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Emerging Energy Value Ecosystem

Volume II

Grounding Utilities' Innovation and Business Oportunities by **Collaborating with the Ecosystem**

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Grounding Utilities' Innovation and Business Opportunities by Collaborating With the Ecosystem

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Speeding Up Execution and Innovation

Utilities across Europe, especially in liberalized markets, are under pressure to transform their organizations to make them nimbler, acquire new capabilities for innovation, and ultimately tap into new revenue streams.

As utilities know all too well, however, it is hard to change large, complex organizations from the inside out. This is especially true when the speed of change demanded by the market is higher than an organization's ability to change, and when the traditional way of doing business is deeply-rooted in a company's DNA. When these conditions are met, outside-in disruption is often easier than internal evolution.

Over the past few years, utilities have come to realize that, if they want to enable change on a shorter timescale, they need to establish a different relationship with their ecosystem, and ultimately let the outside in. From this fresh perspective, European utilities are starting to ask themselves whether it is more efficient to offer new products out of their core organization or spin them off into a separate company; whether acquisitions are the best way to extract value from the ecosystem, or whether they are missing out on opportunities to generate business ideas by sticking to the traditional innovation channels.

In order to dig into the complexity of the industry transformation, TCS commissioned IDC to conduct a study involving utilities across Europe. The study focuses on understanding the opportunities for utilities, the changes in their operating model, and the technological impact of digital transformation. With both country and value chain perspectives, this paper seeks to explore the following questions:

- Which organizational models are utilities planning to use to deliver new energy products and services?
- What are the prevailing collaboration models between utilities and their ecosystem?
- What initiatives are utilities adopting to drive new business ideas and solutions from across the ecosystem and internally?
- What are utilities' most hard-felt skill gaps when it comes to digital transformation? And who are the go-to partners to help fill them?

Energy Services Delivery: New Today, Core Business Tomorrow

47% of European Utilities run new business within the perimeter of the core organization. 26% create a dedicated strategic BU.

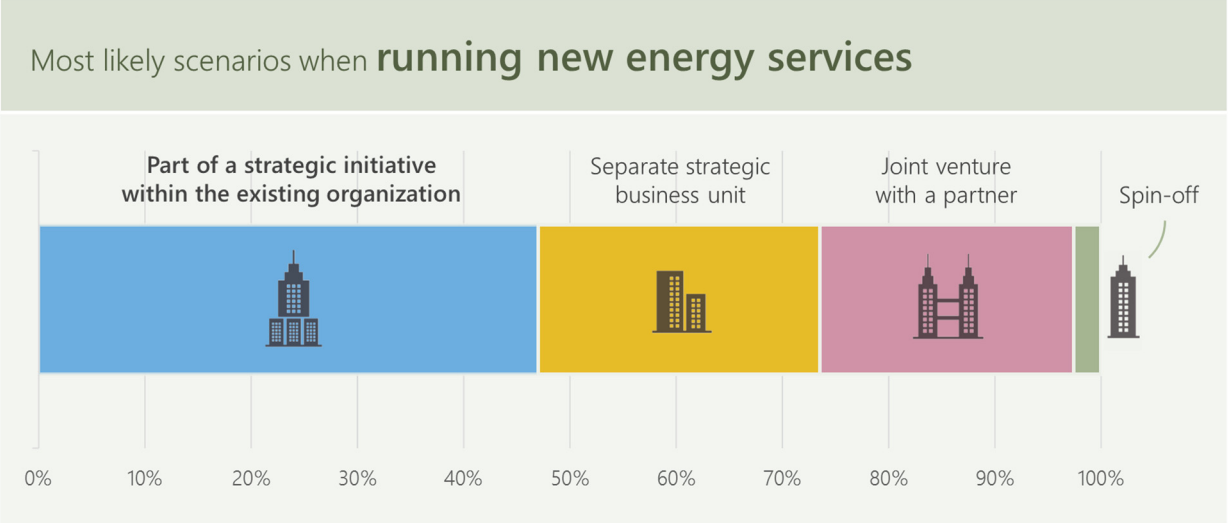
Looking around Europe today, it is hard to find a single utility that is not looking at new energy services as a strategic theme. In fact, in their broadest definition, value-added energy products and services are the very building blocks of many utilities' future business model.

A testament to their strategic nature, these new energy services are most likely to be kept abreast of the utility organization. Utilities expect to either run them as a strategic initiative within the perimeter of the core organization (47% of European utilities) or go a step further and envisage the creation of a dedicated strategic business unit (BU) (26%). The latter is particularly popular in the U.K. and Ireland, where 55% of utilities expect to deliver new energy services via a new BU.

These BUs have their own dedicated teams and resources, as well as targets and accountability, and demonstrate a more concrete push by the utilities to have new energy services become an important part of their future revenue streams. In some cases, the business unit generates a dedicated company, with its own brand. The U.K.'s Centrica, for example, runs its Hive smart thermostat brand and connected home service offering through a dedicated subsidiary operating across the group's geographies (Centrica Connected Home). Allego, a daughter company of Dutch distribution system operator (DSO) Alliander offers e-vehicle charging solutions and charging infrastructure management for municipalities, business, and local transportation companies. Italian municipal multi-utility A2A has created A2A Smart City, a subsidiary managing all innovation and deployment activities of the company's newly created smart city enablement business area.

Figure 1

New Energy Services: How Will They Be Run?



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Source: IDC Energy Ecosystem Survey, 2016 – commissioned by TCS

About one in every four European utilities envisages running energy services in tandem with a partner, be it industrial, technologic or commercial, reducing risk and mutualizing value — a significant departure from the traditionally autonomous operating model used in the commodity business. When a strategic partner is involved, utilities will seek to maintain part-ownership of the new energy businesses through a joint venture. At 10 percentage points above the average, Nordic utilities are more likely than their European counterparts to go to market with a partner.

Finally, less than 3% of utilities plan to spin off new energy services from the larger historical organization to respond to very disruptive external market factors. French and Belgian utilities expect to more actively spin-off innovative companies than their peers elsewhere in Europe, at 10% and 20% respectively. Conversely, no energy distributor thinks regulation will allow them to spin-off innovative services in the near future.

Collaboration to Foster Change

60% of European utilities collaborate via strategic partnerships. Just under 50% are even creating joint ventures.

The rate of technological change has surpassed the speed at which complex organizations learn. Therefore, during periods of disruption, the issues facing large companies are often about knowledge and culture and rarely about technology. In other words, transformation often requires a new mindset and fresh skills. But how do you change the mindset of large organizations where the traditional way of doing business is deeply-rooted in the company DNA? And how do you attract fresh skills in a world of cut-throat competition for the best engineering and digital talent?

While there is no quick fix to this, European utilities have come to realize that the days when they could expect to transform in isolation and innovate in-house are long gone. In fact, most have changed their approach to collaboration, leveraging the ecosystem to educate their organization, access talent, stimulate innovation and gain speed. And while in many cases innovation still germinates from within the organization, the external ecosystem is a true enabler.

Among several emerging collaboration patterns, utilities still consider customer-supplier relationship as the leading vector of collaboration within the ecosystem (75%). This should not surprise as, more than ever, a utility's relationships with its technology and business service providers are quintessential to its ability to transform. And with margins under pressure, the drive to extract value from service contracts has never been stronger, as demonstrated by the increasing appeal of co-creation practices and outcome-based delivery models. The growing importance of suppliers is also a natural implication of the expansion into new, non-commodity market segments. In fact, companies that are more actively engaged in offering new energy products and services are also more likely to see stronger ties developing with their suppliers.

Although the customer-supplier relationship is considered a critical source of ecosystem collaboration by utilities right across Europe, it is almost universal in utilities in the Nordics (at more than 93%) and France (85%).

AGL and TCS

Co-Innovating in a Customer-Supplier Relationship

As competition increased in the Australian energy market, a growing number of energy brokers emerged to help Commercial & Industrial (C&I) energy users negotiate increasingly complex commodity supply contracts with their suppliers. Over the years, brokers have become the prominent entity catering to the C&I segment, and more than 130 of them are currently active on the market. Despite intermediaries being very capable of comparing commodity prices, AGL found that transparency was generally lacking, impacting trust in suppliers. Issues included undisclosed commissions and intermediaries negotiating separate, more expensive metering agreements.

AGL reinvented the model to favor a low-cost and more transparent channel to market, enabling its customers to buy energy in a clearer, simpler, and more effective manner. The company thus embarked on creating a cloud-based electronic centralized platform for price discovery and acceptance to allow C&I consumers to access the energy market in a more transparent manner. To realize its goal, AGL tapped into its ecosystem of partners, specifically leveraging its strategic relationship with TCS. For the project, TCS mobilized stakeholders from the Indian Institute of Technology, Mumbai, and the Exchange, India, as well as Tata CliQ, an emerging player in the ecommerce space.

The Business Energy Marketplace (BEM) was created to function at a tenth of the price of the existing intermediary-led model for C&I customers, creating a new disruptive business model in a thin margin market. Business customers can quickly and simply register themselves to the platform and offered services. The platform normalizes retailers' offers for simple comparison, breaking down the price components mentioned in an offer from all the participating retailers. Also, BEM does not recommend any retailer as it is a neutral marketplace. The platform allows customers to obtain quotes three times against their subscription fee.

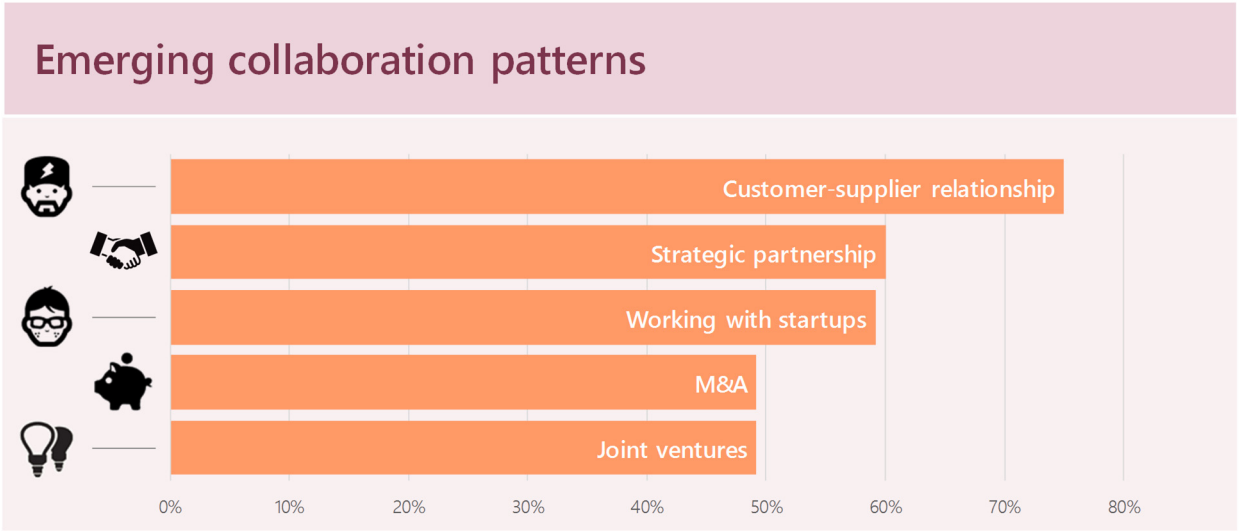
Retailers access the platform via a dedicated encrypted box through which rate cards are pushed so comparable quotes can be used to make a deal. The rate card concept is new and unique to the industry, and originated in a concept workshop between TCS and AGL. Notably, the rate card enables an offer to be made in real-time to the customer. The platform also has built-in functionalities for energy retailers to manage and streamline the sale and transfer process.

AGL is in the process of making BEM a reference platform for the Australian market. Six to seven other retailers are interested in buying ownership into the platform. BEM will become a retailer-agnostic marketplace, of which AGL retains the IP and the ability to expand into other markets in the future.

Significant attention is also going toward establishing strategic partnerships (60%). Here, utilities share hard benefits with partners that can support their digital transformation (DX) with talent and technology enablers they currently do not have in house. This approach is particularly attractive for utilities across Belgium (80%), Germany (75%), the Netherlands (70%), and, to a lesser extent, Southern Europe and some of the Nordics. RWE-Siemens' joint virtual power plant project Smartpool is a perfect example of a technology-driven industrial partnership.

Figure 2

Which Collaboration Models?



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Source: IDC Energy Ecosystem Survey, 2016 – commissioned by TCS

Collaborations with the plethora of startups that populate the energy and digital technology landscape are also increasingly sought, especially around emerging technology. Just shy of 60% of European utilities observe this as an emerging pattern, with spikes of over 90% across the most innovative utilities in France and the Netherlands, and a minimum of 48% in the gas industry. These partnerships are mutually beneficial in that they expose utility organizations to cutting-edge technology and ideas, but also bring utilities' technology and engineering expertise to help fledgling companies develop ways to integrate their innovations into the business fabric.

RWE and Siemens

Expanding on a pilot the two companies carried out in 2010, in 2015 RWE and energy technology provider Siemens announced that they were jointly building a future-oriented technology platform capable of connecting a large number of electricity market participants in a single virtual power plant (VPP).

While the concept of VPP is hardly new, the companies were the first to work on a cost-effective solution for integrating producers, consumer loads and storage units on a mass-market scale, effectively filling a void in renewables-rich Germany. Once operational, the high-tech backbone (effectively an energy information and control system) will serve the needs of different target groups, including producers, aggregators and grid operators. It will increase the overall system performance, expanding the ways in which DSOs can integrate distributed generation to further optimize grid stability.

Blockchain and distributed ledger technologies come to mind as a technology domain that is rife with startup-utility collaborations, such as those between Innogy and Slock.it in Germany and between Vector and Power Ledger in New Zealand. The German pair have launched a blockchain-powered service enabling e-vehicle users to share or rent their charging infrastructure on their own terms (permissions, hours) and tariffs, using a mobile app. In New Zealand, DSO Vector is trialing peer-to-peer trading of electricity from solar panels and batteries across 500 sites in Auckland using a blockchain-based trading platform provided by Australian startup Power Ledger.

A natural extension of collaboration with startups and emerging technology companies is direct funding (or other form of incubation) and acquisition. On the one hand, industry incubators are mushrooming in Europe and all the biggest names in the business have developed their own accelerator programs, including Enel (INCENSe), Engie (ENGIE Fab), Innogy (Innovation Hub), E.On (:agily), and EDF (Pulse). On the other, as many as 49% of utility companies see M&A as an emerging opportunity to extract value from ecosystem collaboration, with peaks of 80% in the Nordics and 56% among energy retailers.

A few examples from the past couple of months include:

- Dutch utility Eneco's acquisition of a minority interest in U.K.-based energy data analytics company ONZO. This fits into a broader strategy initiated by Eneco in 2012 with its investment in Toon, a smart thermostat platform then owned by Quby, which is now fully owned by the Eneco Group.
- Engie's acquisition of EV-Box a Netherlands-based company selling charging infrastructure and related cloud-based services, with an installed base of over 40,000 charging points across 20 countries. This marked Engie's first major investment in one of its high-growth strategic priority areas.

- The acquisition of VCharge, a U.S. company offering a proprietary load control and aggregation technology platform, by independent British energy supplier OVO Energy. The acquisition will allow OVO Energy to offer heating control upgrades to its residential customer base as part of its energy offering.

Interestingly, of all European utilities, the British ones look significantly more reluctant to collaborate with the ecosystem, save for traditional customer-supplier relationship. Less than 20% see strategic partnerships, M&As and startup collaboration patterns emerging, versus continental averages around or well in excess of 50%.

Procuring the Raw Material for Innovation

How Ideas Are Generated

Along with an "open ecosystem" culture, utilities are also changing the way ideas are pollinated to become innovation. Not only are they learning to master the art of outside-in idea generation, using top-down, bottom-up and lateral approaches alike (e.g., academia, focus groups, hackathons). They are also creating "organizational ecosystems" in which internal idea generation is catalyzed and innovation industrialized.

34% of European utilities use hackathons to drive new business ideas and solutions.

Utilities around the world are under increasing pressure to deliver on customer expectations that are formed in more digitally mature industries, where companies have successfully established a more intimate relation with their customers using data. As a result, companies that barely knew who their customers were only a few years ago are learning to be "demand-oriented." This is demonstrated by the relevance of focus groups on service usability and customer experience (CX) as a method for idea and solutions generation. As one would expect, the use of such focus groups (60% on average, across European utilities) tends to grow with the level of competitiveness of the energy markets considered, reaching 75% in the U.K., and 80% in the Netherlands and the Nordics. It is as low as 45% in Germany and 50% in France.

A close runner-up for the generation of digital innovation is partnering with academia, especially across Germany and the Nordics, where more than 70% of utilities say they partner with universities in key digital initiatives.

Utilities have a long heritage of collaboration with electrical and electronic engineering faculties locally and internationally. Direct research funding and technology transfer, curricular innovation, graduate programs and staff mobility between academic and industrial research have been the main levers of such collaborations. However, some of Europe's largest utilities are taking this one step further, moving entire elements of their innovation machines into some of the world's top campuses. Like Enel, which recently announced the opening of an Innovation Hub at University of California, Berkeley, a world-leading academic institution for electrical engineering and computer science.

Enel Innovation Hub at UC Berkeley

The new Enel Innovation Hub is the result of a partnership between the Italian multinational and the CITRIS and Banatao Institute, a State-funded organization and invention ecosystem sitting with UC Berkeley, whose mission is to create IT solutions for society's most pressing challenges. Enel is the first corporation to establish a unique partnership with CITRIS that leverages both startup innovation through the CITRIS Foundry Accelerator and world-class academic research at UC Berkeley.

The new hub joins the CITRIS Foundry, an on-campus startup accelerator focused on deep technology companies from the University of California. This will enable Enel to scout promising Berkeley-affiliated startups to develop business projects both in the U.S. and across Enel's footprint of more than 30 countries. Selected startups will receive mentoring by Enel experts, and technical and business support for quicker go-to-market. An Enel innovation manager will manage the hub and act as a link between the local startups and the company's other startup networks in Israel, Brazil, Chile, and Europe.

The innovation lab is in fact another popular concept of "idea foundry"; almost 56% of European utilities say they have set one up to conceive and incubate digital solutions. These labs have strayed far from the traditional R&D lab, testing and proofing applied technology concepts to become real internal innovation accelerators. Unsurprisingly, companies that are more actively engaged in offering new energy products and services are also more likely to have set up an innovation lab, with peaks of 86% in Southern Europe, 83% in the U.K. and Ireland, and 75% in France.

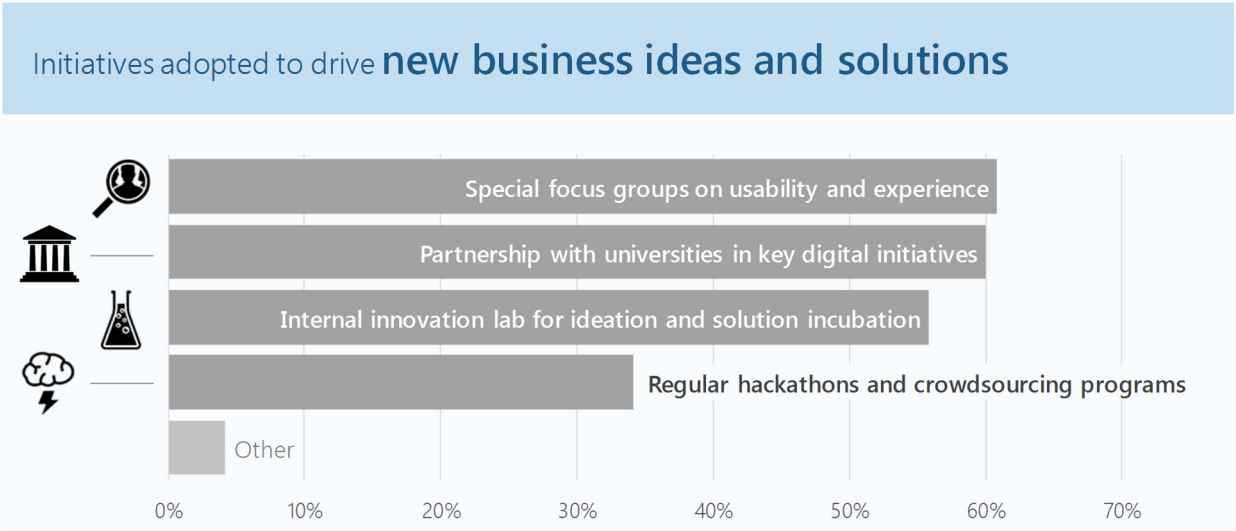
These labs tend to support four key functions:

- Marketing and service, focusing on CX, customer journeys, and customer analytics, working closely with external digital agencies.
- Engineering, linking to an existing asset operations-oriented R&D function and focusing on new energy technology (e.g., renewables, storage, H2) and IoT, among others.
- Innovation. Certain organizations have placed innovation in a separate new core business function, with a dedicated chief innovation officer who reports to the CEO or board.
- IT, especially where the IT function is considered strategic and is led by a "progressive" CIO whose responsibility has been expanded to include DX.

Engie comes to mind as a utility that has taken a leap into technology leadership and digital innovation by establishing dedicated organizations that share all the above characteristics. This includes a digital innovation organization (Engie Digital) focusing specifically on the area of CX and user interface for all digital assets, among others.

Figure 3

Which Steps to Drive New Business Ideas and Solutions?



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Source: IDC Energy Ecosystem Survey, 2016 - commissioned by TCS

At 34% of European utilities, hackathons are a less widespread but growing practice. They represent a relatively inexpensive way to surface business ideas and generate solutions to a specific issue. In addition, by making hackathons and plugfests a regular feature of their event calendars, utilities can expect to bring digital talent within their gravitational pull that would otherwise sit outside their conventional network. Italian municipal multi-utility A2A, for example, is investing in a calendar of national and international hackathons designed to work as an innovation funnel for its new smart city enablement business.

ENGIE Digital

To help with its digital and business transformation, the company has built two cross-organizational "ecosystems" where innovation is conceived, disseminated, and industrialized: one looking at energy research and technology (ENGIE Fab), the other looking at digital (ENGIE Digital).

Engie Digital is led by a Chief Digital Officer who also heads the company's 24 CIOs, which means that digital and legacy IT are effectively part of a single global organization. It is organized around areas of expertise and includes:

- A Customer Hub, housing designers and CX experts, along with business use case experts and a value office.
- A Studio, working as the ecosystem's project and product management office and housing agile experts, project managers, resource and community managers, and product catalog owners.
- A Factory, housing technology experts, architects, cyber security experts, and DevOps.

Overall, Engie Digital is tasked with accelerating the company's DX by:

- Delivering digital software: Supporting business units to deliver software through customer-oriented services, and ultimately enabling the company's long-term vision to "become a software developer."
- Fostering digital communities within the organization: Identifying and retaining digital talent, by offering digital platform training and fostering the adoption of agile among project teams.
- Sharing solutions: Providing an open ecosystem to build, share and reuse the best of the company's innovation across the business.

But the digital ecosystem doesn't stop at the company's borders. In fact, it is an open ecosystem to which select partners across Europe and North America provide access to scalable cloud-hosted technology resources for cybersecurity, API management, mobile applications, Big Data analytics, and access management.

Filling the Gaps to Digitally Transform

What Utilities Need to Get There (But Are Lacking)

68% of European utilities feel they are short of analytics specialists.

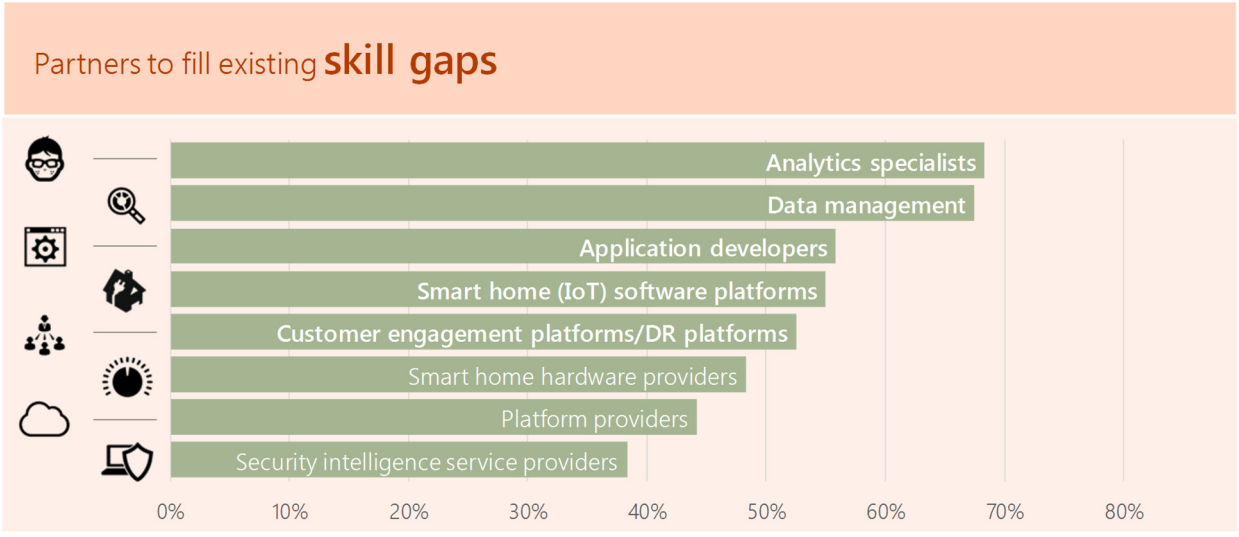
DX should not to be confused with digital technologies. However, it does use 3rd Platform technologies such as cloud, mobility, Big Data, and social, as well as innovation accelerators such as IoT, cognitive systems, and augmented reality. Neither should it be confused with business and corporate transformation. But it still requires companies to transform their leadership, omni-experience, information, operating model, and worksource practices to various degrees.

Out of these five pillars of digital transformation, utilities' attention tends to cluster around two:

- Information transformation — i.e., the ability leverage information for competitive advantage. The escalation in the number of connected products, assets, and services, and the resulting exponential growth in data creation calls for a paradigm change in the way information is captured, stored, accessed, and used.
- Omni-experience transformation — i.e. the ability to attract and grow loyalty and trust with customers. Utilities are pressured to deliver an experience in which they used only to supply a commodity, making it simple, individualized, and possibly engaging at the same time, thus improving on their disastrous net promoter scores (NPS) and trust levels.

Figure 4

Which Gaps Are Felt the Hardest?



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Source: IDC Energy Ecosystem Survey, 2016 – commissioned by TCS

It should not surprise, then, that these are among European utilities' hardest-felt weak spots. More specifically, DX seems to be chiefly a data and analytics jigsaw for them, with more than two-thirds saying they need to fill existing skill gaps in analytics and data management. Other domains where significant skill gaps are perceived include software development (for 56% of European utilities), and smart home and customer engagement platforms (55% and 53%, respectively).

In general, those utilities that are developing new products and services more actively also feel their most critical skill gaps are in data management, analytics, and customer engagement platforms. While this is the case across the region, national patterns show that utilities in the U.K. and Ireland are relatively more worried about their skill gaps in analytics; German utilities are concerned about customer engagement platforms; and French utilities are preoccupied with data management. Nordic utilities think they have the most consistent gaps across the spectrum.

Proportionally, energy retailers feel they need to fill the biggest skill gaps around customer engagement platforms and the smart home, while distributors see their biggest gaps in data management and application development. Overall, gaps in analytics skills are more of a concern for gas companies, whereas electricity utilities are relatively more worried about their data management skills.

The largest companies in the industry have been working to address these shortcomings using a variety of internal initiatives. They include traditional practices, such as job mobility and rotation across IT professions, ICT academies and continuous training programs, but also an expanding pool of more evolved tools, such as:

- Coaching programs to empower adaptive leaders aiming at disseminating best practices.
- Dedicated programs to foster business analysis, design thinking, and agile development skills.
- Internal innovation workshops and hackathons across both horizontal technologies and applications, and in specific domains like Big Data, mobile, cloud, and software as a service (SaaS).

Using an internal program called "AreUdigital?", for example, Enel is actively engaging employees who have a creative view of the future, strong digital skills, and an attitude to coaching to try to foster a digital culture within the company. These talents are identified through a digital readiness and lateral thinking test, and they go on to form a community of "evangelists" who will actively fertilize the company (including by coaching senior management directly) and catalyze digital initiatives across the organization.

These initiatives, however, are little more than sporadic and many are still in their infancy. More importantly, it's the larger organizations that are taking credible steps to attract, retain, and nurture digital talent. The best part of the European utility industry will still grapple with the obsolescence of internal skills and struggle to win new talent in the face of competition from other data-intensive or more digitally attractive industries. So, the most critical skills gaps of today (e.g., data

"Run is the backbone for any utility focusing on reliable supply & efficient operation. Utilities must defend their core while they expand their offerings. The blurring of industry boundaries is creating opportunities for utilities to transform from commodity to service providers, leveraging digital forces and composite technologies.
Utilities need to reimagine how to discover value around the consumerization of energy technologies, new roles and explosion of exponential technologies. To succeed in this entire journey of *run*, *transform* & *reimagine*, utilities need to identify strategic partners to create an ecosystem of co-creation and co-opetition, generating value for empowered consumers."

Anindya Pradhan
Lead
Utilities Innovation Lab, TCS

scientists, IT architects, developers) are only likely to widen for the average European utility, making external sourcing the only credible option.

Who Can Help to Digitally Transform?

At this stage, one final question still needs to be answered — What types of companies are on the minds of utilities when they think "digital transformation"? Who do they turn to for DX enablement? With more than half of European utilities agreeing, the short answer is: technology providers.

The long answer includes companies ranging from device vendors to software and platform providers, down to operational technology vendors and analytics specialists. In more detail, while customer device vendors and software providers are not associated with DX enablement by many European utilities, 35% of European utilities do associate platform providers with DX enablement. With some of Europe's largest names such as Enel, Veolia, and Engie having made bold moves into infrastructure and platform as a service (IaaS, PaaS) after years rejecting it, cloud is finally looking more appealing to utilities of all sizes. This is particularly the case in Belgium and the Netherlands (60%), France (45%), and the Nordics (40%) and much less in the U.K. (17%).

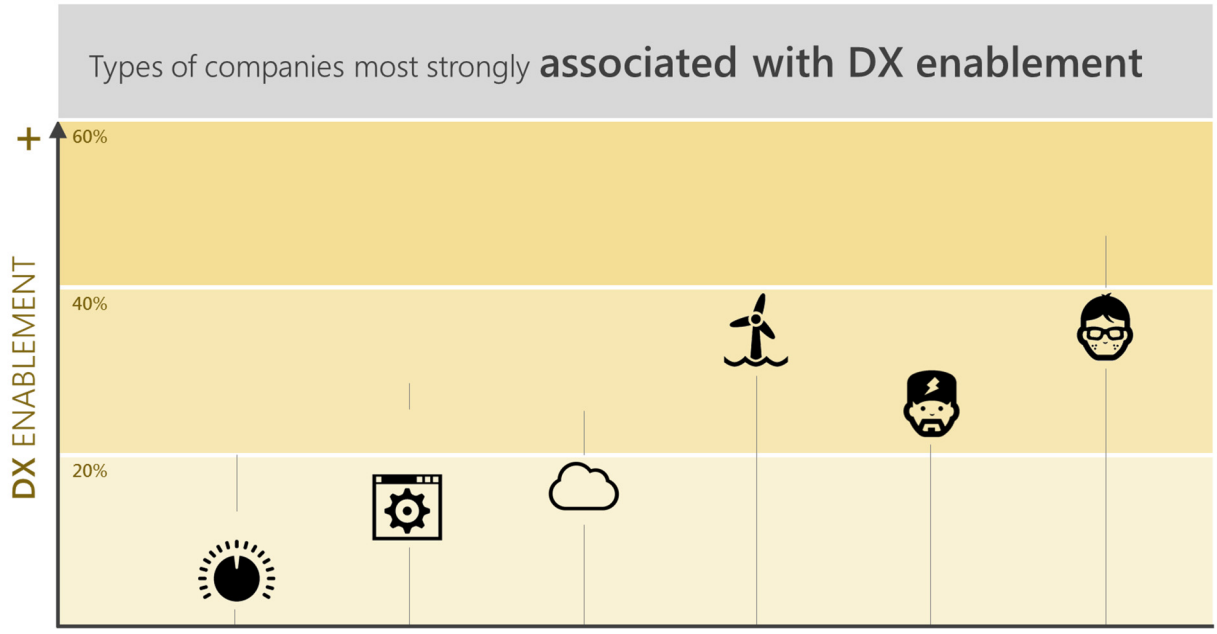
While it will be some years before the average utility will have moved most of its IT to the cloud, several innovation leaders have already leapt to cloud-first or even cloud-only software and infrastructure strategies. The momentum will increase in the next few years as cloud adoption gradually shifts from being tactical (enabling cost reduction on commodity IT) to strategic (for business agility and deployment of new capabilities).

Operational technology (OT) providers follow, with 41% of utilities considering them a critical enabler of DX. The industry's ability to efficiently manage the energy transition is tightly knitted to progress in the world of energy technology. In fact, as the system tilts towards decentralized power generation, utilities will increasingly need to operate physical assets that are outside their portfolio and manage data that belongs to third parties. Think of the sheer build-up of operational storage systems serving solar installations in Germany: approximately 300MWh across 52,000 systems; or the number of roofs that are suitable for solar panels in the U.S. alone — 80%, according to Google's Project Sunroof. It goes to show that the ability to control, aggregate and provide capacity and flexibility on a massive scale will be vital for the stability of the grid going forward.

On a par with OT providers are service companies (41%). As mentioned, utilities have accepted that the days when they could expect to transform in isolation are long gone. Instead, the complexity of the challenges they face creates a need for a carefully selected ecosystem of transformation partners in which service providers are quintessential. While this is consistently reflected in the opinions of utilities across Europe, companies in the U.K. and Ireland, Germany, France, and in energy distribution are more likely to look at service companies to support their DX journey.

Figure 5

Which Companies to Partner with for DX Support?



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Source: IDC Energy Ecosystem Survey, 2016 - commissioned by TCS

Strategic focus in the industry means certain service companies have consistently raised the bar in recent years, successfully morphing from horizontal IT and business process outsourcers to organizations offering all-round utility-specific solutions. On one hand, they have expertise across the service and technology spectrum, as well as delivery machines to serve customers globally. On the other, they offer real-world industry expertise and some of the best business and technical talent available. Many have built extensive IP portfolios covering a very wide range of industry-specific processes and functionality. Some even feature among the industry's most innovative organizations, offering dedicated innovation networks and a comprehensive ecosystem of business and technology partners that help customers bridge their skills gaps.

At the top of the range, and perhaps not surprisingly, are analytics specialists, enabling that information transformation that utilities regard as so important for their business going forward and where they feel they have the most critical gaps. 48% of European utilities associate them with DX, with spikes of more than 70% in the U.K. and 51% among gas companies.

Call to Action

Faced with the increasing speed of change demanded by digital consumers in an increasingly decentralized market, utilities are actively looking for ways to bring the outside in and become nimbler, acquire new capabilities, and prepare the next generation of revenue streams. This paper outlined the most relevant ones, leveraging the findings of a detailed study conducted across European utilities.

As they evaluate their options to bring new services to the market, embed innovation practices in their processes, and build an open ecosystem of partners, utility executives should ensure that they:

- Make room for innovation to spark. A large organization's will to change, using its vision and core values as a driver, is the very propellant of innovation. Ecosystem collaboration and idea generation methods are its chemical elements. However, for innovation to spark, complex organizations need "structures":
  - On one hand, utilities should make time for innovation, revising policies and processes to give dignity, if not priority, to innovation in its employees' schedules.
  - On the other, they should create a "space" for innovation: not necessarily, or not only a physical place, but rather a cross-organizational ecosystem that is open to all professional and functional ingredients of innovation.
  - When doing this, they should care to strike a realistic balance between speed of change and ability of the larger organization to absorb it. While having a "speedboat" organization is ideal for sparking innovation, plans should be laid for it to link back and integrate innovation into the "mothership".
- Promote the "evangelists" of change. Once room for innovation has been made, utilities should engage internal innovation talent, before looking outside. Specifically, they must establish formal practices to identify and nurture employees with above average digital and technology skills, a creative talent, and a knack for lateral thinking and coaching. This talent should be empowered to influence the company's innovation process irrespective of hierarchies.
- Select the right IT partner to bridge the gaps. Traditionally inward-looking companies like utilities might be surprised at the quality of the partners that can be found out there, especially among service providers. Utility companies should seek to piece together a partner ecosystem that is functional to bridging their capability and skill gaps, lowering technology risk and cost of ownership through co-creation, and link to emerging innovation.

Appendix

Methodology

This IDC Executive Brief presents a section of the major findings of the 2016 IDC Energy Ecosystem Survey, commissioned by TCS. The survey ran between October and November 2016, and covered 120 senior IT and non-IT decision-makers from European utilities across Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, and the United Kingdom.

IDC Energy Insights analysts shared the survey results with senior utility executives across Europe for further insight and validation. The IDC Executive Brief also captured the views of senior TCS subject-matter experts.

This IDC Executive Brief is the second of three that analyze this specific survey on European utilities. It focuses on the organizational models European utilities plan to use to deliver new energy products and services, as well as prevailing models for ecosystem collaboration and innovation generation in the industry. It also looks at some of the biggest skill gaps utilities see in their ability to digitally transform and at the types of partners that will help the industry bridge them.

Please see the other two IDC Executive Briefs in the series:

- *Grounding Utilities' Dreams of New Revenue Streams*, for an analysis of European utilities' attitudes regarding the future across sources of revenues, technology opportunities, and business roles.
- *Grounding Utilities' Digital Transformation on IT Strategy*, for a closer look at European utilities' approach to digital transformation, including technology investment priorities, data architecture, and monetization strategies, as well as IT capabilities and delivery models.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.