IT STRATEGY IN THE ENERGY SECTOR

SURVIVAL AND SUCCESS IN THE DIGITAL AGE

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1 Digitalization is already here – master the legacy and experiment with new technologies

A few years back digitalization started as a new trend. Now digitalization penetrated even the energy sector, who was, due to its historical roots, a very cautious and quite late adaptor of new technology in IT. Disruption of traditional business models already takes place at the edge of the grid. The transformation of energy consumers into prosumers (consumer-owned renewable generation), improved methods for energy storage and management, the rise of the Internet of Things (IoT) and the involvement of consumers through digital channels are increasing the pressure on IT departments to deliver faster and more flexible, collaboration-enabled IT platforms with focus on bringing and managing different market participants together.

In order to succeed in such a fast-paced business environment, IT departments will have to learn to follow two goals simultaneously – first simplify and excel in their existing legacy processes, business models and ecosystems, but in parallel also experiment with new digital business models. In this respect, Gartner coined the term "bimodal IT"1, where the IT function could operate at two speeds – the more slow, traditional IT, focusing on process excellence and another, fast and agile IT, which is taking care of testing and developing new, "digital first" models and technologies.

The advancement of IoT and Big Data into the energy sector creates a solid opportunity for the IT departments. The waste amount of generated data should be actively used by the IT and should help the them to stop practicing backward looking, passive reporting and focus more on forward looking, predictive analytics in order to create new opportunities for the business functions. This "visionary touch" should enable the energy companies to see the next disruptions in the sector as they emerge and test actively more visionary and successful strategies.

Technological advancements are also shortening the planning windows from the typical two to three years horizon to yearly and quarterly rolling planning with constant reviews. This also puts increased requirements on the quality of cooperation and alignment between the IT and business functions in the energy enterprise, creating new, hybrid business and technology roles.

1 Building the Digital Platform: Insights From the 2016 Gartner CIO Agenda Report, Gartner, 2016

All of the above developments constitute a new challenge towards the role of IT in the energy company, the process of development of the IT strategy and its alignment with the business strategy. The increased complexity of the business environment requires also solid IT process frameworks in order for the IT to deliver predictable results and value to the business.

2 IT should become a game changer for energy companies – spending patterns and innovation in the energy sector

In terms of IT spending, companies from the oil and gas sector "generate high revenue per employee and support extensive field operations, and as such are characterized by moderately high spending on IT on a per-user basis and relatively low IT spending as a percentage of revenue. They invest in mobile communications and technology to a higher degree than most organizations."[2] In upstream, the efforts are focused on creating the "digital oilfield" and reducing exploration cost through enhanced analytics (big data), downstream IT investments are targeting increased operations efficiency.

Utility companies "have a high level of IT spending on a per-user basis and especially high spending on applications for physical plant and customer relationship functions. Energy utilities are undergoing a significant amount of modernization, much of it driven by state and federal mandates for smart meters, smart networks, smart grids, and other efficiencies geared toward significantly reducing energy use, especially during times of peak demand. As such, utility companies are increasingly supporting new technology initiatives that enable them to improve service delivery, increase efficiency, and reduce overall power demand."[3]

2 IT spending and staffing benchmarks 2015/2016, Computer Economics, 2015
3 IT spending and staffing benchmarks 2015/2016, Computer Economics, 2015

Traditionally, the technological innovation in energy companies is rather slow – it takes years for new technologies to find their way from the lab board to field operations. One reason for this is the general "cautiousness" of the energy companies – higher failure rates (as compared to the IT sector, for example) cannot be tolerated, as oil and utility companies operations have a larger impact on customers, health safety and environment. Therefore, innovation in IT was much more gradual and focused on innovation and optimization of current processes, rather than making the giant leap from technological perspective. In addition to this, the energy companies operate at large scale, and scale triggers increase in complexity of processes. The "innovation approach" in IT traditionally involved adapting IT solutions from other sectors (e.g. telecommunication) or collaboration with equipment suppliers along the value chain. This partly created isolated "technological islands", which, along with self-developed, custom IT applications fragmented the IT landscape and increased the number of process and system interfaces.

In order to overcome isolated "technological islands", the IT organization should evolve its thinking from infrastructure towards platforms

In order to overcome this challenge, the IT organization should evolve its thinking from infrastructure towards IT platforms. "A platform is the collection and integration of common resources that support multiple business operations. Platforms look at technology with a business view organizing around specific business actions like one-click sales, search,

description presentation, and pricing."[4] IT platforms should enable organizations to release new products without changing the infrastructure. The first step towards this goal – the orientation towards IT services – was already taken, the next one – building IT platforms and focusing on application programming interfaces (APIs) in order to facilitate organizational collaboration and information exchange[5] - should be on the radar screen of energy companies CIOs as of tomorrow.

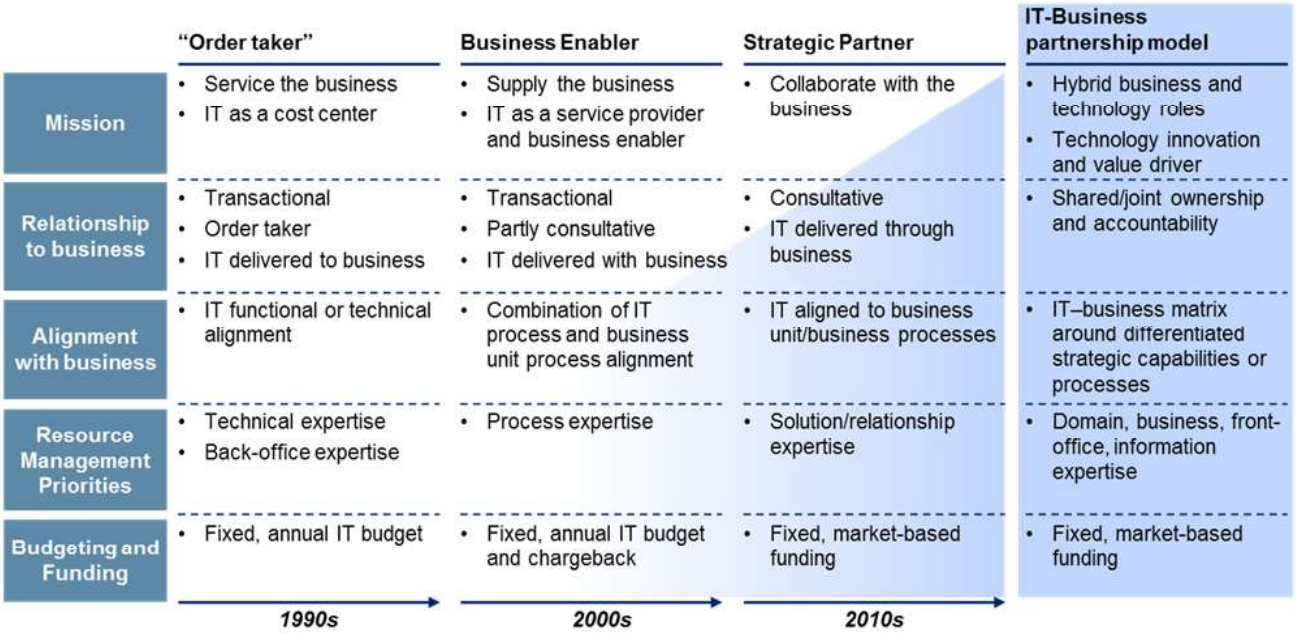
The digital challenge requires energy companies also to take a different approach towards investment decisions in IT. Companies usually "allocate capital to the wrong investments because our traditional emphasis on ROI-based business cases undermines IT's ability to invest in high-return-but-hard-to-measure areas like improving knowledge worker productivity."[6] A more innovative approach in prioritizing IT projects and their funding, e.g., based on the contribution of the project to the long-term business strategy, rather than purely financial metrics like ROI, should support investment in innovative capabilities with uncertain payoff.

3 Rethinking the role of the IT department in the digital age

IT organizations evolved in a different pace across sectors and companies. Starting as "order takers" (Figure 1), they served the business needs through providing IT infrastructure and communication equipment, mainly organized as a cost center. At the end of last century the service management orientation gained popularity, IT organizations started to act more as service providers to the business and be seen as business enablers. The tendency nowadays is moving towards a partnership model, with joint business and IT accountability and control mechanisms, close alignment of the IT with business functions and processes, but also a shift from demand-oriented delivery towards value generation and adequate service pricing.

In many companies from the energy sector today, the IT organization remains stuck somewhere between the two early stages, without having the chance to become a strategic ally or partner of the business.

Figure 1: The evolving role of the IT organization[7]



4 Platforms are the new foundation of corporate IT, M. P. McDonald, HBR, 2013
5 Move beyond Enterprise IT to an API strategy, T. H. Davenport, Bala Iyer, HBR, 2013
6 IT governance is killing innovation, A. Horne, B. Foster, HBR, 2013
7 The death of traditional IT and the rise of the new partnership model, Booz & Co, 2013

There could be many reasons for this positioning of the IT, starting with organizational culture, the attitude of the business functions towards IT, the capabilities of the IT management etc., to name a few.

IT has to move from the back-office towards the front office and become the "eyes and ears" of the business in scouting for new technological solutions

What is also clear, is that the new partnership role of the IT requires a different set of skills from the IT staff – solid understanding of the business logic, strategy and challenges on one hand side, combined with thorough understanding of modern technological capabilities and visionary thinking. Hybrid roles with balanced business and technology know-how requirements are becoming more and more common.

In the digital age it is not sufficient for IT and business to be merely "aligned" – an idea, which was preached by many experts and IT frameworks for years, and which, in the worst case led to subservience of the IT. Since the expected reaction speed towards market and technology changes is increasing, both business and IT have to almost merge in their strategy and actions. Creating multidisciplinary business and IT teams, not only on project basis, but in the form of organizational units, elevating the role of the IT management to board level with introduction of the CIO role and the participation of IT in the business strategy development and review process is the least an energy company can do. IT has to move its positioning from the back-office, where it was traditionally placed towards the front office and becoming the "eyes and ears" of the business in scouting for new technological solutions for the emerging business challenges.

A good starting point towards the digital energy enterprise is also creating a stand-alone digital unit, which will initially host the major digital initiatives of the company. This unit will be close in its appearance to en internal startup company with its "garage mindset" and will have to have the freedom to test and implement new ideas, models and digital services on the digital playground in collaboration with the business functions. Cooperation with external startup companies can be fostered through this unit. With increasing digital maturity of the energy company, a logical next step is merging the stand-alone unit with the digital marketing unit into an integrated digital service unit, which becomes the central point of all digital initiatives of the company. Both IT and business functions work together with common objectives and budgets on creating and deploying digital services. [8]

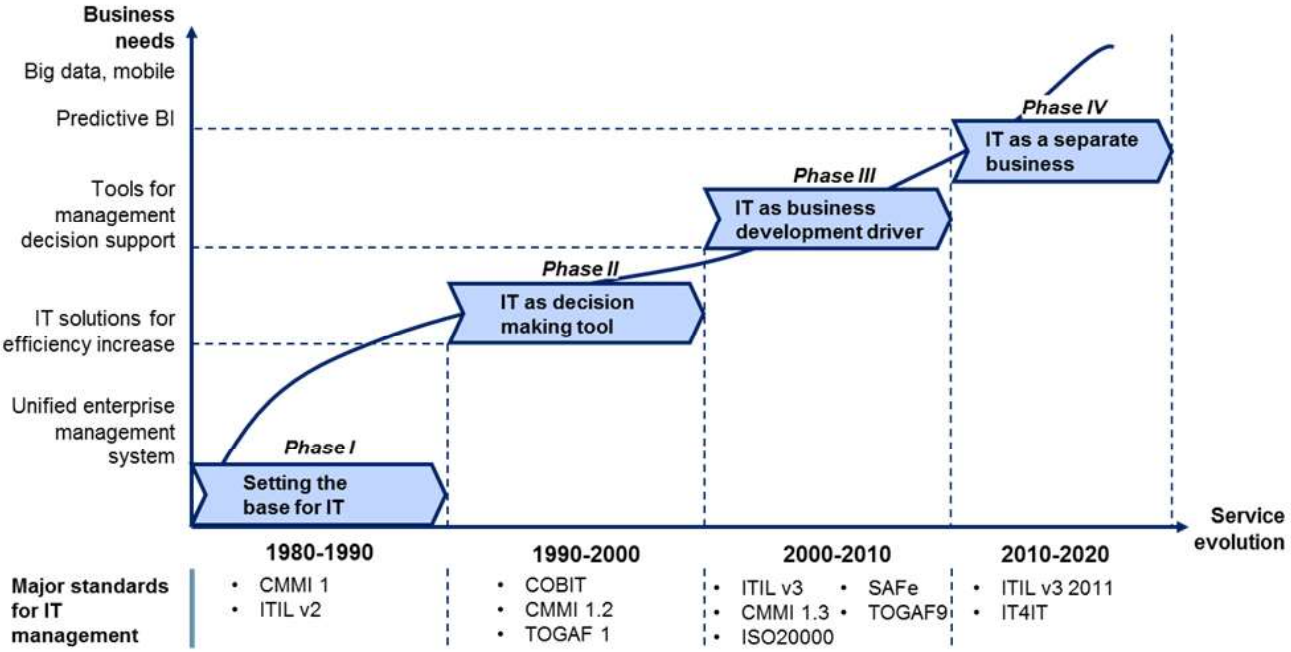
4 Increasing complexity requires a solid IT framework – can ITIL still help?

The search for structure in the increasingly complex world of IT has created numerous frameworks and standards over the years (Figure 2). The attempts to simplify this complexity started in the 1980s with the introduction of the first IT service management frameworks. They were primarily focused on streamlining IT service operations and delivery through the introduction of collections of best practice process descriptions and key performance indicator. As the role of the IT departments changed over the years and was more and more getting close to the idea of running IT as a separate, company internal business, those frameworks also got more complicated and were enhanced by introducing strategy development, service design and continual IT service improvement processes.

8 Do you have the IT for the coming digital wave?, D. Bonnet, HBR, 2013

Most of the IT management frameworks and standards have several things in common – they are based upon the idea of IT services, introduce reference processes and provide key metrics to measure success of IT operations. They differ in the level of detail of their process descriptions – some of the frameworks intentionally remain on a more abstract level, in order to defend their universality and applicability to different organizational and infrastructural setups.

Figure 2: Evolution of IT management frameworks[9]



One of the most recent additions to the family of IT management frameworks is IT4IT™ Reference Architecture, managed by the Open Group, a global consortium with more than 500 member organizations. Initially Royal Dutch Shell, BP and PriceWaterhouseCoopers (PwC), along with IT suppliers Microsoft, IBM and HP, have launched the IT4IT Forum, which created the first version of the IT4IT standard architecture, which comprises a reference architecture and a value chain-based operating model for managing the business of IT.
"The Open Group IT4IT Reference Architecture standard is focused on defining, sourcing, consuming, and managing IT services by looking holistically at the entire IT Value Chain. While existing frameworks and standards have placed their main emphasis on process, this standard is process-agnostic, focused instead on the data needed to manage a service through its lifecycle. It then describes the functional components (software) that are required to produce and consume the data. Once integrated together, a system of record fabric for IT management is created that ensures full visibility and traceability of the service from cradle to grave.

IT4IT is neutral with respect to development and delivery models. It is intended to support Agile as well as waterfall approaches, and lean Kanban process approaches as well as fully elaborated IT service management process models."[10]

Currently the most widely adopted IT service management framework worldwide is ITIL (IT Infrastructure Library). It is not a standard or a quality or compliance certificate, but a collection of good practices that are applied to ensure that business outcomes are delivered through technology in high quality. ITIL is a practical, no-nonsense framework and termi-

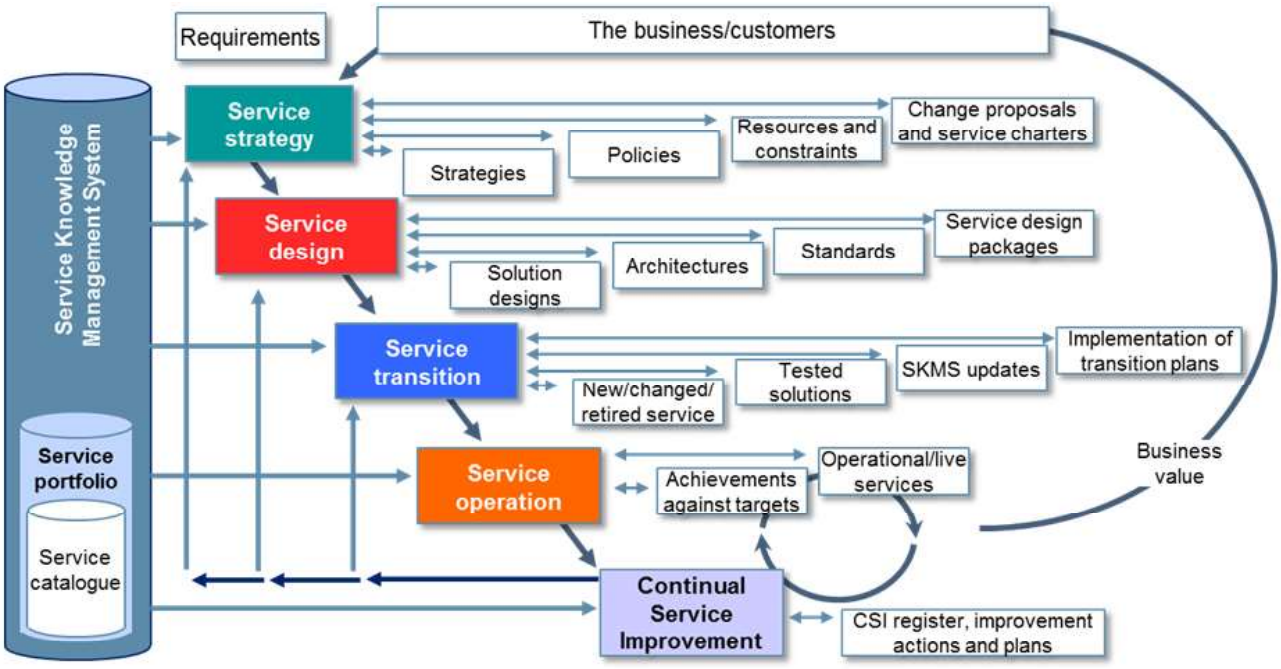
9 Atrinity

10 The Open Group, IT4IT™ Reference Architecture

nology for identifying, planning, delivering and supporting IT services to the business, by providing guidance to organizations on how to use IT as a basis to facilitate business change, transformation and growth. It is widely used to transform IT organizations across different industries by using a proven set of best-practice processes and metrics. In this respect ITIL is not only industry-, but also vendor neutral.

ITIL builds upon a very comprehensive process model, covering the full lifecycle of an IT service – from evaluating customer needs up to the IT service retirement. The core of the framework is the IT service portfolio – the collection of services offered by IT to the business and external customers.

Figure 3: Key links, inputs & outputs of the IT service lifecycle stages according to ITIL[11]



The development of the IT service strategy in collaboration with the business is the starting point (Figure 3). The Service Strategy module also covers disciplines, such as demand management for understanding the correct necessities and requirements of the business and financial management, which is important for the correct pricing of the provided IT services. The Service Design part of ITIL builds upon the outcomes of the service strategy and creates the right IT services by balancing the required service levels with restrictions in available resources and compliance.

The Service Transition module handles the development, testing and deployment of services in the enterprise by ensuring their fit and smooth introduction in the current IT landscape. From this point on, Service Operations take over the deployed IT services, manage their delivery according to agreed service quality levels, keep intact the underlying infrastructure and resources and resolves problems with the support of the service desk.

The Continual Service Improvement module is constantly monitoring the provided IT services. It closes the existing gap between the strategy and reality and introduces measures for improvement of IT services. It is therefore crucial for the constant adjustment and further development of IT services in times of quickly changing business environment.

11 IT Infrastructure Library v3, 2011

IT has to focus on the long-term vision, strategy and innovation by trying to be faster tan the business in evaluating new technologies

In the past, energy companies usually started the implementation of ITIL processes by addressing one major pain point – infrastructure or application failures and their impact on internal business or external customers – through the introduction of service desk with its underlying incident and problem management processes (service operation module). This too strong concentration on running IT operations created a pitfall for IT departments – strategic vision was most of the time forgotten or second priority, which brought the IT in the situation of constantly running behind the business, deliver just requested service, as opposed to proactively develop solutions and introduce innovations, which brings the real value to the business. In order to succeed in the digital age, the corporate IT has to turn around this tendency by focusing on the long-term vision, strategy and innovation by trying to be faster than the business in evaluating new technologies and proposing new digital models.

5 The IT strategy as basis for the future business success

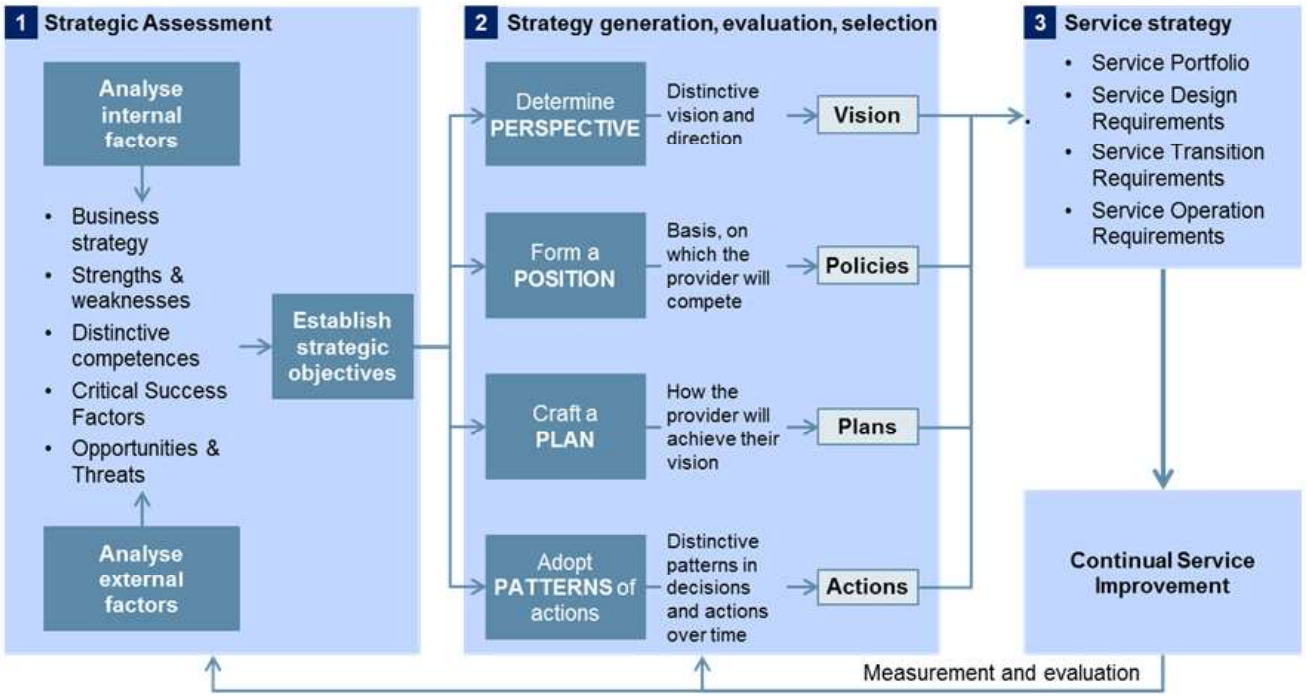
The digitalization of the energy sector can be a great opportunity for energy companies, but also poses a serious threat, especially for those enterprises, who will fail to bring their IT departments up to speed and transform them into providers of digital insight for their business. Given the size of those energy companies and the complexity of their organizational structure and IT infrastructure, they will face competition from much smaller, agile and innovative players. Planning horizons will shorten and uncertainty of bets on technology will increase. Therefore it is crucial for IT to deliver its part of the play in very close collaboration not only with the business functions, but also suppliers and customers along the whole value chain.

A strategic vision for the future development of the IT, very closely interlinked with and supporting the overall business strategy will be the cornerstone of sustainable growth for every energy company. Providing the right services for the current situation and business environment, but also imagining what a potential future service portfolio could consist of, where a company could sharpen its competitive edge through digital services and whether a company could afford it are the main questions which should find an answer in the overall IT strategy.

The development of the IT strategy, but more important, its fine-tuning and adaptation to changing business conditions has to be institutionalized, it has to involve not only the IT, but also business leaders and should supported by a stringent process with foreseeable result.

ITIL provides a suggestion for a basic strategy development process, based on Mintzber's 5P of strategy (Figure 4). The three steps, which should help create the link between the main pillars of the business strategy and the IT service strategy will have to be executed jointly by the IT and business functions. Regular monitoring of the validity, viability and success of the developed strategy should be ensured by the Continuous Service Improvement process. It also has to define and monitor a set of indicators, which will show, whether the chosen path of development is the right one and also propose measures for steering in the right direction.

Figure 4: The IT strategy development process



The IT strategy will have to provide answers to questions about functional and temporal scope of the IT involvement, the role and positioning of IT in the company, the organizational and technological framework. On one hand side, it will receive inputs from the business strategy in order to shape the IT service offering, but more important, it should also provide insights to the business and influence the business strategy in the same time. This will require strategic sessions to be carried more often than once a year and an increased number of rolling reviews and adjustments on both sides.

As a conclusion – the success of the energy companies in times of digitalization relies more and more on their internal IT capabilities. But if they will be able to transform their IT departments and move them from the backseats of the car called energy enterprise to the front passenger seat and use their skills and technology to navigate through stormy weather, they will surely reach their desired destination.