The Business Technology Company.

Navigating the energy and utilities sector transformation –

Gaining strategic advantage of modern digital technologies

Sofigate

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1. Executive summary

The Nordic energy producers and utilities companies are going through a major business transformation. The transformation is driven by green energy, geopolitical changes, and new regulatory requirements, as well as increasing needs for transparency of the entire value chain.

Many of the traditional energy companies are trying to navigate through the transformation with legacy IT (Information Technology) systems and architecture. This will eventually cause them unnecessary costs, slowness in time-to-value, decrease in both customer experience and employee satisfaction, and even issues with cybersecurity. The legacy IT will eventually jeopardize the success of the whole business transformation.

It is quite common that a traditional energy company has dozens or even hundreds of IT systems – each for their own narrow use case. What at some point in history used to be a "best of breed" strategy, has over time turned into a collection of legacy solutions with poor user experience and an inadequate fit for business requirements. Integrating these systems to communicate with each other is complicated and costly, not to mention the challenge of keeping them up to date in the face of increasing cybersecurity threats.

The energy sector is obviously not alone with the legacy IT landscape, but what characterizes the energy sector especially is the change at hand. Previously, the scattered IT landscape was not as problematic, as the main purpose was to keep the engines running. But as the need for customer-facing interfaces, external integrations and reporting needs are rising, the puzzle does not work any longer.

Meanwhile, new clean energy startups are entering the market. A modern energy company can operate with a completely different IT strategy, bringing them a massive competitive edge through operational excellence.

With a handful of state-of-the-art IT platforms, a modern company can run most of the operational processes. These are then complemented with OT (Operational Technology) systems and a few point solutions to enable operations that are not covered by the major business platforms. With the embedded AI capabilities of the modern platforms, the new players in the market get to benefit from the latest innovation immediately.

The shift from a fragmented legacy IT system landscape into a modern platform-based environment requires new kind of thinking and approach in the design process. A business-driven mindset must guide the planning, which is only possible if the business management sits in the driver's seat during the design process.

While modernizing the technologies, the energy companies should also revisit their operating models – how to run the IT and digital development efficiently to minimize time-to-value. As digital technologies evolve faster than ever, it is crucial for energy companies to keep up with developments.

2. The key trends driving the business transformation

The international movement towards clean energy, underscored by the Paris Climate Agreement, necessitates a strategic shift away from age-old fossil fuels and increasingly costly biomass and wood towards more sustainable energy forms.
This entails the electrification of sectors such as heating, industry, and transportation.

Additionally, localized energy generation using methods such as geothermal heat pumps, wind turbines, and solar panels offers advantages like community energy self-sufficiency. However, it also presents challenges in network management and maintaining grid stability. It is vital to ensure that energy provision remains responsible, cost-effective, and reliable.

Energy organizations are compelled to develop pricing strategies that balance financial feasibility with environmental sustainability. Moving away from fossil fuels involves not only discontinuing the use of traditional gas and coal for district heating and shifting to biomass and waste utilization but also developing innovative approaches for electric power and heating cogeneration facilities and advancing electric boiler systems for heating purposes.

Anticipated future strategies include considering smaller-scale nuclear power plants and exploring the potential of hydrogen energy. Looking ahead, this will require investments in energy-saving technologies, optimizing the utilization of resources, and fortifying the energy supply chain to mitigate the impact of climate-related disruptions.

Decentralized energy production methods, such as geothermal energy pumps, are already prevalent. The energy market is witnessing new tech startups and companies from other sectors coming to the market with climate friendly innovations.

To remain competitive in the eyes of customers and as potential partners for startups, energy companies need to leverage digital technologies. Embracing digital transformation and fostering innovation will be crucial for staying ahead in this dynamic market.

With increasing focus on energy independence and local renewable production, energy security has become paramount. Additionally, the sector faces heightened cyber threats targeted towards critical infrastructure. Implementing robust cybersecurity measures and developing strategies for energy resilience are vital for protecting assets and ensuring continuous service delivery.

3. Legacy IT environment comes with many challenges and risks

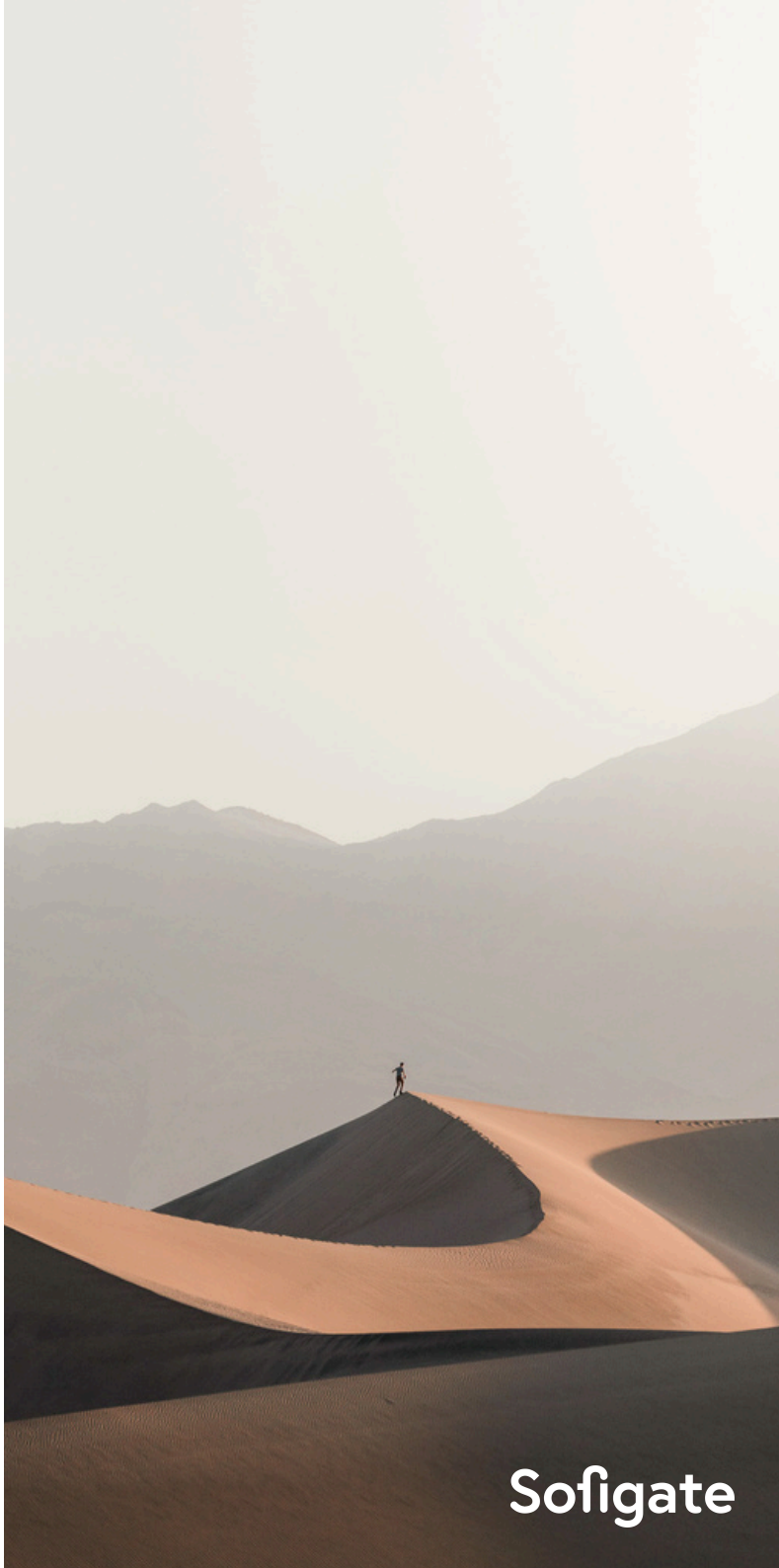
One of the biggest challenges in the energy sector is the proliferation of systems and the lack of interoperability between them. For example, the systems used by energy companies have stagnated at a time when they relied on traditional customer information systems for realizing turnover. These systems have not been developed to meet the business needs of heating, cooling, or project management in response to the changing market situation.

Traditional IT architecture has relied heavily on stand-alone solutions. Instead of centralized operational control, the tools that are best suited for each individual purpose (such as fuel management system, asset management system, project management system, energy data management system, infra work management and customer information system) have been used independently. This has led to a situation where the company uses several parallel data models, making their administration and integration challenging, time-consuming and expensive.

The old way of operating through integration platforms that connect dozens of systems has led to supplier and technology lock-in and increased cyber risk, as some business processes have moved from systems to being produced on top of integrations. Managing the integration platform and its data demands continuously more time, higher costs, and an increased administrative burden. By adopting selected, scalable platforms, the needs of business operations and production can be met with a controlled number of data models that are easily integrated with one another.

The risks associated with niche systems highlight the need for robust cybersecurity measures and service continuity plans. Protecting critical infrastructure from cyber threats and ensuring uninterrupted service delivery are essential for maintaining trust and operational stability. The personnel risks associated with the expertise required due to the fragmentation of systems must also be evaluated. Multiple systems also mean more responsible personnel and increased time required for service governance.

Adopting common operating models and scalable platforms with built-in, world-class security can drive significant cost efficiencies and improve operational flow. Standardizing operations and leveraging shared technologies will streamline processes, reduce costs, and enhance service delivery across the organization.



4. Moving from a scattered IT landscape to the world of platforms

Energy companies need to transition from incompatible 'best in breed' systems to more collaborative, platform-based solutions. Fewer systems are more cost-effective to maintain and enable better integration, data sharing, and integrity, leading to greater operational efficiency. Adopting such systems will accelerate the launch of new products and services, enhance scalability, and enable seamless collaboration across the organization.

Better forecasting and data-driven decision-making are essential for responding to market changes and optimizing energy usage. Transparency and adherence to Environmental, Social, and Governance (ESG) criteria are increasingly important, as energy companies must be more open about their operations and performance, particularly regarding sustainability efforts. This transparency fosters trust and aligns with the growing emphasis on corporate responsibility. A platform-based solution simplifies the implementation of ESG requirements, ensuring data integrity and seamless integration.

Another example is the supply chain management, especially the management of fuels, which has rapidly evolved, creating pressure on systems to adapt quickly. A scalable platform can meet the demands of a constantly evolving supply chain and inventory management while simultaneously providing the necessary information for informed decision-making.

Effective data management and analytics are crucial for processing large volumes of data and delivering in-depth insights. Robust platforms can leverage this data to enhance decision-making and operational efficiency. Ensuring high-quality data security and transmission is paramount. Energy companies must adopt top-notch platform solutions to protect sensitive data and ensure secure communication. This is critical for maintaining trust and meeting regulatory requirements.

Renewing systems and adopting modern tools are crucial for boosting productivity and performance. Energy companies should prioritize digital transformation initiatives to enhance operational efficiency and drive innovation. Transitioning from small local systems to global platforms with a unified data model streamlines and accelerates communication. Businesses can effectively manage operations with five major IT platforms.

Energy companies should allocate their resources to projects that generate social impact, rather than maintaining a complex and fragmented collection of information systems.

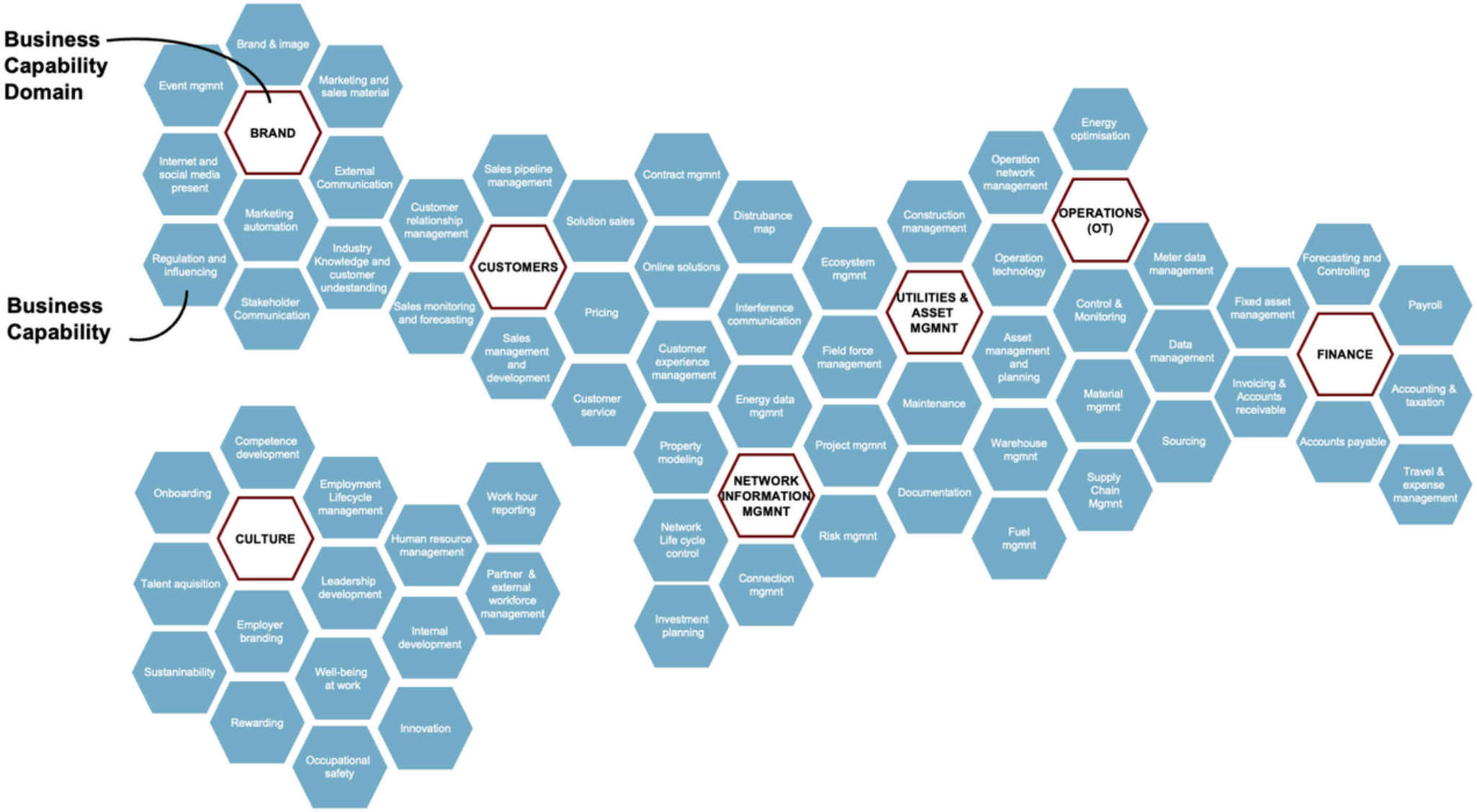
5. Business-driven approach to designing the future digital landscape

Energy companies' digital transformation is a strategic initiative that directly impacts business performance. Therefore, it should be on the business management's agenda - not just IT's. Business management must take the lead, with the design process driven by business strategy, business ambitions, and future targets.

Business capability thinking provides an excellent methodology for facilitating the design by allowing non-technical stakeholders to participate. When key stakeholders are involved in designing the future, engagement increases, ownership becomes clear, and the change journey begins already in the design phase.

Sofigate's Business Technology Design methodology offers business management a streamlined approach to mapping future business capabilities.

After identifying and visualizing the most crucial future capabilities, the capability map can be utilized in several ways: prioritizing key focus areas, creating scenarios of future business platforms, mapping the current system landscape, and identifying dependencies between capabilities. Once the capability map is complete, the selected capabilities can be defined in greater detail.


Business Capability Domain
Business Capability
BRAND
Brand & image
Event mgmnt
Marketing and sales material
Internet and social media present
External Communication
Marketing automation
Regulation and influencing
Industry Knowledge and customer undestanding
Stakeholder Communication
CUSTOMERS
Customer relationship management
Sales pipeline management
Solution sales
Contract mgmnt
Sales monitoring and forecasting
Pricing
Online solutions
Distrubance map
Sales management and development
Customer service
Customer experience management
Interference communication
Property modeling
Energy data mgmnt
NETWORK INFORMATION MGMNT
Network Life cycle control
Connection mgmnt
Investment planning
Ecosystem mgmnt
Field force management
Project mgmnt
Risk mgmnt
UTILITIES & ASSET MGMNT
Construction management
Maintenance
Documentation
Operation network management
Operation technology
Asset management and planning
Warehouse mgmnt
Fuel mgmnt
OPERATIONS (OT)
Energy optimisation
Control & Monitoring
Material mgmnt
Supply Chain Mgmnt
Meter data management
Data management
Sourcing
Fixed asset management
Invoicing & Accounts receivable
FINANCE
Forecasting and Controlling
Payroll
Accounting & taxation
Accounts payable
Travel & expense management
CULTURE
Competence development
Onboarding
Employment Lifecycle management
Talent aquisition
Leadership development
Human resource management
Work hour reporting
Partner & external workforce management
Employer branding
Internal development
Sustaninability
Well-being at work
Rewarding
Innovation
Occupational safety

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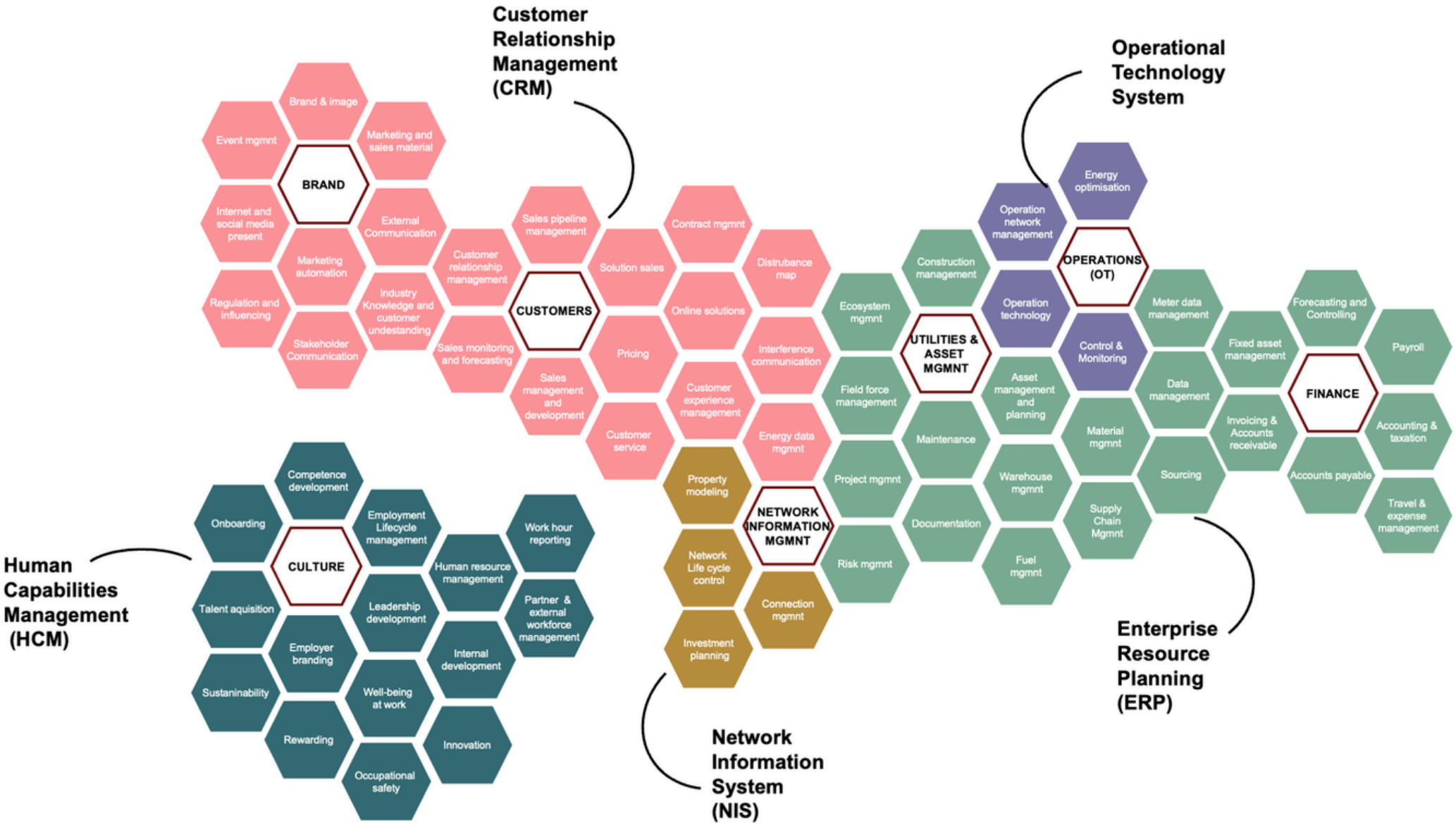

Five major platforms

Soligate

6. Concluding thoughts

In conclusion, the energy sector is undergoing significant transformation due to the shift to renewable energy, decentralized production, increased competition, and heightened focus on security. To adapt, energy and utilities companies must invest in essential platforms, such as collaborative, platform-based solutions, to enhance integration, data sharing, and operational efficiency. Embracing digital transformation is crucial for managing the complexities of decentralized energy production and remaining competitive in the evolving energy market.

Leading digital transformation and addressing key challenges like system proliferation and data management are crucial for navigating the evolving energy landscape and achieving long-term sustainability and competitiveness. Strategically, energy companies must re-evaluate their business strategies and IT architecture to align with the changing market conditions and evolving business needs.

When it comes to risks, energy security and cybersecurity have become paramount, with a focus on protecting critical infrastructure from cyber threats and ensuring continuous service delivery. Implementing robust cybersecurity measures and developing strategies for energy resilience are vital for maintaining trust and ensuring operational stability.

To navigate the evolving energy landscape effectively, energy and utilities companies must streamline their IT architecture and focus on a few central, collaborative, platform-based solutions. This strategy will reduce operational costs and complexity while enhancing data integration and sharing, which in turn improves customer satisfaction and operational efficiency.

By prioritizing digital transformation and addressing the proliferation of outdated systems, companies can better respond to market demands, ensure energy security, and maintain a competitive edge. Embracing this strategic approach will pave the way for sustainable growth and long-term success in the dynamic energy market.

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