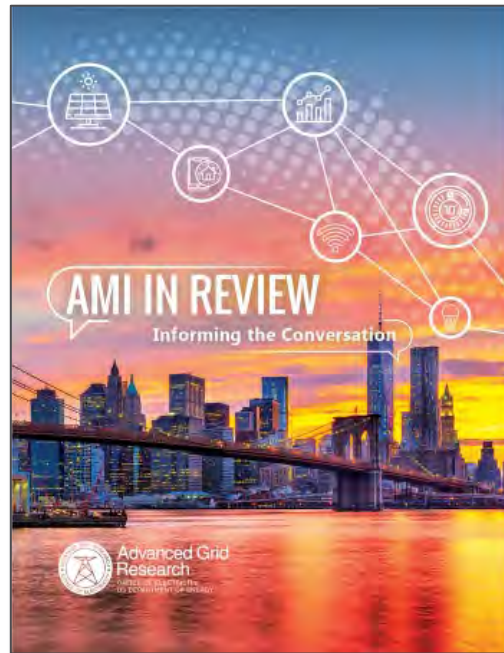
Run
to
Fail

“Smart Meters”



Advanced Metering

- AMI Meters
- Backhaul
- Software (head end, etc.)



Reviewed:

- 100 AMI deployments from 2010-2019
- Interviews with commissions, utilities, customer advocates
- Studied applications, filings, commission orders

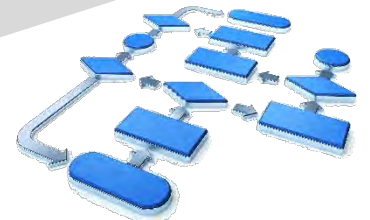
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- Department of Energy Advanced Grid Research (2021). AMI in Review: Informing the Conversation, SmartGrid.gov

Trynzic

Sense
&
Respond

People
&
Processes



Business Processes

- CIS
- MDM
- Field Dispatch
- GIS
- Analytics (BI)

Trynzic

Digital Transformation!

Smart Grid!

Real-time!

Meter-to-cash (billing)

Customer Smartphone App

Daily reports, trending analysis

AMI IN REVIEW

Informing the Conversation

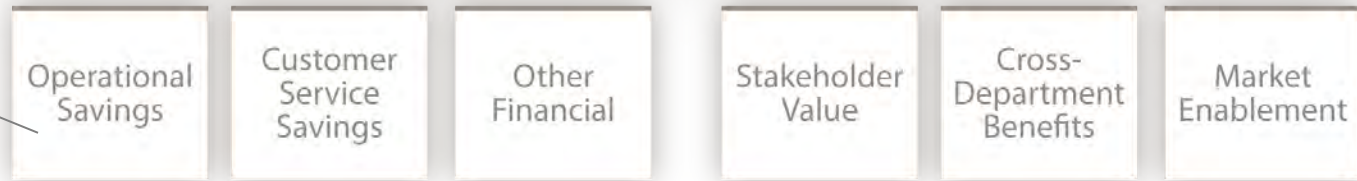
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AMI's Business Case



- Truck Rolls
- Equipment optimization

- Reduced problem tickets
- Reduced ticket processing time

- Reduced overtime

- Customer experiences

- DER
- Electrification
- Time of use pricing

- Process orchestration

Trynzcic AMI^{PLUS}



Data Management Foundations

“Unlike wine, your IoT data does not increase in value as it ages.”

- Address Latency
 - Meter to Head-End
 - Head-End to Business Processes
- Head End Systems Are Not Designed for Real-Time References
 - Head-End systems are not designed for stream processing (query performance, bursting)
 - Many useful patterns exist (e.g., delta extract) to **FREE** your data stream
- The same exists with your LOB data (IMPORTANT)
 - Data convergence
 - Data consumption costs
 - Manpower and resource limitations (current state)

Close the Software Capability Gap

Run
to
Fail

Sense
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"Smart Meters"



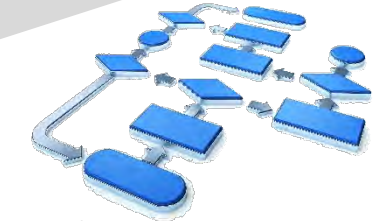
SENSE
Stream Processing,
Data Convergence
[smart & timely Events]



TRIAGE
Human
Intermediation



ACT
Case, Workflow,
Orchestration



Business Processes

- CIS
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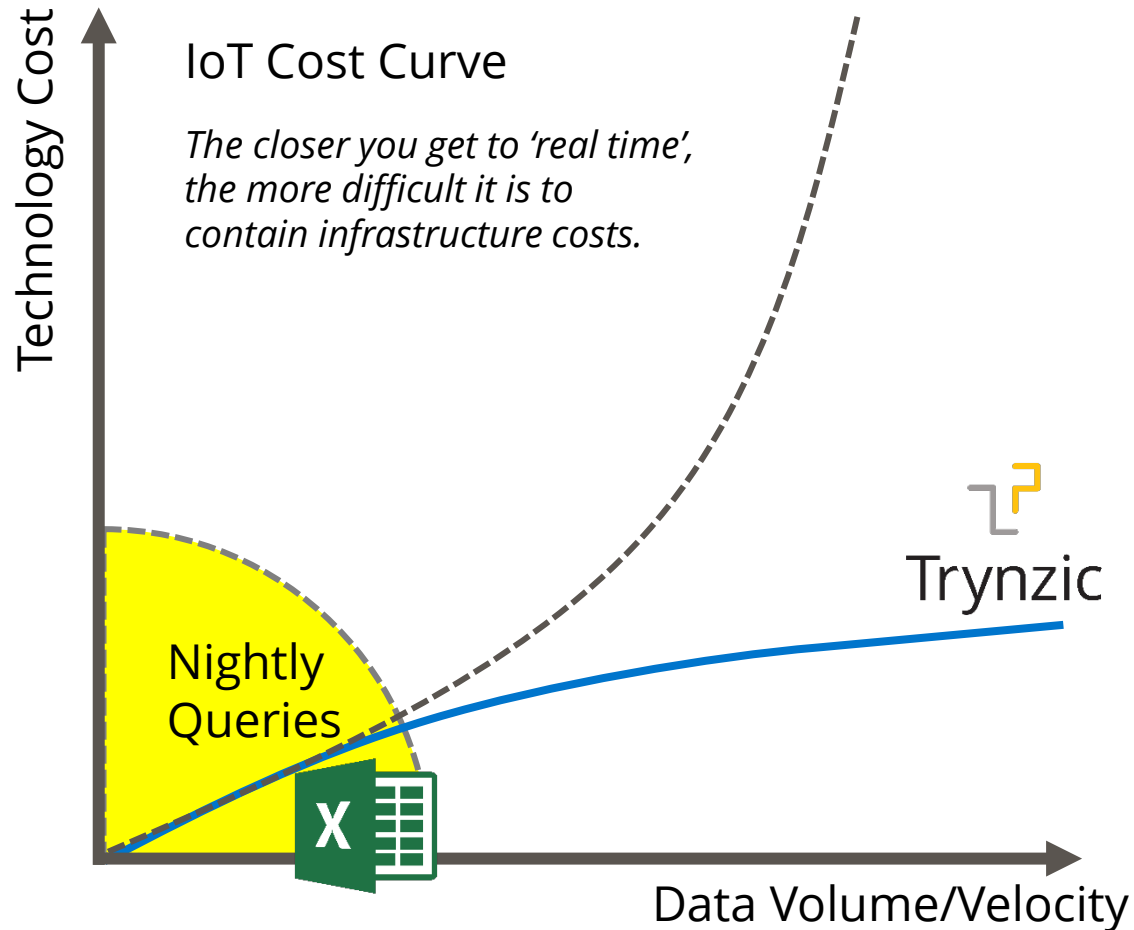
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Underlying Computing Dynamics



Underlying Computing Cost Dynamics



- More data to process
- Shorter intervals to do it within
- More records to store



Higher performant services needed

Higher compute & storage costs

Create Inertia with Industry Best Practices

Business Operations

- Predicted Missed Billing Read
- Potential Tamper
- Lost Meter
- Old Meter
- Demand Reset Failure
- Missing Read Interval
- Common Event Consolidation (bursts of events within a timeframe)
- Common Event Consolidation (multi asset)
- Connect/Disconnect Failures
- Interval Status
- Usage/Voltage Deviation

Power

- OVR: Fifth Lug Issue
- OVR: 12S on 240
- OVR: 2S on 208
- OVR: Flatline Voltage
- OVR: Average outside of Min/Max
- OVR: Potential Transformer Voltage Issue
- OVR: Potential Line/Circuit Voltage Issue
- Out of Voltage Range
- Under/Over-utilized Transformer
- Reverse Rotation
- Over Current (Current exceeds specs/configuration at the meter)
- Out of Phase (Out of phase power from the meter)

Grid Infrastructure

- Meter out of Communications
- Meter Malfunction (Clock, RAM, battery, etc.)
- Generic Meter Events/Alarms Post-Processing
- Misconfigured Meters
- Power Network Communication Issues (Issues with Routers, collectors and other network infrastructure)

Data Integrity

- Connectivity Model: Meter w/o Transformer
- Connectivity Model: Meter to Transformer Distance
- Connectivity Model: Transformer Phase mismatch
- Connectivity Model: Mesh Network Related Meters
- Enterprise Application Integration (Data issues, data absence, synchronization.)



Design New Service Practices



Case Workflow

Work Order



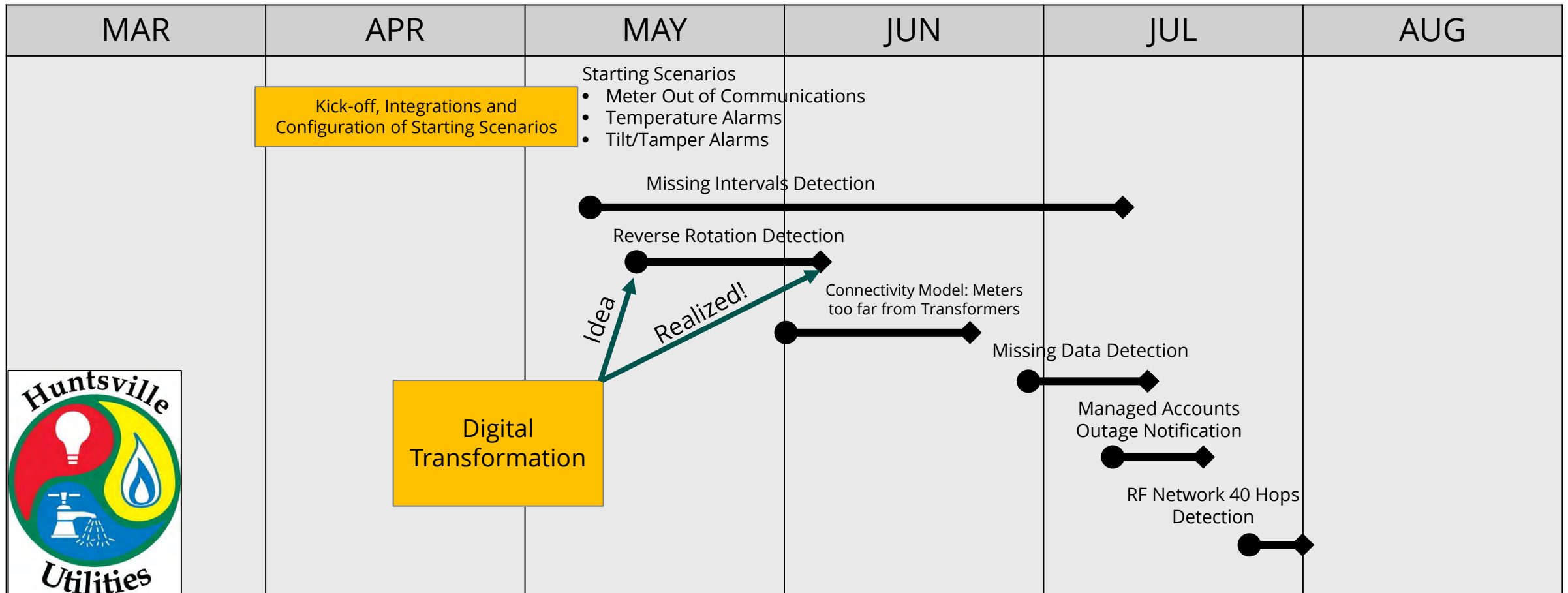
W/O Status

Activity Orchestration

Event Case

Designing New & Improved Business Processes

Rapidly & Incrementally



Continuous Improvement

SEEK SOFTWARE THAT GETS OUT OF THE WAY

- ✓ SaaS (with short change cycles)
- ✓ Performance / cost elasticity
- ✓ Parameterization, not custom code
- ✓ Multi-environment cloning
- ✓ Robust and flexible data integration
- ✓ Open access to data



So where does Trynzcic's Software Fit?

- Consider 3 software categories



OT

Operational Technology

"software that interacts with hardware"

We consume
OT data to
create value



IT

Information Technology

"apps that do real-time things for people"

Why are we here?

We enrich
your
analytics
capability



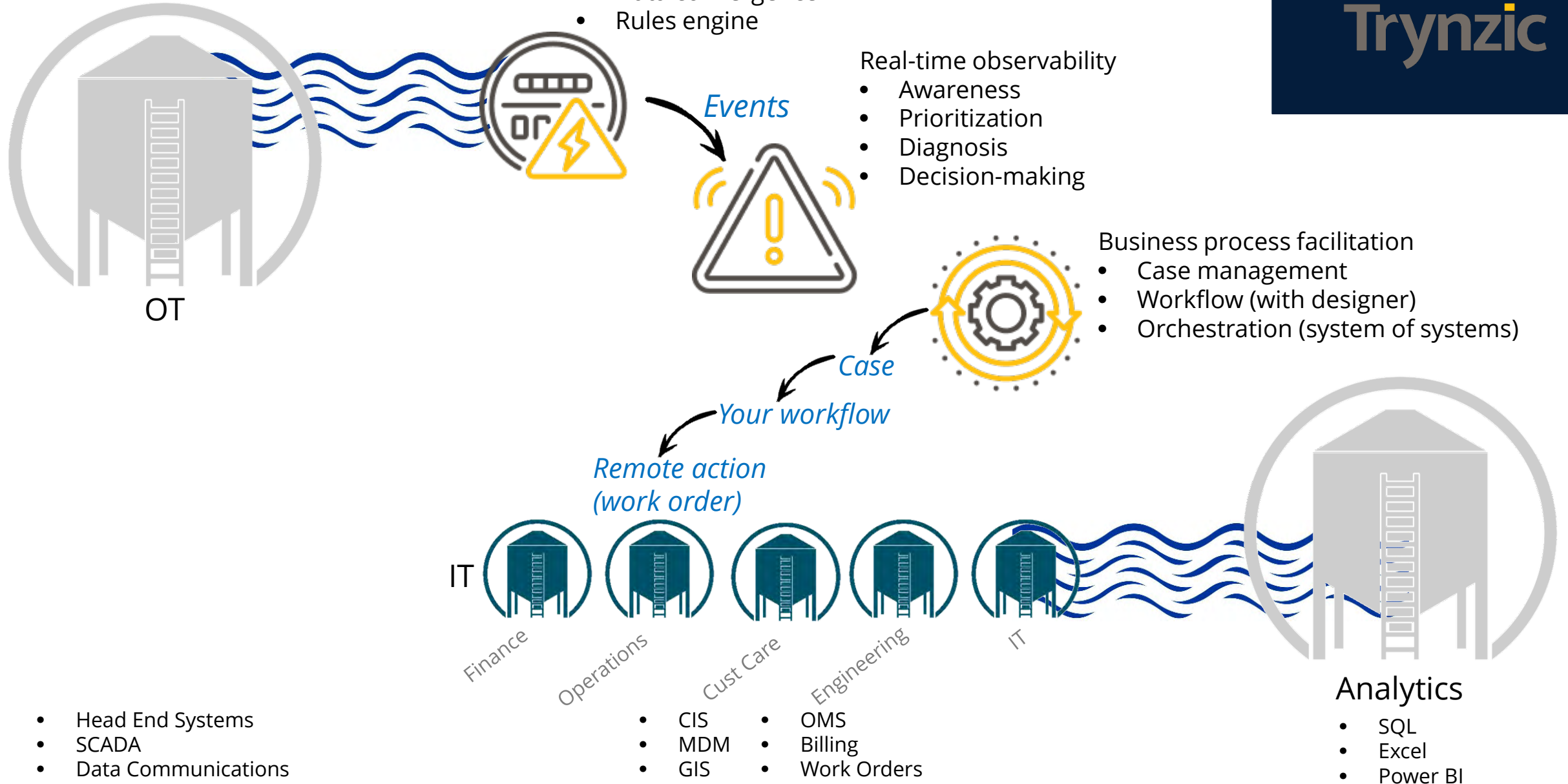
Analytics

"looking at history"

- Head End Systems
- SCADA
- Data Communications

- CIS
- MDM
- GIS
- OMS
- Billing
- Work Orders

- SQL
- Excel
- Power BI



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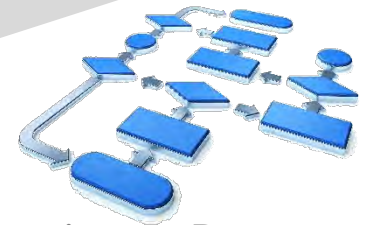
ACT
Case, Workflow,
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Real-Time - Affordable scale - Continuously Current - User Friendly - Secure - **Flexible**




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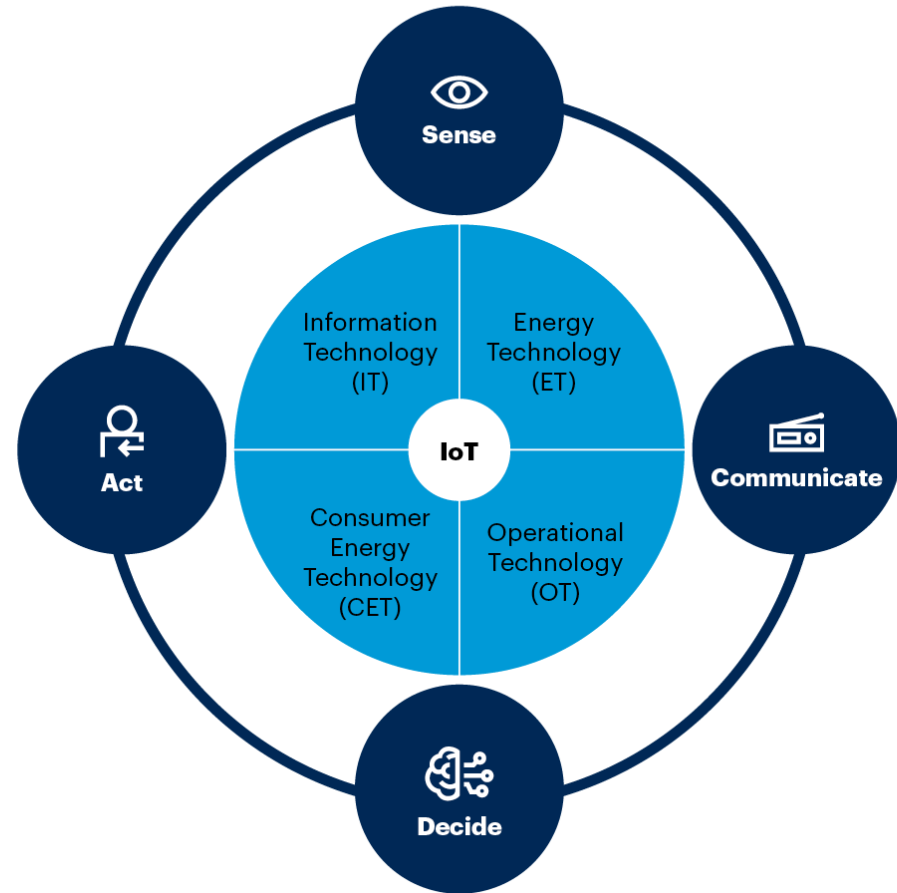


Business Processes

- CIS
 - MDM
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- 

Utility Technology Trends 2022

IoT Enables Operational Performance



*“The **enhanced system observability** provided by IoT will improve the monitoring, visibility, control and orchestration capabilities of utility — and customer-owned assets that will help reshape network operations.”*

<https://trynzic.com/resources/>

Questions





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