

Technology for 2021 and Beyond

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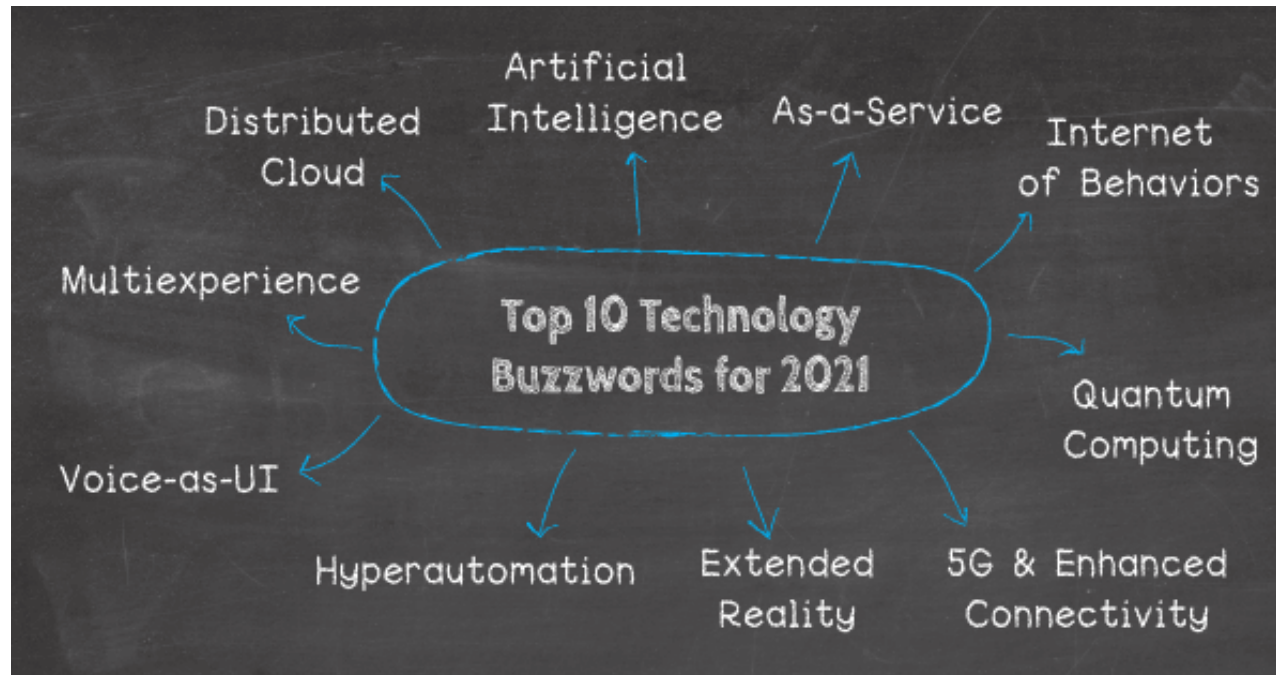


Agenda



1. Technology & Digital Twins
2. Optimization Formula Applied to a Technology Roadmap
3. Dynamic Dosing - Case Study

Technology buzz



Source: The Datapine blog
<https://www.datapine.com/blog/technology-buzzwords/>

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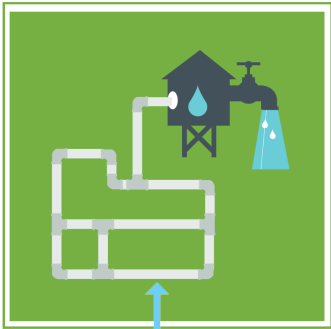


Digital Twin

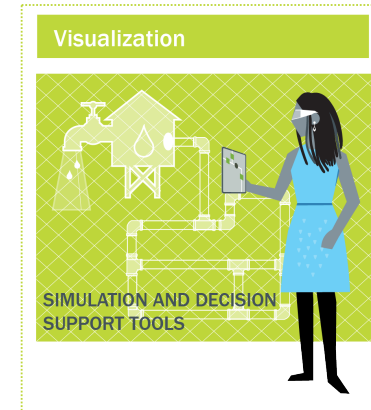
Integrating physical infrastructure with digital infrastructure to inform decisions, optimize performance, and deliver actionable results



PHYSICAL SYSTEM



DIGITAL TWIN



← Creating a variety of user experiences →

User Experience

WHAT/IF SCENARIOS

REAL-TIME PERFORMANCE DASHBOARDS

AUGMENTED/VIRTUAL REALITY

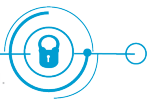
MOBILE ALERTS

ADVANCED AUTOMATION

➤➤➤ Actionable Results ← Optimized Performance ← Informed Decisions ➤➤➤



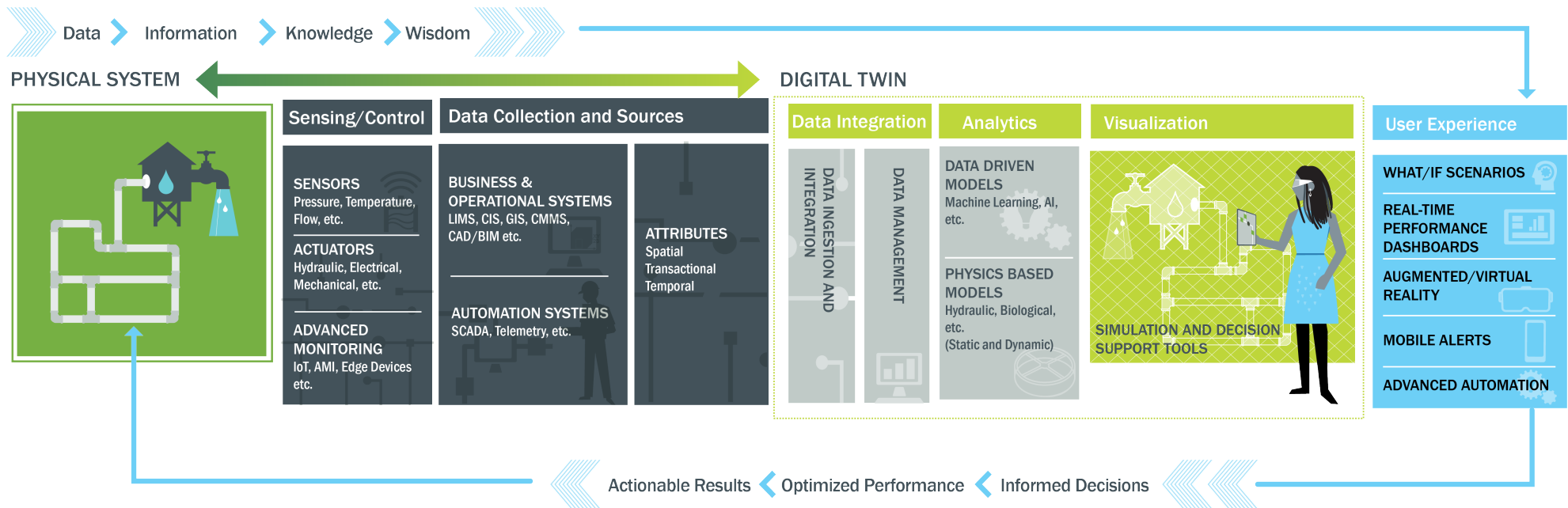
Secure and Connected Utility



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Digital Twin

Integrating physical infrastructure with digital infrastructure to inform decisions, optimize performance, and deliver actionable results



5 STAGES OF DIGITAL TRANSFORMATION

WE DON'T
NEED TO
CHANGE.



DENIAL

WHY IS
EVERYTHING
CHANGING?!



ANGER

WHAT'S THE
MINIMUM
WE HAVE TO
CHANGE?



BARGAINING

WE'LL
NEVER BE
ABLE TO
CHANGE.



DEPRESSION

MAYBE IF
WE JUST
CHANGE
OUR BOARD



ACCEPTANCE

A network diagram with white lines and dots on a blue background. The diagram includes several icons: a globe, a person in a circle, a laptop with a circuit board, a gear, and a pie chart.

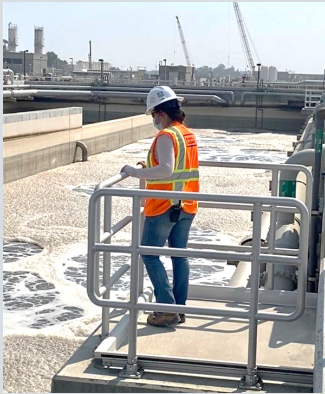
Optimization Formula Applied to a Technology Roadmap

We need to focus on people!!!

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How To Effectively Optimize Your Utility: “The Optimization Formula”

$$\left[\begin{array}{l} \text{Subject} \\ \text{matter} \\ \text{expertise} \end{array} + \begin{array}{l} \text{Digital} \\ \text{technologies} \end{array} \right] \times \text{Adoption} = \text{Optimization}$$



Coupling deep subject matter expertise with new and existing sensor technology, IoT and advanced analytics to advance optimization of processes and practices

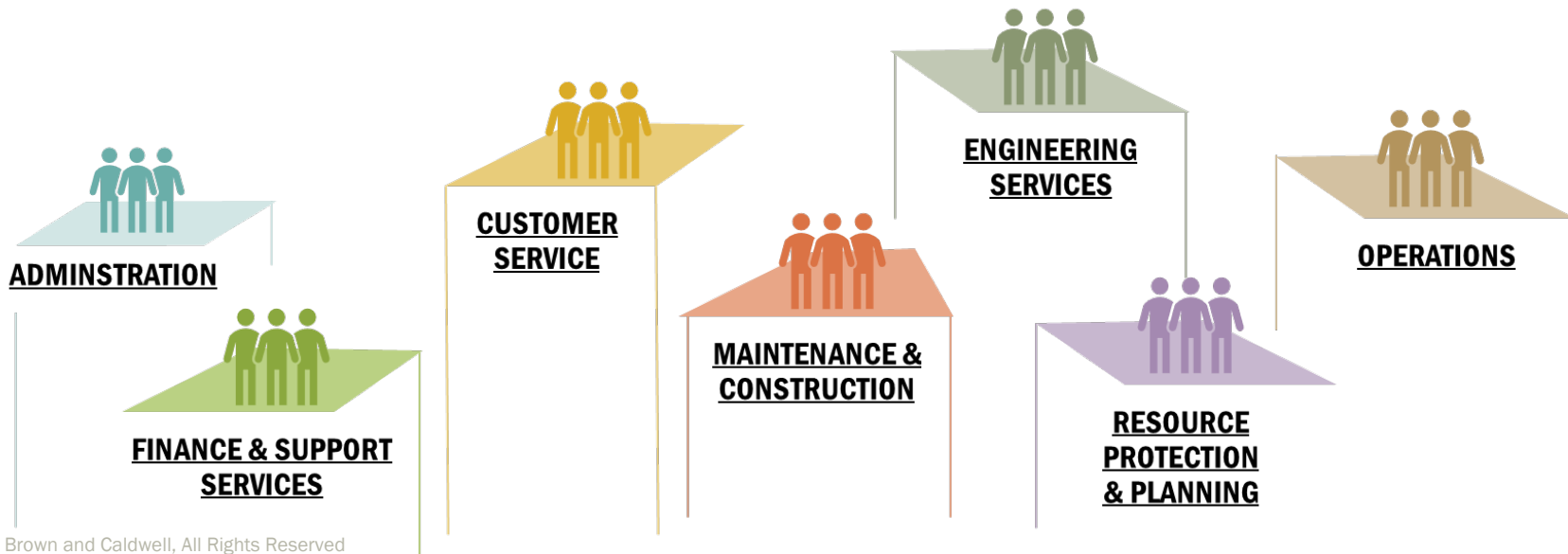


Gain operations staff acceptance of the power in an optimized approach

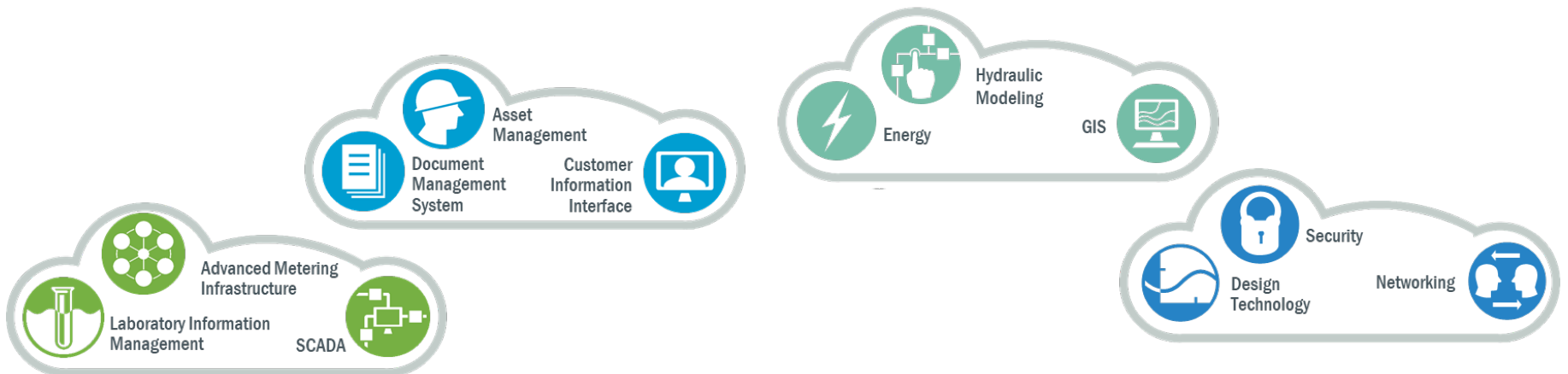


Transforming the way business is done to make better decisions and save money

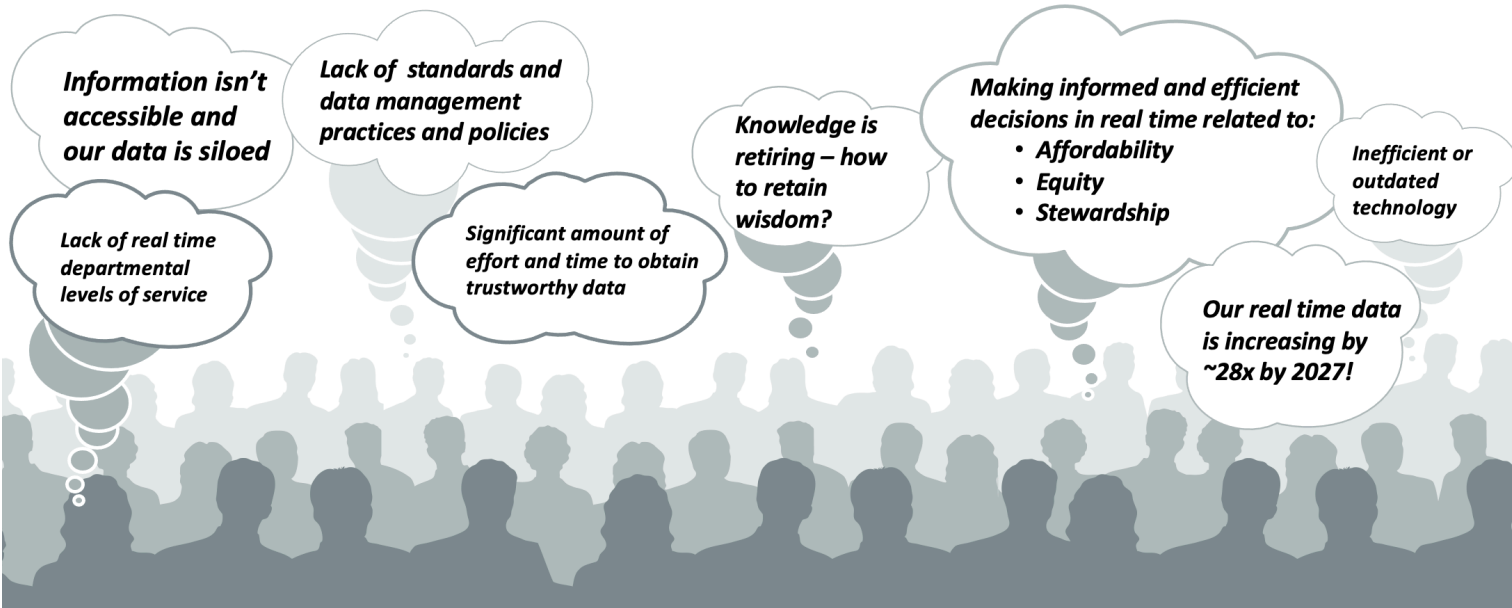
Driving Successful Digital Optimizations



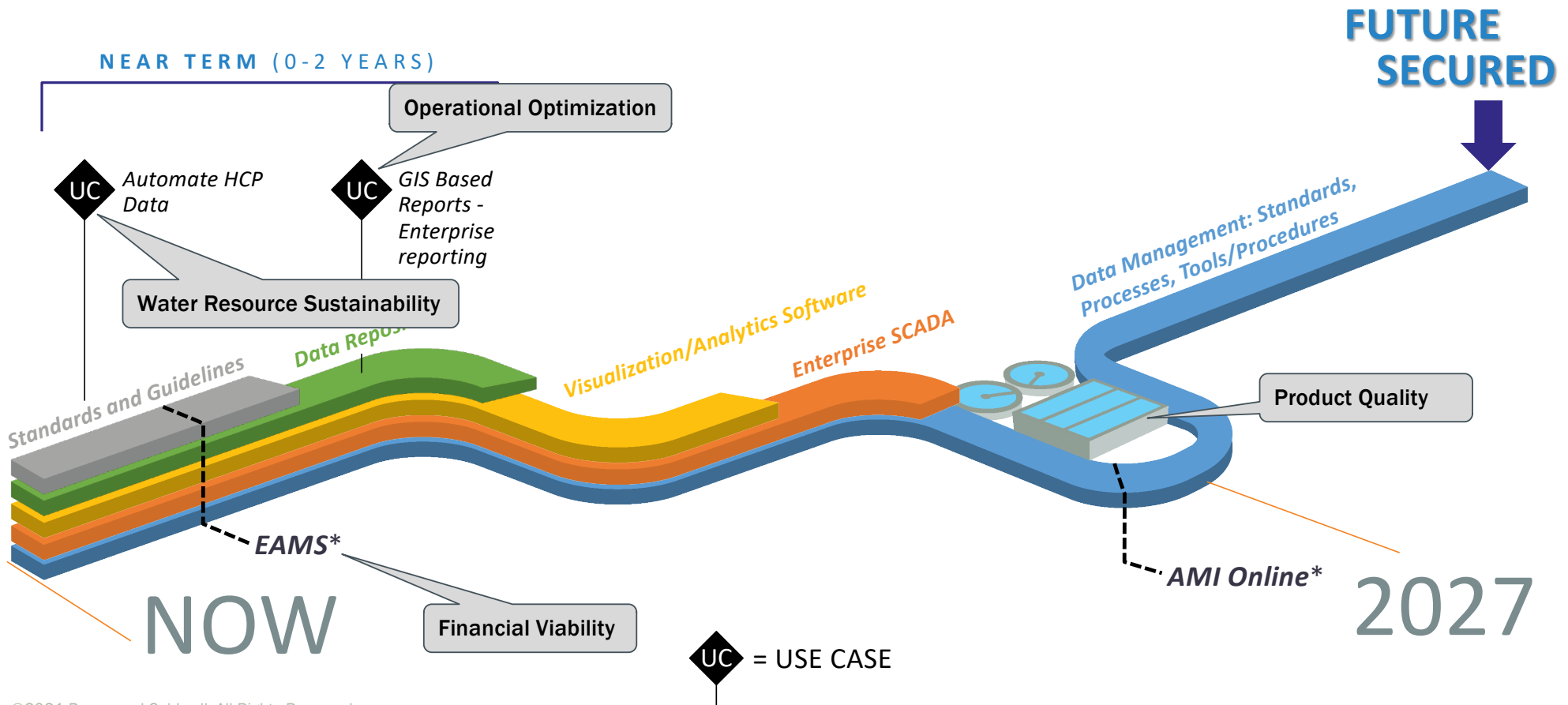
Driving Successful Digital Optimizations



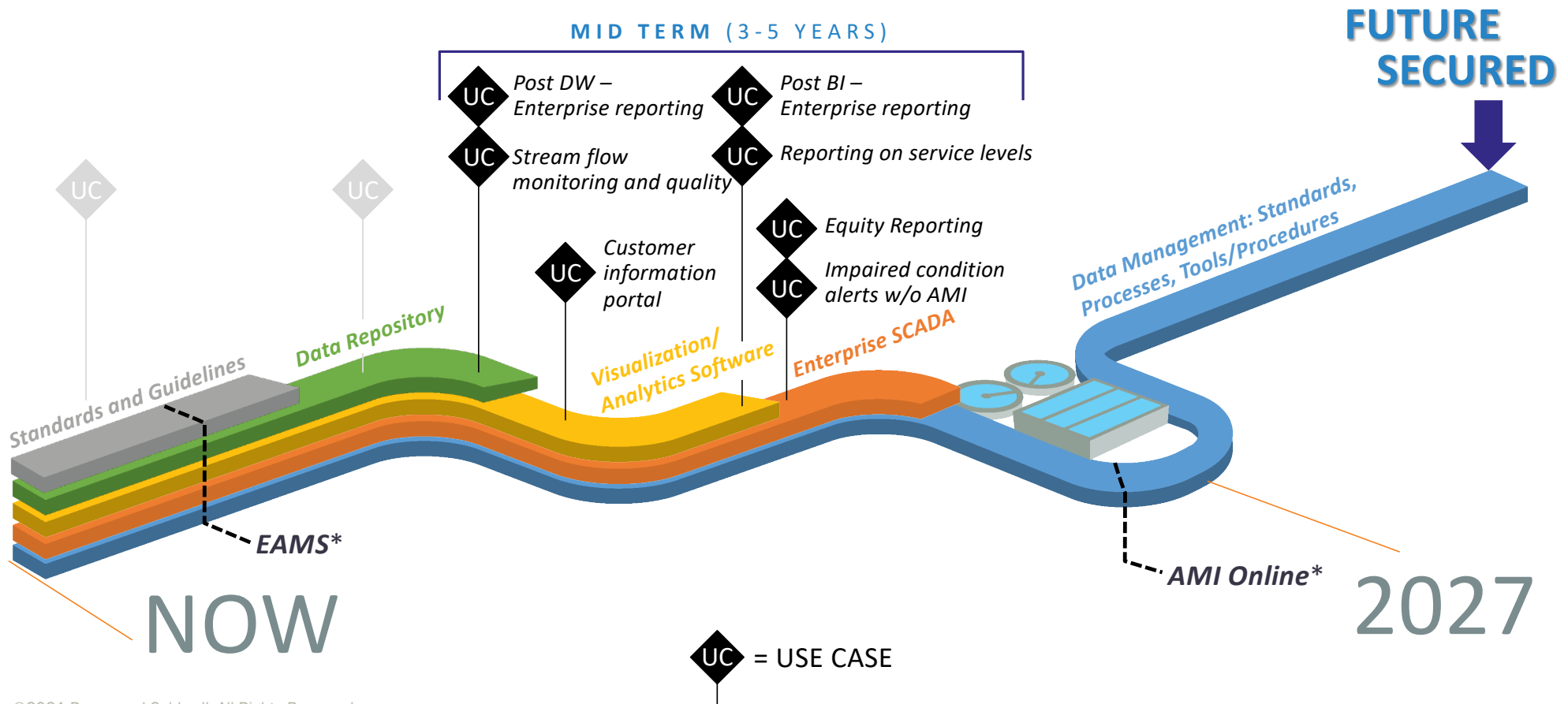
Driving Successful Digital Optimizations



Roadmap Case Study - Implementing foundational initiatives and use cases



Roadmap Case Study - Implementing foundational initiatives and use cases



Benefits of Smart Utility Foundational Initiatives

Implement Data Management

- Increases organizational awareness and understanding of Bureau data
- Improves data quality and reliability
- Consistent reporting
- Facilitates standardization of business processes
- Facilitates standardization of data collection tools

Implement Data Repository

- One source of the truth
- Ability to store data summarized at the right level
- Ability to combine data from multiple systems
- Ability to supply data for multiple reporting outputs in addition to visualization software

Implement Visualization/ Analytics Software

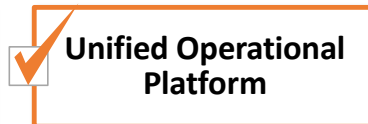
- Ability to view critical information across the organization and levels of management
- Enables comprehensive KPI reporting
- Provides a common reporting platform
- Displays information in an intuitive, interactive way
- Provides ability to drill into details
- Improves operational awareness
- Ability to easily perform complex analytics

Implement Enterprise SCADA

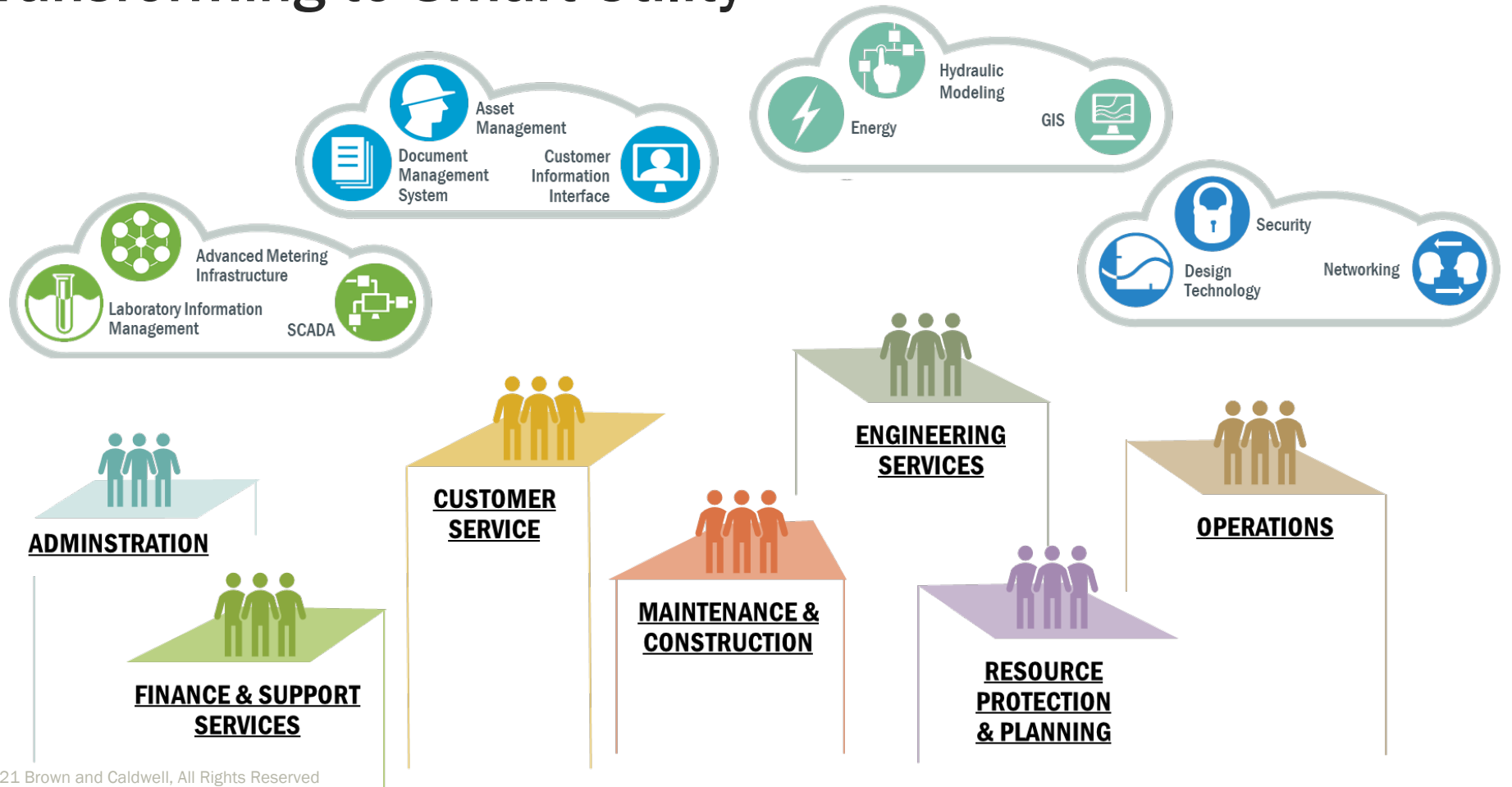
- Ability to gather information from all parts of system
- Can be phased to be ready when plant SCADA comes online
- Supports system-wide operational reporting
- Provides historical operational data through enterprise historian

Standards & Guidelines

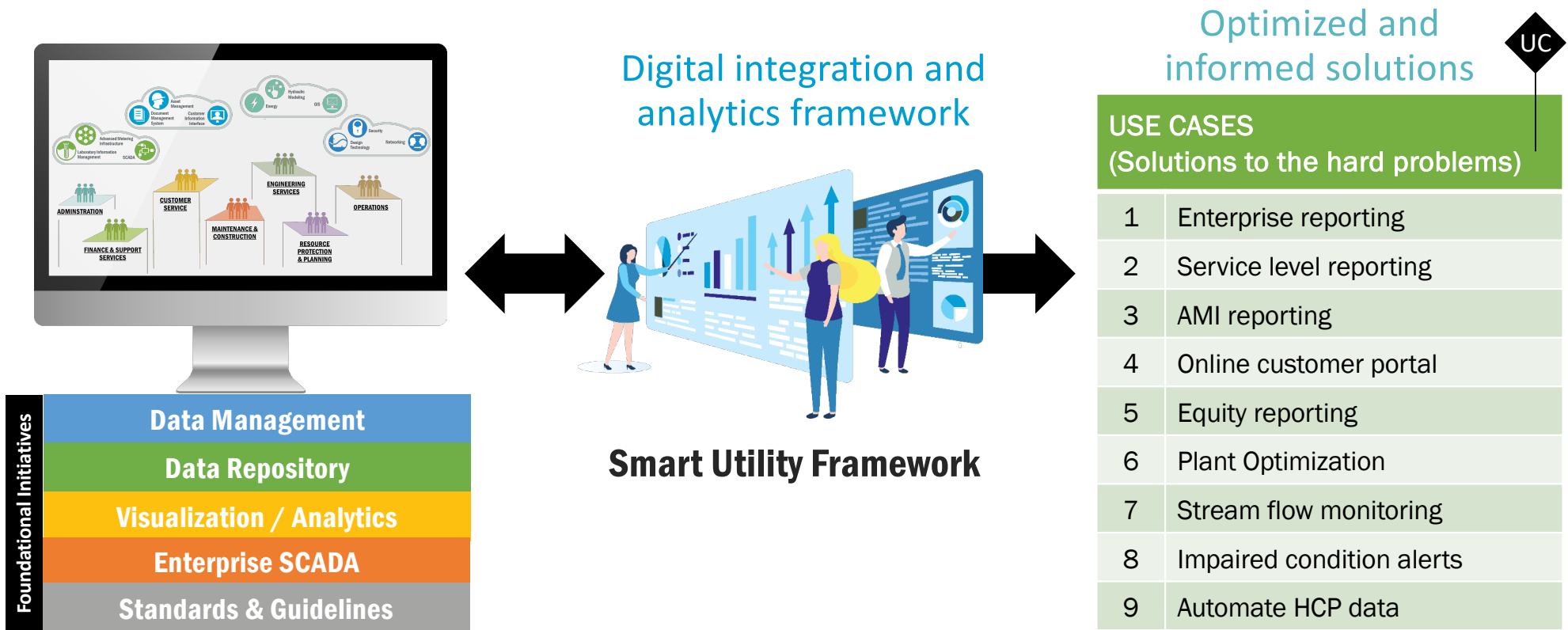
- Provides a stable and repeatable framework as technology becomes more complex
- Achieves consistency in deployment of technology across internal and external developers
- Provides a consistent user interface reducing training time and empowering workers



Transforming to Smart Utility



Architecture based upon use case and foundational initiatives





Optimization Case Study

Power of the formula applied to a different problem!

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Rebounding from COVID

Exploring optimization to reduce costs



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Summary

$$\left[\begin{array}{l} \text{Subject} \\ \text{matter} \\ \text{expertise} \end{array} + \text{Digital} \right. \\ \left. \text{technologies} \right] \times \text{Adoption} = \text{Optimization}$$

- Reach out if you'd like more info on Digital Twins
- Technology must save resources
- Adoption of the solution is key

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