To stay relevant in a quickly digitizing consumer world, utilities must consider how and where to deploy BPaaS solutions to reduce capital expenditures on routine IT infrastructure and accelerate their embrace of innovative services such as smart grid and smart meter projects.

Executive Summary

Business process as a service (BPaaS) has emerged as a cost-effective way for organizations to optimize how they deliver key business services. At its essence, BPaaS enables organizations to focus on their core business and tap third-party experts to deliver finance and accounting, supply chain and other commodity services such as human resources, marketing, analytics, asset management, etc.

From a meter to cash (M2C) perspective, BPaaS allows utilities to more effectively meet ever-increasing customer expectations for enhanced customer service experiences and broader service choices, while shifting to a less expensive Op-Ex model from a Cap-Ex structure. Moreover, BPaaS enables them to quickly modernize or replace legacy customer information systems (CIS) with ones that are capable of handling complex billing solutions with shorter billing and payment collection cycles. BPaaS also enables utilities to implement other functionalities such as the deployment of advanced metering infrastructure, cloud mass data billing to meet changing market dynamics, etc.
Beyond its cost benefits, BPaaS also enables access to best practices and new technology that would otherwise be expensive to implement. BPaaS delivers process optimization by standardizing functional areas such as customer account management, meter data management, asset and workforce management, work order management, rate management, billing, payment processing, and credit and collections. Moreover, it enhances utilities’ ability to boost customer experience management by offering web self-service portals, customer care centers, contact centers and customized products that address customers’ individual needs.

From an operations perspective, BPaaS’s pay-per-service commercial model enables utilities to scale up or down based on business needs, easy exit options, etc.

While BPaaS offers numerous benefits, concerns have emerged regarding implementation, such as the significant changes required at both technology and operational levels. Also, moving to BPaaS entails significant trade-offs between operational flexibility and cost reduction. Time and experience have also shown that the magnitude of cost savings is highly dependent on various other factors, such as proper assessment and implementation of business processes, analysis of total cost of ownership (TCO), due diligence of BPaaS partnerships, business volume fluctuations, time to market, position on the technology curve, etc.

This white paper addresses the business case for BPaaS versus the traditional IT as a service (ITaaS) model. It also reveals the market opportunity for utilities interested in transitioning to BPaaS.
Utilities are often trapped between providing superior customer experience and optimizing operational efficiencies. In many cases, BPaaS is the answer to this challenge.

**WHY UTILITIES SHOULD CONSIDER BPaaS**

Utilities face numerous challenges in managing their M2C processes and other key procedures due to regulations that mandate the implementation of smart meters. Often, legacy CIS cannot handle continuous data from smart meters and lack complex billing capabilities based on such meters' interval data. This prevents utilities and customers from reaping the complete benefits of smart meter implementations.

Utilities are often trapped between providing superior customer experience and optimizing operational efficiencies. In many cases, BPaaS is the answer to this challenge. It will enable utilities to satisfy demanding customers and rein in the ever-increasing costs of M2C processes and other challenges, as outlined below:

- **Smart meters require numerous upgrades to CIS and core business processes.** Utilities should be able to change the billing processes to introduce complex scenarios such as time-of-use (ToU) pricing, dynamic pricing, net metering, etc. CIS should be adept at processing the large volumes of real-time data generated by smart meters. Moreover, utilities should be able to effectively change other processes, such as activating remote meter connect/disconnect during move-in/move-out and transfer processes; communicating real-time consumption data to consumers to support energy management programs; introducing new demand management programs, etc.

  Similarly, utilities should be able to change their outage management systems to act proactively on outages based on alerts received from smart meters. Unfortunately, however, new billing rules are difficult to configure in legacy CIS and require considerable customization. Many utilities lack the expertise to handle the process changes required to meet industry standards and outrun the competition. Replacing heritage CIS can be very costly to smaller utilities.

- **Key revenue generation processes lack the latest technological capabilities.** Across the utility value chain, M2C processes are the primary means of customer service and revenue generation. Hence, they need to be streamlined, accurate and on par with the latest industry standards. Many utilities customers still rely on the contact center to report service issues, make service requests, question billing issues, etc. This tendency is either due to the lack or insufficiency of other channels such as web self-service portals to efficiently handle customer-facing processes. Many utilities still send a majority of their bills as printed copies via the mail system, thus incurring huge costs; and many utilities accept only checks or cash from customers paying a bill over the counter.
The customer experience most utilities deliver is subpar compared with other consumer-facing industries. Utilities must raise the bar by delivering a consistent and intuitive customer experience that spans the customer care center, integrated IVR, web self-service, mobile app, SMS, fax, e-mail, chat and many other tools.

For many utilities, outage communications and power restoration remain reactive. The use of real-time alerts is yet to be incorporated widely. Hence, many utilities need to refine their M2C processes by embracing digital technology that will simplify and cut costs on business-critical processes.

- **Costs keep rising.** According to a report by Everest, M2C operations cost utilities 1% to 2% of their total revenues, whereas in other industries similar processes, such as order-to-cash (O2C) operations, cost only approximately 0.2% of revenues. In today’s challenging economic environment, utilities must seek opportunities to reduce costs even as they strive to meet the changing demands of customers with innovative services.

- **Customer experience lags customer needs and expectations.** The customer experience most utilities deliver is subpar compared with other consumer-facing industries. Utilities must raise the bar by delivering a consistent and intuitive customer experience that spans the customer care center, integrated IVR, web self-service, mobile app, SMS, fax, e-mail, chat and many other tools.

- **Utilities must proactively serve more demanding customers.** Customers demand more control over their consumption patterns through demand response and energy efficiency programs. They want live tracking of their energy consumption. Therefore, business processes must be capable of meeting such requirements.

### Factors Driving the Need for BPaaS Adoption by Utilities

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<th>Legacy CIS</th>
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<td>• Several upgrades required in legacy CIS to handle complex billing.</td>
<td>• M2C processes are key for customer service and revenue generation.</td>
<td>• M2C operations cost 1-2% of total revenue.</td>
<td>• Utilities’ customer experience is subpar compared to other customer-facing industries.</td>
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*Figure 1*
An Everest Group study found that BPaaS offers companies across industries an opportunity to reduce the TCO by 30% to 40%.

**Many Benefits of BPaaS**

Cloud services can be used on an as-needed basis through a subscription model, thereby avoiding the huge up-front investments typically associated with in-house development of business-critical applications/software solutions.

By turning to a BPaaS provider, utilities can concentrate on strategically essential matters such as innovative new service offerings, ensuring uninterrupted power supply during extreme climatic situations, partnerships, marketing concepts, etc.

For mid-tier utilities, some of the many benefits of BPaaS include:

- **Lowers TCO:** An Everest Group study found that BPaaS offers companies across various industries an opportunity to reduce TCO by 30% to 40%. Utilities can save money earmarked for replacing or upgrading their legacy CIS to handle complex billing and meter data by employing modern applications and infrastructure hosted by BPaaS cloud providers. Utilities can lower their Cap-Ex and Op-Ex associated with the deployment and management of core business processes through consumption-based BPaaS commercial models.

- **Configurable solutions:** Cloud-based BPaaS solutions are standard industry applications that can be used by multiple enterprises after they are configured according to the utility’s specific business requirements. BPaaS applications can be accessed through standard APIs, facilitating their integration with existing applications.

- **Scalability:** With the pay-as-you-use model, utilities can expand their business without requiring any additional Cap-Ex investment to handle increasing loads. Also, application standardization reduces deployment time.

- **Focus on core business activities:** Utilities can invest more time on core operational activities while BPaaS service providers take care of the time-consuming and specialized activities of managing automated business processes.

**BPaaS Opportunities**

As noted above, any business process that can be automated can be deployed as a BPaaS solution in the cloud for use by multiple enterprises, using a pay-as-you-use model. Across the utility
In the value chain there are multiple processes that can be offered as BPaaS such as M2C processes, web-based customer care solutions, care center processes, outage management, analytics, and various transmission and distribution processes. According to research by the Everest Group, M2C processes are significant to utilities because they are key revenue generators that connect directly with customers. Customer billing is linked directly with meter reading, and with the advent of smart meters it is critical to embed the smart meter readings with the billing system and other critical M2C applications. Making changes to the existing meter data management (MDM) and complex billing system requires industry expertise in handling large amounts of continuous data and complex billing scenarios and would be a time-consuming, cost-intensive exercise for small and mid-level utilities. Hence, deep industry knowledge and expertise with the low Cap-Ex investment option are essential while implementing these processes as IT solutions.

**QUICK TAKE**

**BPaaS in Action**

The utilities industry is among the laggards when it comes to BPaaS adoption. Here are examples of how the model is being used in other industries:

- **Clinical data management as a service**: One of our large life sciences clients adopted BPaaS solutions for discovery, clinical data management (CDM), clinical operations, and remote monitoring and regulatory services. Our CDM BPaaS solution enables this customer to focus on its core business activities while we assume the end-to-end ownership of the business processes. The customer adopted flexible and scalable pay-per-use solutions, coupled with superior technology for clinical data management and pharmacovigilance processes.

- **Unified insurance platform**: In today’s digital world, the platform becomes the process. Our unified insurance platform is offered as a BPaaS solution to P&C insurance companies for underwriting, billing and claims services. The platform is delivered on a scalable pricing model benefiting cash flows and the operating expense budget. It also improves customer management by providing an integrated database for policy, billing and claims data. Moreover, it enhances operational efficiency through automated workflows, increased customer self-service and implementation of digital assets, while also boosting business growth by passing on cost savings to customers and using the latest, best-in-class technology. Our unified insurance platform offers flexibility to host the solution on premises or via the cloud.
Also, with the increasing costs of handling customer calls, utilities must shift such interactions to web-based customer care solutions such as portals, chatbots, e-mail and text message support. By deploying BPaaS, utilities derive the benefits of BPaaS providers’ domain expertise in implementing automated solutions for M2C processes and web customer care solutions.

With the implementation of smart meters and smart grid infrastructure, utilities face regulatory mandates covering the usage of data from smart assets to improve outage restoration processes. This requires process changes in their outage management systems to handle grid downtime more efficiently and effectively, resulting in an accelerated restoration of service. BPaaS services can reduce the cost of implementing such changes.

Utilities can utilize and configure the standardized outage management solution offered by their BPaaS service provider. BPaaS solutions can also be implemented in managing the latest service offerings, such as demand response programs, customer interaction tools and home management solutions.

The vast amount of data from smart meters has created another opportunity for utilities to analyze the customer consumption trends in real time and manage the demand and supply more efficiently. Utilities can apply analytics solutions provided by BPaaS providers to smart meter data in order to predict demand. They can use smart meter events data for theft detection and meter management, customer call data to enhance customer experience, asset data for predictive maintenance, etc.

BPaaS services can also include transmission and distribution processes such as asset management, predictive maintenance, load balancing, demand forecasting, field services and smart grid management, coupled with analytics services (see Figure 2).
SERVICE & DEPLOYMENT VARIANTS

BPaaS implementation involves two actors — a service consumer (i.e., a utility company in this context) and a service provider — as well as a cloud service stack consisting of several layers. Responsibilities for ownership, maintenance and location of each layer is established in the service agreement, which in turn determines the architecture of the BPaaS delivery model.

In an ideal BPaaS delivery, the ownership and maintenance responsibility of each layer lies with the service provider. The BPaaS implementation includes three layers: infrastructure, application and business process (as depicted in Figure 3). The customer typically determines the location of the business layer — e.g., whether the layer should reside at the customer’s premise, the provider’s premise or at an independent location. Based on the location of the business layer, it is then integrated with the other layers using APIs. APIs can be used for accessing applications between the service consumer and the service provider.

HOW BPAAAS ALIGNS BUSINESS WITH CLOUD DELIVERY

Extending on-premises solutions, or moving to the cloud, has challenged every utility. Many utilities today still run their core functionalities, such as field service management and billing systems, in on-premises systems, which increases Cap-Ex.

Utilities have been facing tough competition over the past two to three years, as customers have become more empowered, and have been given the option to choose multiple energy providers for their various needs. This has created an acute need to differentiate and provide a unique selling proposition.

To meet this new challenge, utilities have to evolve and stay relevant. An on-premises solution cannot provide the benefits of cloud computing. Utilities have gradually begun to move to a cloud BPaaS model due to the virtualization and scalability it provides.

Consider M2C services, which can be customized for every utility and each of its services can be offered as a SaaS solution delivering a quick time to market. Field operations, for example, is a key element in M2C services, and it requires that a system be in place to effectively route and schedule. But utilities have struggled with isolated systems such as work orders, asset management, field data collection, etc. They have spent millions of dollars trying to make the best use of these systems. But an IT service provider can bundle these up and provide them as managed cloud services. There are no up-front costs like servers, storage devices and backups — and they require no software licenses for the application, operating system and database. In SaaS, each enterprise has a custom-developed solution; there is no common solution for use by all utilities.

But the value benefits for BPaaS don’t end there. We have seen utilities with problem statements concerning a unique organic core functionality — billing, for example — that runs in their legacy systems. Since it’s an in-built system, this core functionality can’t simply be replaced. At the same time, the utility can’t keep spending money to run it on outdated systems. A service provider can help in such cases by overhauling the entire billing system and moving it to a hosted cloud platform. This enables the utility to make use of PaaS to sell this custom-made solution to smaller utilities on a licensing model.

The service provider brings other benefits to the table such as an understanding of market factors like the switch from regulation to deregulation, base rate changes, forecasting from usage, complex billing, etc. This expertise gives the utility much more flexibility, allowing it to expand to
Utilities have been facing tough competition over the past two to three years, as customers have become more empowered, and have been given the option to choose multiple energy providers for their various needs. This has created an acute need to differentiate and provide a unique selling proposition.

**Alternative BPaaS Implementation Models**

Service orchestration refers to the arrangement, coordination and management of cloud infrastructure to provide different services that meet IT and business requirements.

Service management refers to all service-related functions necessary for managing and operating cloud services. The service management of the BPaaS layer is determined by the service agreement and location of the BPaaS layer.

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**Figure 3**
international markets. In this PaaS offering, the utility stands to earn a lot of income as it doesn’t need to worry about the hardware, middleware or operating system.

Figure 4 depicts the systems in control for each service model in accordance with their needs. A BPaaS cloud service model sits on top of other cloud services, is configurable based on the need and allows the utility to control nearly everything or source almost all functions. Consider the case where a utility seeks to create better customer relationships. The utility must customize interactions, messages and offers based on a customer’s past record or specific needs. Collecting data is easy but the real value can get lost in never-ending documents and disparate systems. This requires a close analysis of data and system integration across the entire billing, field services and CRM modules.

Using a cloud services provider, the entire M2C process can be moved to a privately hosted cloud infrastructure. It will have well-defined APIs that can be easily connected to all systems in the value chain. The information that the utility requires to make an informed decision would be readily available through web interface platforms. The service provider would control only the hardware part of the process, as seen in IaaS.

This also enables the utility to deliver an omni-channel experience to its customers.

The utility can utilize big data analytics to develop predictive models that can forecast better and provide improved customer service. For instance, by analyzing the trends from customer complaints and field service routing, outages can be predicted — thereby reducing costs, improving reliability and promoting customer engagement.

MOVING BPAAS BEYOND CONVENTIONAL USAGE

BPaaS implementation utilizes cloud-based infrastructure and does not involve any fixed costs for customers, thereby allowing them to concentrate on core capabilities. The BPaaS setup can also handle massive scaling — from a few processes to thousands across different modules, as per the utility’s requirement. Of course, these requirements can change over time. It is essential for the service provider to be agile and flexible in adapting to shifting market landscapes and business developments.

Because of this, utilities prefer service providers running cloud-hosted solutions from a hybrid cloud. The hybrid cloud is not an ownership model on its own. It stems from its relationship with other clouds. It is multifaceted as it pro-
vides the flexibility and scalability offered by a public cloud without compromising on the security, confidentiality and legal compliance that is addressed by a private cloud.

From a utility’s perspective, a private cloud can be created to handle applications that run on customer data, such as billing and metering. And a public cloud can be used to run SaaS applications that handle the front-end customer service, marketing, etc. A hybrid cloud makes perfect sense for the utility industry because of the support it can provide for mission-critical applications through cloud-bursting.

For example, a utility may have data-intensive functionalities, such as retail pricing calculations, customer billing or analyzing smart meter data – which is received at regular intervals throughout the day. This approach can cause performance issues during peak overload, which utilities must be aware of to avoid outages. Therefore, utilities require a failsafe mechanism – and this is where cloud-bursting is useful. A hybrid model will have multiple cloud instances running an application, thus ensuring that user requests are properly distributed. It utilizes a load-balancing technique to immediately redirect the excess to another private/public cloud.

A hybrid cloud deployment model (see Figure 5) requires support from the service provider throughout the project’s lifecycle. It should include application management such as application support, middleware administration, database administration, BI support and annual maintenance (software and hardware). It should also include infrastructure management such as server management, storage management, data center operations, cloud administration and renewal of product licenses. A hybrid model run by a service provider offers a flexible approach for combining different cloud resources along with the advantage of pay-per-use mechanisms; it can easily scale cloud applications up and down to provide a secure cloud environment.

**Hybrid Cloud: Service Design**

![Figure 5](image-url)
GETTING THE MOST FROM BPaaS

To optimize the odds of success for an organization implementing BPaaS, we suggest the following best practices:

• **Ensure end-to-end process visibility.** BPaaS should offer a total view of business processes across organizational boundaries. This will save time and money in implementation, especially where there are multiple participants and numerous variations.

• **Use a framework to assess and implement business processes.** Rushing headlong into BPaaS to achieve cost savings and other benefits could do more harm than good without proper preparation. It’s important to take the time to define the solution and understand the existing environment, and also to prepare for the new environment with a well-considered transition and transformation program.

• **Set realistic change management expectations.** Embracing BPaaS requires utilities to trust the expertise of the service provider. It also means the enterprise must be willing to consider making changes to existing processes in line with the BPaaS provider’s offering. Any reluctance to make changes to existing processes could undermine BPaaS’s potential benefits. Since the service provider is typically a domain expert, the redesign in the process should lead to industry-level improvements and enhancements.

• **Build a TCO-based business case.** Total cost of ownership needs to be analyzed at each layer of the BPaaS service model. If the combined costs of implementation and changing the existing processes outweigh the savings anticipated by adopting a subscription model, then take a step back and reassess the business cases for BPaaS adoption.

• **Consider a trade-off between TCO savings and the flexibility of the business process services.** BPaaS provides standardized processes used across the industry such as billing, rate management, complex billing, order processing, etc. Though these processes can be customized and configured for each enterprise, flexibility to customize the solution is often limited to narrow exceptions.

• **Map out a careful change management process.** BPaaS implementation requires both technological and operational changes, and also demands stakeholder and upper management buy-in. There needs to be a proper change management strategy in place before proceeding.

• **Conduct a thorough evaluation of the BPaaS partner.** Make sure to assess the applications, workflows, application wrappers, security aspects and commitment to service before signing on the bottom line.

• **Determine the scalability of the solution and the ability of teams to meet peak demand periods.** As the business expands, the solution/applications should be able to handle the volume. It should offer flexibility to handle additional loads via a consumption-based commercial model.

• **Establish key performance indicators.** For example, “99% of all bills should go out on time.”

• **Set up governance that adapts to a new business architecture.** With BPaaS the role of in-house resources moves from managing processes to managing the relationship with the service provider. If the parties do not agree and get along with their new roles, a lack of alignment could diminish the value of BPaaS.
LOOKING FORWARD: MITIGATING CHALLENGES

BPaaS offers many benefits, as detailed above, but there are always two sides to a coin. It is necessary to understand some of the challenges that come with BPaaS implementation:

• **Transparency in process:** For an overhaul of legacy systems to a cloud-hosted data center, a service provider needs complete understanding of the entire business process. This can be exhausting, considering that multiple retailers, distributors and vendors are involved. It is imperative that the utility involves all the necessary stakeholders in the decision-making process to ensure that the BPaaS offering has no ambiguity.

• **Compliance issues:** The service provider will need access to the utility's data in order to implement the BPaaS model. If the SLAs and confidentiality clauses are not explicit enough, legal issues pertaining to data security or storage could arise.

• **Restructuring issues:** There must be a plan in place to make sure that the transition to cloud data center is not done hastily. The utility must provide the necessary control to the service provider for restructuring. Some utilities may find that a tough pill to swallow, but it will help in the long run as with a change to BPaaS, the service provider is responsible for supporting multiple modules and will be accountable in case any issues arise. This will ensure a rapid fix.

• **Factors outside the utility’s control:** Utilities see BPaaS as a way to significantly reduce operational costs, and gain access to the latest technology, innovations and the talent pool that comes along with it. However, there are limitations (political and/or cultural) specific to every country – such as government regulations or unionized environments – which pose the biggest challenge to BPaaS services delivered from multiple offshore locations. Being prepared means keeping this risk in mind.
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FOOTNOTES

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