



# Grid Transformation

Modernization Strategies | Technology Deployments | Business Cases

# Our Proven Utility Tools and Resources to Manage the Transition

Focus on UtiliGRIDMOD



**UtiliAPP** - Methodology for prioritizing data and analytics investments across a utility



**UtiliVATION** - A series of innovation frameworks and market insights



**UtiliGRIDMOD** - Processes and tools to embark on large grid modernization programs



**UtiliPERFORM** - Suite of tools for utilities to become operationally excellent



**UtiliSME** – Utility strategy management, planning and execution services



# UtiliGRIDMOD – Grid Modernization Tools



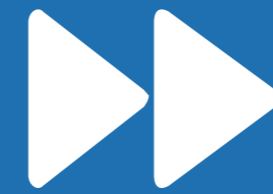
– Market leading process and tools to embark on large Grid Modernization programs

**Overview** – UtiliGRIDMOD is a process that helps utilities evaluate their maturity across smart grid technologies and embark on large scale grid technology transformation programs. The approach alleviates the complexity of cross functional planning and centers on building not only infrastructure within a utility, but also capability.

## Overview



## Approach



**Approach** – Our approach centers on three main areas including Maturity Assessment and Vision Alignment, Business Case Creation (DOE aligned) and Roadmap and Implementation Planning. Integrated programs generally fall into the categories of Analytics, Customer Empowerment, DER and Bulk Renewable Mgmt., Integrated Systems, Network Automation and Physical and Cyber Security.

**Tools** – UtiliGRIDMOD’s suite of tools centers on standard business cases, market assessments, technology maturity assessments, roadmapping and dependency management analysis and a host of lessons learned from smart grid deployments globally. Our consultants have built several large and successful smart grid programs globally.



## Tools

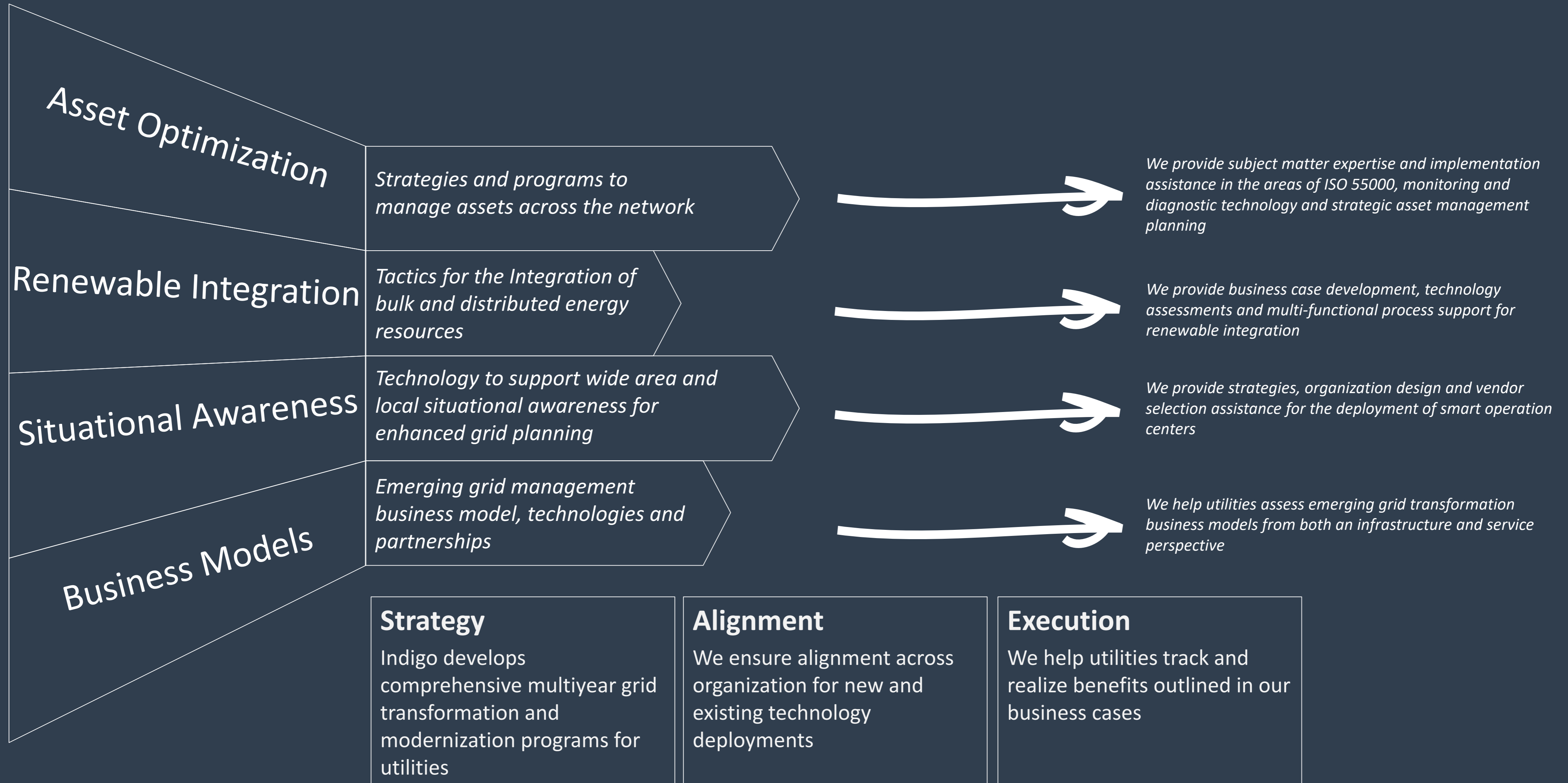


## Outcomes

**Outcomes** – With thorough business analysis we have helped utilities achieve a range of operational, financial and services benefits all while developing capabilities across renewables integration, situational awareness, improved reliability and resiliency and improved customer satisfaction.

# Building Grid Transformation Capability

From strategy to execution, Indigo helps utilities across the lifecycle of transformational grid programs



# Grid Transformation Elements

Coordinated investment strategies across all utility domains are the most successful



**Analytics**

The use of data analytics applications and techniques to gain insights and situational awareness of the grid in order to increase system reliability, enhanced customer experience, perform predictive reliability planning and expand real time operation of distribution system

**Customer Empowerment**

Investing to ensure customers have the necessary information to make informed energy management decisions in order to maximize their energy value and to support their access to third party value-added services and offerings while protecting their privacy

**DER and Bulk Renewable Mgmt.**

Investing in tools, resources and technologies to integrated bulk and distributed resources, including the identification of grid services that DER can satisfy and ensuring that overall interconnection process are expedited. In addition, ensure that a utility is pursuing appropriate asset ownership opportunities

**Integrated Systems**

Deploy foundational infrastructure and processes to support the integration of a smart grid data and to understand and manage the risks with new technologies while ensuring a single source of the truth and maximum application rationalization

**Network Automation**

Deployment of secure distributive controlled common smart grid software, hardware and communications layer across a utilities infrastructure

**Physical and Cyber Security**

Address the increased physical and cyber security risks and threats associated with Smart Grid system design, development, implementation, and operations by installing security at all levels of the deployment including equipment

Depending on the level of grid modernization maturity, utilities technology investments tend to follow a path of sensor deployment, communications upgrades and investment in back office applications, all why ensuring that assets are monitored and maintained in an efficient, safe and reliable manner.

# Approach and Tools to Modernize

Coordinated investment strategies across a network and in the IT/OT domain are the most successful

Strategy

Alignment

Execution

## Maturity Assessment and Vision Alignment

Utility sees an increasing need for:

- Security/Resiliency
- Renewables Integration
- Reliability, Flexibility
- Environment, Economics

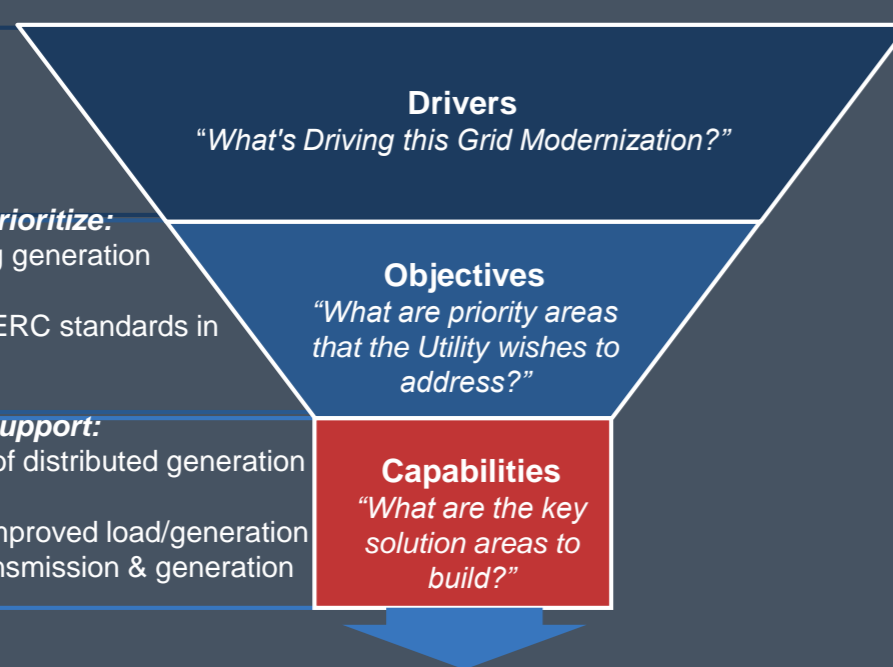
Aging infrastructure etc.

Grid Mod initiative has agreed to prioritize:

- Optimize the utilization of existing generation resources
- Ensure efficient compliance to NERC standards in existing and future projects
- Etc.

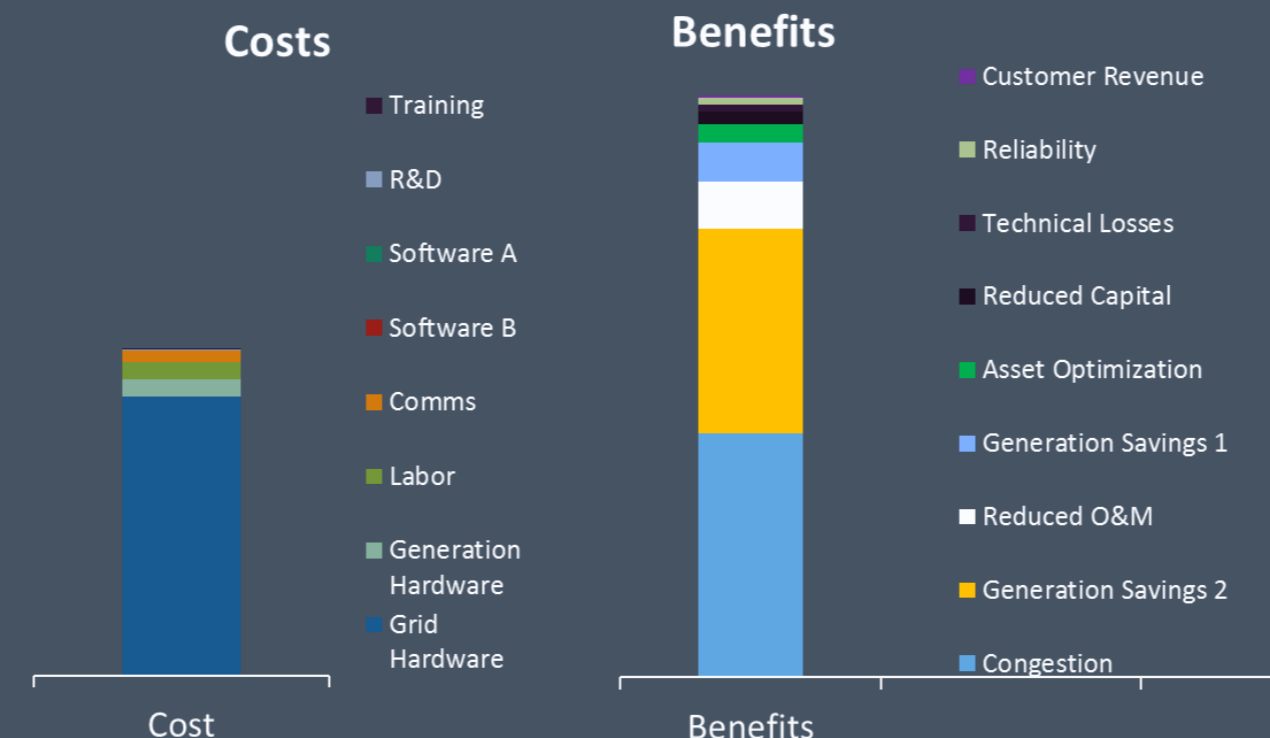
Grid Mod will build capabilities to support:

- Increased resiliency, Integration of distributed generation
- Enhanced situational awareness
- Integration of bulk renewables, Improved load/generation forecasting, Optimizing aging transmission & generation assets



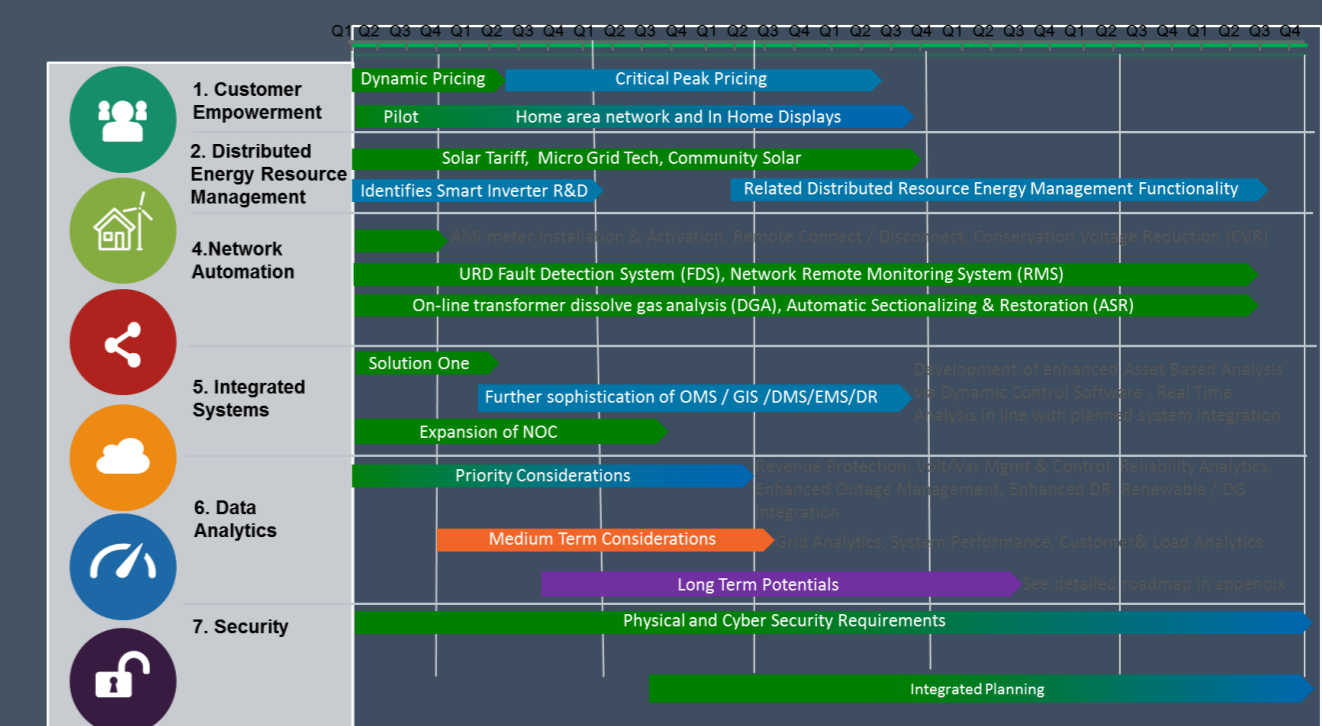
Indigo works with utilities to define the key capabilities that a grid transformation strategy are trying to achieve. We align executives on key requirements and then finalize a decisive strategy

## Business Case Creation (DOE aligned)



The creation of business cases with detailed sensitivity and NPV analysis including the assessment of alternatives is a crucial step to define recovery options and align the business to a benefits realization approach

## Roadmap and Implementation Planning



As grid modernization programs are large multiyear complex undertakings, a roadmap that links foundational investments and early quick wins and back ended benefits needs to be sequenced accordingly

# Indigo

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