

# Digital Blueprint

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Electric Utility Business Case Study

L.L. Blue  
Engineering

Envision | Explore | Discover

# A Path Towards Digitalization

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The electricity sector is ripe for realizing value from digital transformation. Through the convergence of advances in computing, explosions in R&D in advanced analytics, and embedded information built into smart devices, there has been no better time for electric utilities to begin a digital transformation. Companies have the opportunity to increase their infrastructure asset life cycles, optimize electricity network flows, and create new revenues to counteract staggering growth.

## Building Digital Muscle

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While digitalization involves some risk, a strategically executed digital transformation offers far greater reward for asset-intensive industries. The primary issues that drive digitalization for top-tier electric utilities are:



The increasing costs of maintaining LEGACY SYSTEMS



A need for NEW BUSINESS OPPORTUNITIES



Shifts in company CULTURE

# Legacy systems

For the last two to three decades, IT systems typically were revised or replaced every five to seven years, usually at great cost and with tremendous disruptions to daily operations, or they were revised only minimally (hence, remaining as “legacy systems”) to avoid these hazards. Thus, making ongoing improvements and effective changes to IT systems is particularly well-suited to digital and data-oriented changes.

## Legacy System Issues

### ▶ Lack of Adaptability

Older, legacy hardware and/or software cannot be easily integrated with newer technology. They aren't adaptable to change, and lead to a “start and stop” approach to system upgrades.

**VS.** the “Agile IT” option which lets organizations make smaller, ongoing changes, to eliminate the drag of legacy systems.

### ▶ Security Concerns

Inflexible & unable to withstand cybersecurity threats which can cripple a company's revenue and brand; ongoing changes are essential to meet the latest threats.

### ▶ Costly to Manage

Changing older systems becomes more costly with fewer personnel to maintain compatibility with newer apps.

Just as manufacturing organizations have implemented just-in-time approaches to inventory management to reduce inventory costs while maximizing their ability to ship expeditiously, it behooves the electricity sector to take a twenty-first century approach to their infrastructure to achieve maximum flexibility and customer responsiveness.

# Cultural shifts

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We're certainly "not in Kansas anymore," and in fact haven't been for decades. From the telephone to the cell phone to blue-tooth and myriad social media outlets and options, we are in the age of rampant, cascading exponential change...ad infinitum! Organizations must stay up and keep up, and respond to the shifting winds of social and cultural forces.

## Cultural challenges

### ▶ Changing workforce

- Newer employees expect current technology to be there to help them in their jobs
- Older systems are usually large, clunky, and proprietary, making changes very problematic. New systems are far more flexible and easier to adopt on an as-needed basis. IT workers much prefer the latter!

### ▶ Older, entrenched employees

May be hard to persuade to move to new technologies

- "We've always done it that way and it works fine!"
- "Not yet another corporate initiative."

However, once shown the how's, these employees learn to embrace the change but likely at a much slower pace.

### ▶ Fewer SMEs // Knowledge transfer from experienced to newer employees

Increasingly difficult to teach newer workers and get them on board in a legacy environment

Addressing ever shifting social and cultural currents will be vastly enabled by taking a digital approach, such that companies can more easily on-board new technologies and employees with fresh ideas. Being a digital business is really the only way to go!!

While digitalization will help improve the bottom line, electric utilities must seek new business opportunities to combat the downward trend in revenues and profits. Electric utilities must understand their strengths and weaknesses to position themselves to capitalize on new markets. There are deep wells of potential to be developed before and beyond the meter, such as digital field worker platforms, advanced network control systems, smart cities and homes, distributed energy technologies, and a host of other innovations. Electric utilities must unleash the expertise in their companies to recognize and solve the problems of the future and learn to build business models around these teams and solutions. They must become adept at building innovative teams and working with startups and technology partners to develop technology and not simply a user.



# Electricity Sector - New Business Opportunities Must Be Sought

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- Reduced electricity consumption has flattened revenue growth projections. New customer revenue sources must be discovered.
- Distributed energy resources and storage solutions are fundamentally changing the electric grid. Electric utilities must change existing business models and become technology builders.
- Declining cost of renewable technologies and batteries fueled by regulatory incentives is changing power generation at its core.
- Globalization is creating increased competition.
- Low prices for computational power is enabling improved analytics and learning models, thus fueling opportunities in the Industrial Internet of Things and mobile technologies.

Businesses must look at themselves as hybrid technology companies at their core because only then will they build the necessary infrastructure to adapt and see far enough ahead to capitalize on golden market opportunities. This is where the true “Blue Oceans” lie. They are not buried in the research reports of the “Big 4” consulting firms. Electric utility leaders must get out of the office and hunt for big problems to solve that only their expertise, data and capitalization can quickly bring to market.



# DIGITAL TRANSFORMATION

## Digitalization – The Value for YOUR Company

With all the changes and headwinds facing electric utilities, companies must align with consulting partners who understand their business at the core and are skilled in solving complex problems. From producing steam for spinning turbines/generators, to routing electricity throughout the grid to customers, L.L. Blue Engineering helps electric utilities transform their business by leveraging the latest technologies to improve safety, reduce O&M costs, and increase revenue.



# The Value of L.L. Blue... an Experienced Consultant

## Best Practices help prevent mistakes:

### ▶ L.L. Blue can help you...

- Leverage existing lessons learned from other asset intensive firms undergoing digitalization.
- Reduce cost of digitalization by utilizing L.L. Blue's technical resources to build "proof of concepts," allowing clients to avoid increasing head count during early stages of digitalization implementation. These proofs of concepts also help you realize proof of value for your digitalization investment.
- Focus on the details of building, executing and integrating new digitalization solutions.

## Apply industry-specific knowledge:

- 16 years' experience from the power generating station to the customer's meter.
- Deep domain knowledge of equipment, systems & technologies for routing power throughout the grid.
- A unique blend of operational, engineering & technology integration experiences to help ensure project success.

## Results achieved:

- Improved Operations (efficiencies, cost savings, revenue growth).
- Clearly defined use cases for high ROI digitalization projects .
- Improved digitalization execution by allowing internal teams to focus on the “Whats, Whys, When” of strategic direction while L.L. Blue focuses on the “How” to design, build & integrate.
- Reduced O&M costs by leveraging predictive maintenance tools & algorithms for improved plant operator awareness and insights.

# A Few Helpful Tips for The Journey



## Track emerging trends & key technology deployments

In the process of digitalization and beyond, it's imperative to stay abreast of new developments in order not to be left behind. Reviewing new approaches that leading companies in asset-intensive industries implement, and how they do so, is an effective means of maintaining your organization's lead.



## Think “Ecosystem”

Significant modifications, alterations or transformations, such as digitalization, require an all-hands-on-deck effort. Leaders in digitalization across all industries reduce risk and improve the odds of success by developing and nurturing an ecosystem of any or all of the following: executives, internal teams, technology partners, startups, and industry peers, and most important, an experienced external consultant.



## Endorse Open Architecture

To minimize the risks and costs of digital transformation, and to provide for maximum system flexibility over time, it's imperative to AVOID proprietary software that won't easily integrate with other applications. Open architecture allows your company to be nimble and ready to take advantage of that next advancement that suddenly appears on the technological horizon.



## Track achievement of desired outcomes via metrics

Documenting where your company currently is, whether electrical output, number & location of customers, P&L stats, time & manpower to complete projects, and so on, provides a baseline against which you can track progress and measure results as you digitalize. L.L. Blue can advise you on pertinent metrics to employ and guide you in setting realistic goals that can be adjusted if and as necessary.



## Predictive Maintenance for Highest ROI & minimal equipment downtime

In an effort to meet new customer needs, the electricity sector must continually improve their infrastructure to provide reliable service to all customers. Reinvesting in an aging, outdated grid is bumping up against flat or declining retail sales due to energy efficiency improvements and distributed generation, primarily rooftop solar that has become quite popular. So, utilities across the

country must stabilize their revenue streams while reducing risks such as equipment downtime. Identifying areas of high ROI/ROE, and then implementing predictive maintenance approaches will go a long way to maximizing efficiencies and the bottom line.



## Investment of Time ...

There's no free lunch or learning curve shortcut!! – Whatever approaches your organization takes, all levels of management need to recognize and accept that there are no shortcuts to making changes and improvements. A collective willingness to forge ahead with change, especially one as significant as digitalization, requires buy-in from everyone throughout the organization. Communicating on a regular basis and managing expectations are incumbent upon management in order to get strong employee commitment and head off resistance. Dispersing information through video, staff meeting notes, live round table discussion, open Q&A sessions, and the like, will go a long way toward forging united support and acceptance of the endeavor.



If your team is looking to digitally transform your business and increase profits and efficiency by incorporating some of the latest technology into your plants or facilities, connect with me at [kblue@LLBLUEng.com](mailto:kblue@LLBLUEng.com), or visit [www.LLBLUEng.com](http://www.LLBLUEng.com) for more information. We get super excited when asked to help retool a plant with technologies that will drive growth for the future.