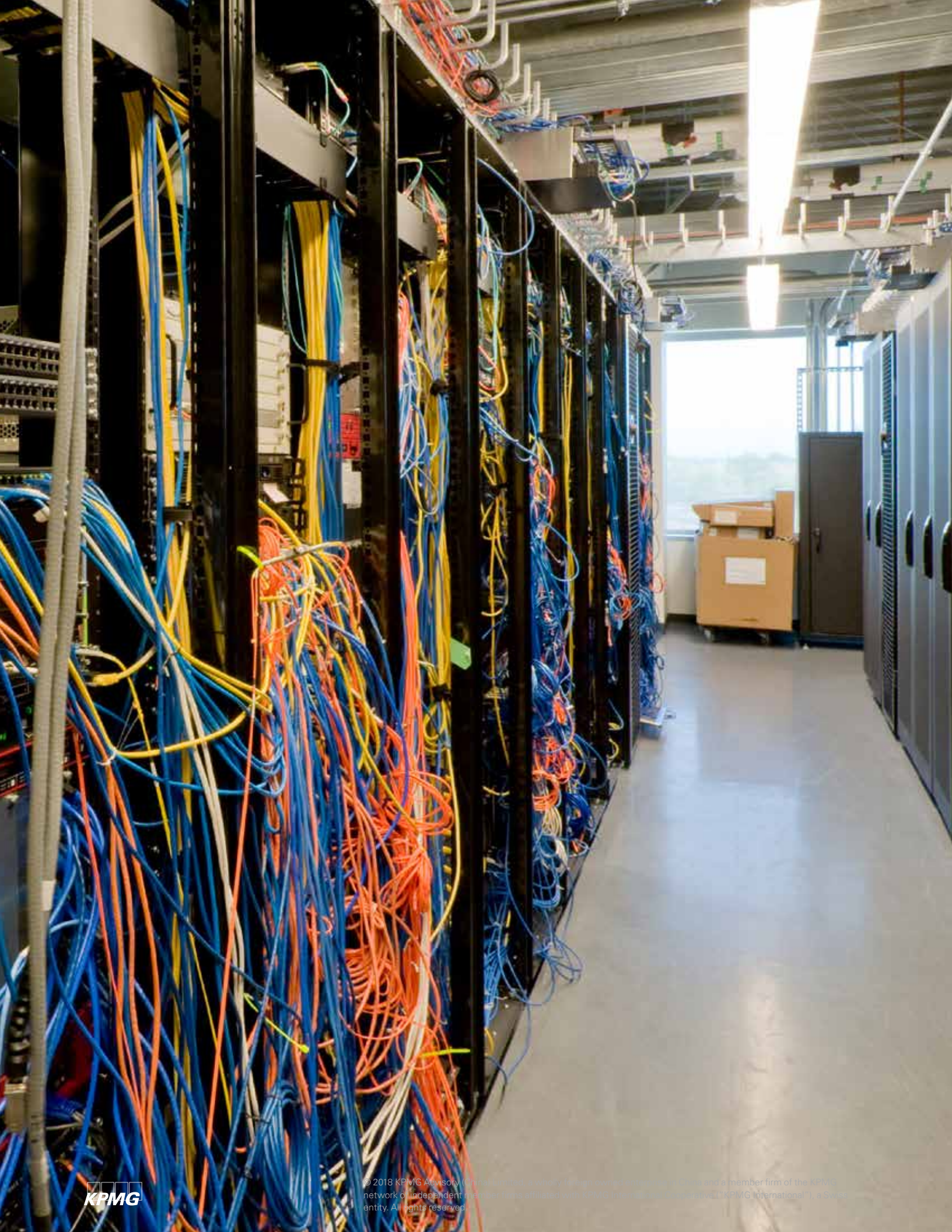




# The Network Integrator Journey

**Part 2: Management Challenges  
Facing Network Integrators**







# New management challenges are facing Network Integrators

Utility and energy industry leaders are increasingly evaluating this evolution from an enterprise business value viewpoint. The characteristics of the Network Integrator are distinctly different from the traditional distribution company and require new thinking.

**This three-part series explores the journey from a traditional distribution utility to a Network Integrator. In this second part, we discuss some of the new management challenges facing Network Integrators.**

Most utilities have launched proof of concept individual “proof of concept” infrastructure pilots as they explore their new role. Utility management is ready to look beyond individual or functional project engineering requirements and evaluate a combined infrastructure and operating solution that optimizes the use of both existing and advanced energy technology capabilities to provide comprehensive value propositions for their enterprise, customers, and markets served.



# The Network Integrator Journey



## Characteristics of the Distribution Company



## Characteristics of the Network Integrator



### Outage Management Resiliency

- Disaster recovery planning
- Mutual assistance programs



- System redundancies and grid resiliency
- Proactive and predictive outage management
- Critical event management



### Energy Delivery Management

- Vertical model: generation, transmission, distribution
- Focus on the “four walls” of the distribution company and immediate touch points
- Manage all aspects of the customer relationship



- Focused on interoperability standards and deployment
- Manages the dispatch of DG and DERs
- Adopt some ISO/RTO functions
- Manage customer connection to the grid



### Centralized Storage Management

- Deploy proof-of-concept projects to evaluate the impact of storage



- Manage the dispatch of storage resources at the substation level
- Interact with storage markets that may arise



### Data Management

- Collect internal data to manage operations



- Serve as data hub provider
- Collect, analyze, deploy distribution grid data
- Manage stakeholder engagement



### Security

- Maintain physical and logical security of utility assets and networks



- Aggregate intelligence
- Collaborate with public and private sector to help mitigate security threats



### Informed Investment

- Consumption, demand-based rates
- Volumetric rate recovery
- Tactical regulatory focus



- Connection-based revenue
- Develop investment plan for the distribution grid
- Integrate emerging technologies
- Two-way strategic alignment with regulators



### Distribution Grid Maintenance & Operations

- Preventative and proactive maintenance



- Own and operate the distribution infrastructure
- Manage asset optimization across distribution network

# Grid modernization programs have introduced challenges

Making this shift requires addressing some of the challenges uncovered through grid modernization programs, including:<sup>1</sup>

Challenge	KPMG Observation
<b>Competition for Capital</b> Investment in grid modernization is a challenge for both utilities and regulators due to pressure to keep rates low and to continue funding ongoing and necessary network maintenance programs.	<b>Develop Robust Economic Cases</b> Institute capital control programs and processes that provide meaningful management information regarding capital trade-offs and relative benefits. Economic cases are the primary communication vehicle to provide understandable, realistic and driver-based benefits to customers and other stakeholders.
<b>Program Maturity Level</b> Wide gaps generally exist with respect to progress achieved in modernizing the grid between certain leading states and those that have not yet started to make significant investments.	<b>Determine Maturity Perspectives</b> Incorporate into your strategic planning processes a frank assessment of the current state of your Network Integrator journey toward grid modernization compared to other leading firms. This perspective will provide a realistic baseline from which to build your program.
<b>DER Penetration Level</b> The impacts of EVs, solar energy, storage, and other DERs will likely increase in the coming years and will serve as additional drivers for grid modernization.	<b>Assess DER Fit Potential</b> During the strategic planning process, assess your enterprise DER efforts to date particularly with regard to foundational investment factors (such as AMI penetration and demand response programs) and operational footprints (such as electric market deregulation, retail customer choice, or dynamic rate structures).
<b>Customer Education</b> Deployment of foundational grid modernization technologies has progressed in recent years, but the full range of potential benefits that such technologies could provide has yet to be realized, particularly around customer education and empowerment.	<b>Increase Customer Commitment</b> Most technologies deployed have been engineering driven and with the belief that “if you build it, they will come” without adequate consideration of the investment and commitment required on the customer side. Network Integrators need to focus efforts on the integration of customers and retail service providers.
<b>Rate Structures</b> States and utilities need to consider dynamic rate structure reforms to equitably assign value and support customer-related and grid-related benefits.	<b>Increase Regulatory Commitment</b> Similar to the customer side of the value chain, the regulatory and legislative investment in education and new dynamic rate and tariff structures will be key to fairly distribute benefits to all stakeholders.
<b>Stakeholder Collaboration</b> Leadership varies widely from state to state, including among regulators, legislatures, governors, utilities, retail service providers and customers. There is no one-size-fits-all approach, but collaboration among stakeholders is essential to ensuring comprehensive grid modernization success.	<b>Increase Communications Commitment</b> Communicate and educate early and often with all stakeholders in your individual journey. The role of the Network Integrator demands attention to these factors.

<sup>1</sup> “Third Annual Grid Modernization Index”, January 2017, GridWise Alliance

## New risks challenge existing enterprise planning models

The evolution of the energy industry has also altered the risk landscape, and utilities must reevaluate their risk profiles as part of the enterprise planning process. Following are examples of risks that need to be considered and quantified in the business case development during planning:

- **Market risk.** Inclusion of utility-scale renewable resources and the potential impacts on system supply costs and recovery of capacity.
- **Operating and safety risk.** Crew dispatch time impacts on outage metrics given new information from grid modernization devices.
- **Customer and product/service alignment risk.** Customer adoption rates for new programs.
- **Image/brand risk.** Community outreach and potential regulatory impacts, particularly associated with perceived partnerships with other service providers.
- **Regulatory and political risk.** Timing and recovery of valid potential investment and the impact on rates.
- **Environmental risk.** Potential costs or delays for not meeting federal or state guidelines.
- **Financial and earnings risk.** Investment cash returns to satisfy debt and equity stakeholders.
- **Capital market risk.** Debt/equity and coverage ratio maintenance.

## An updated framework will help address these challenges

Utility executives are seeking a value-based, enterprise model planning and implementation approach to support the journey toward becoming a Network Integrator. Under such an approach, energy infrastructure planning and operational investment decision-making would need to demonstrate value across multiple aspects of the enterprise operations and business instead of from a single project residing in a functional area.

There are three main benefits from this expanded planning and execution capability:

1. It would build on and enhance existing infrastructure and operations,
2. It would incorporate advanced energy technologies with existing system assets such as smart grid, DER, renewables, and communications/data and,
3. It would focus on core value expansion and risk reduction for all segments within the value chain.

Such a framework should engage all impacted functional areas within the enterprise for planning, implementation, and operations. It is also important to link and track enterprise (Tier 1) and functional operating (Tier 2) metrics to measure benefits that reflect the market context relevant to the enterprise. Each individual situation is distinct, but whatever the circumstance or the utility's strategy, the ultimate economic case must provide a clear, enterprise explanation of program benefits in terms that all stakeholders can understand.



**Expand on Part 2:** Management challenges facing network integrators by viewing this video.



## About the GEI

The KPMG Global Energy Institute (GEI) is a worldwide knowledge-sharing forum on current and emerging industry issues. Launched in 2007, the GEI interacts with its over 30,000 members through multiple media channels, including audio and video webcasts, publications and white papers, podcasts, events, and quarterly newsletters. To become a member visit [www.kpmgglobalenergyinstitute.com](http://www.kpmgglobalenergyinstitute.com).

### Contact us

#### **Todd Durocher**

##### **Principal, Advisory**

**T:** +1 617-988-1278

**E:** [tdurocher@kpmg.com](mailto:tdurocher@kpmg.com)

#### **Kelly Stephenson**

##### **Director, Advisory**

**T:** +1 901-229-0255

**E:** [kstephenson@kpmg.com](mailto:kstephenson@kpmg.com)

#### **Kyle McNamara**

##### **Director, Advisory**

**T:** +1 480-459-3652

**E:** [kylemcnamara@kpmg.com](mailto:kylemcnamara@kpmg.com)

#### **Michael Piotrowski**

##### **Director, Advisory**

**T:** +1 312-665-1429

**E:** [michaelpiotrowski@kpmg.com](mailto:michaelpiotrowski@kpmg.com)

[kpmg.com/socialmedia](http://kpmg.com/socialmedia)



This document was originally published by KPMG International.

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act upon such information without appropriate professional advice after a thorough examination of the particular situation.

© 2018 KPMG Advisory (China) Limited, a wholly foreign owned enterprise in China and a member firm of the KPMG network of independent member firms affiliated with KPMG International Cooperative ("KPMG International"), a Swiss entity. All rights reserved.

The KPMG name and logo are registered trademarks or trademarks of KPMG International.