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SaaS for Energy operators: redefining the supply chain



Energy operators are constantly facing new challenges to their supply chains, up against the demands of an increasingly connected but unpredictable world.

The global supply chain is delicate. More than 80% of goods are transported by ship¹, such as vital cargo for drilling platforms.

An estimated 2.5% of all global sea-based trade moves through the Panama Canal each year². Some 14,000 ships that pass through the canal do so on water that comes from the nearby Gatun Lake, a region that has been severely affected by drought in recent years. This reduces the volume of canal transit by about one third and will affect global supply.



Energy operators: what's the challenge?

1. Climate change

As global temperatures rise and extreme weather events become more frequent, energy operators are increasingly vulnerable to natural disasters such as hurricanes, floods and wildfires that can damage infrastructure and disrupt supply chains. Moreover, the energy sector is under increasing scrutiny for its role in contributing to greenhouse gas emissions, which has led to growing calls for a transition to cleaner energy sources.

Operators must navigate the complex and costly process of decarbonising their operations. One possible solution to this challenge is nearshoring, the practice of relocating business processes or supply chain operations to a nearby country. Typically, this will

be one that shares a border or is in the same region. This strategy is increasingly used by companies to reduce risk, improve supply chain resilience and enhance overall operational efficiency.

2. Cyber security risks

The infrastructure that supports energy production and distribution is often interconnected and relies on sophisticated information technology systems. This makes it a prime target for cyber-attacks which can lead to operational disruptions, financial losses and even national security threats. As the energy sector continues to integrate smart technologies and digital solutions, such as implementing complex systems for handling data⁴, the potential for cyber vulnerabilities grows.



3. Raw material shortages

Energy operators are also grappling with shortages of raw materials, which are essential for both traditional and renewable energy production. The extraction, processing and transportation of these materials are often subject to geopolitical tensions, supply chain disruptions and environmental concerns. For instance, the scarcity of rare earth metals, which are crucial for the production of batteries and other renewable energy technologies, is hindering the transition to cleaner energy sources.

4. Talent and resourcing

As the energy sector evolves, securing access to skilled professionals becomes increasingly challenging. Organisations must compete for talent in a market where specific expertise is in high demand, requiring proactive recruitment and retention strategies.

5. Maximising efficiency

With tight margins, it's essential to leverage automation to streamline administrative tasks. This approach allows skilled professionals to concentrate on more complex and value-added activities, improving overall productivity and operational efficiency.

6. Attracting younger talent

Younger generations are drawn to workplaces that embrace innovation and digital transformation. Companies relying on outdated systems or manual processes, like spreadsheets, may struggle to attract and retain new talent, who seek dynamic and forward-thinking work environments.





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senior energy industry workers⁵ have stated that the energy sector will face challenges in growing and diversifying its key supply chains as the deployment of renewables accelerates.

The as-a-service model



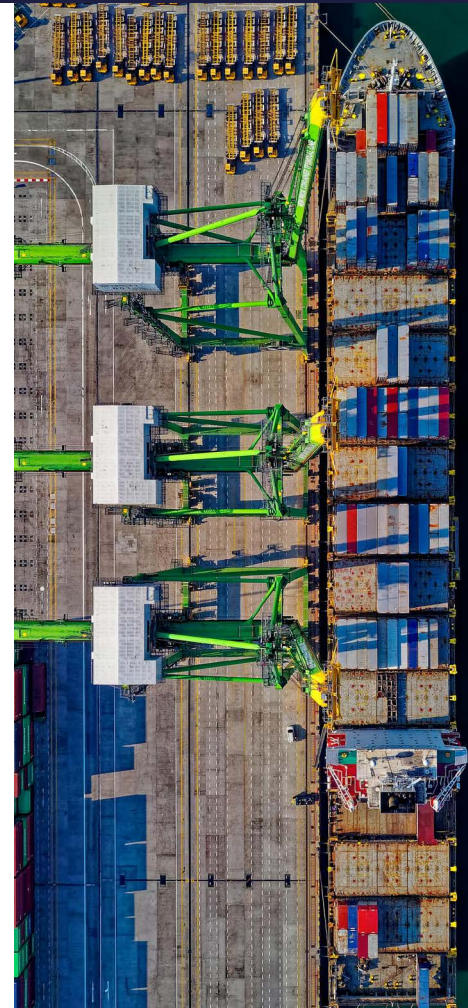
In modern businesses, most technology is available through an 'as-a-service' model, a now commonplace term that can cover a broad range of services. The general rule is that the service being provided (ecosystem, software, data) is made available to the customer over the internet or through the Cloud.

From a business perspective, this presents several immediate benefits:

- **No upfront costs:** the nature of as-a-service means that there are no large immediate costs to an organisation. Much like paying for your Netflix subscription rather than buying every video at once, the as-a-service model allows you to pay a monthly implementation fee for the service.
- **Speed of digitalisation:** there is a much shorter time to market for organisations that implement SaaS. The process of developing and deploying a custom software

offering takes much longer and can result in failing to address the business concerns in sufficient time. SaaS removes this problem.

- **Increase in scalability:** unlike traditional service offerings that require upgraded servers or software, the as-a-service model allows for continuous scaling. This works both up and down, so organisations can be flexible when assessing their own needs.
- **Continuous innovation:** the service provider can constantly improve and upgrade their offering, which is great news for the end user as they don't need to worry about thinking about what's next. This comes at a lower cost than the traditional models, which would normally force an upgrade at a point of redundancy in the package.



Innovation in supply chains

The ever-evolving nature of the supply chain makes it fertile ground for innovative solutions and strategies. There's always a new problem to solve.





Control tower methodology

As an extension of the massive power that AI brings to supply chains, control tower methodology⁶ expands upon the traditional notion of supply chain dashboards. Visibility is the mission here. You want to be able to see, in real-time, everything that is happening across our entire supply chain. This is easier said than done.

There is a tremendous amount of pressure put upon individuals who must provide customers with what they need, when they need it and where it needs to be. This pressure comes from a lack of real-time visibility across the supply chain. Relieving this pressure will allow organisations to focus on building personal relationships with customers.

The technological benefits are massive, including (but not limited to):

- **Continuous intelligence:** capture data continuously and in real time (event stream processing or business activity monitoring).
- **Advanced analytics:** use predictive and prescriptive analytics to move from being reactive to proactive.
- **Impact analysis:** understand the impact of signals from the digital ecosystem to the company's supply chain.
- **Scenario modelling:** simulate different scenarios for providing a suitable smart response.
- **Collaborative response:** connect and collaborate in the ecosystem (aka collaboration room).

Generative AI in operations

We've all read about AI to the point where it's verging on old news now. But generative AI has the potential to entirely revolutionise supply chain management⁷. When we talk about the difficulties in ensuring regulatory compliance, AI has no issue in streamlining those problems. When concerns are raised regarding being able to track and visualise the supply chain, AI can quell them with ease.

Generative AI can create new content based on data that it has been trained by. In fact, around 40% of supply chain organisations are investing in generative AI solutions that focus solely on knowledge management applications.⁸

The long-term benefits of implementing generative AI are transformative, shifting the traditional processes from reactive to proactive.



Energy-efficient technologies

Almost half of all CEOs⁹ now understand that they must have a supply chain sustainability strategy that works towards lower emissions. With Net Zero being an increasingly important concern for organisations worldwide, it was only a matter of time before technology allowed for energy operators to begin reducing their emissions. Having a strong digital core powered by cloud functionality will help to build a resilient supply chain, along with further technological innovations such as advanced scenario modelling and process simulation.

With the level of scrutiny that the global supply chain has faced in recent years, investing in technologies which promote efficiencies in energy and carbon usage is a good step to get in line with environmental regulations and market expectations. Managers need to be assessing how technology empowers them to achieve their organisational goals.



Software-as-a-Service (SaaS) is the answer

We have established that it is of critical importance for energy operators to have real-time visibility across the entire supply chain ecosystem. We have also explored how valuable as-a-service providers are in improving business functions.

So, what happens if we use one to solve the other? **Software-as-a-Service** is the result; a consolidated digital logistics ecosystem that supports the end-to-end transparency of job progress or issues, reduces communication traffic and, importantly, builds trust in customers.





By increasing your visibility over the supply chain, you can:

- **Reduce disruptions**

Wouldn't it be great to be able to spot a problem before it became one? Live information fed through to a personalised dashboard makes this a reality. You can respond quickly with informed decision-making that will help to mitigate risk across the entire supply chain.

- **Reduce costs**

Predictions have got us far, but they are never truly accurate. SaaS enables businesses to make decisions based on up-to-date knowledge, therefore reducing waste and increasing overall efficiency.

- **Improve customer satisfaction**

Customer expectations regarding delivery time have only increased as more on-demand services continue to grow. Real-time tracking across all your supply chain operations not only benefits your own visibility, but also ensures that customers are having the best possible experience.

- **Optimised transport loads**

By fully utilising the capacity of transport vehicles, such as ships, trucks or planes, companies can reduce the number of trips required, leading to lower fuel consumption and fewer emissions. For example, ensuring that each truck is fully loaded reduces the total number of trips, directly cutting down on carbon emissions.

- **Efficient container packing**

Packing more items into a container or cargo space minimises wasted space, allowing for more efficient transportation. This reduces the total volume of shipments required, saving fuel and lowering greenhouse gas emissions.

SaaS from Lighthouse



Developed by Peterson, a global leader in energy logistics and supply chain solutions.



Empowered significant cost reductions of up to 32% across the full logistics process.



Achieved up to a 22% reduction in CO2 emissions.

Lighthouse offers energy operators real-time visibility over their entire logistics supply chain. Through an ecosystem of best-in-class, industry developed, connected applications, we ensure safe and consistent delivery of operational processes. Lighthouse is an ecosystem of software applications that digitises the end-to-end logistics supply chain.

Through real-time visibility, we drive clearer, smoother and faster decision making in daily operations. Lighthouse has been designed and built by industry experts from the ground up.

Our powerful software uses decades of logistics experience to give you digital assurance for every step of the cargo planning process. The suite of applications connects seamlessly together, as well as with third party applications,



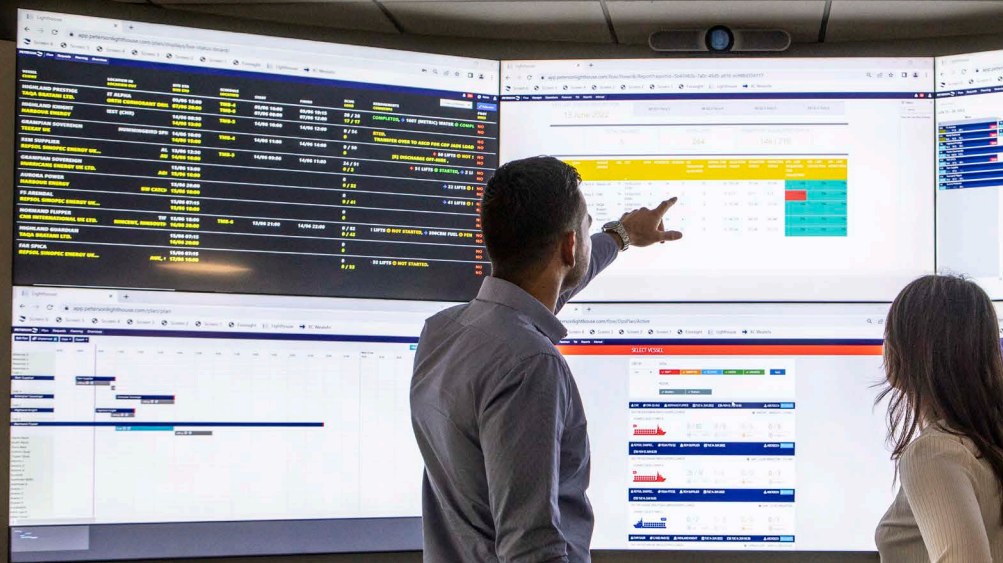
Our work in action

Lighthouse was developed by international energy logistics and supply chain solutions company Peterson. Already it has empowered significant cost reductions of up to 32% across the full logistics process, as well as up to a 22% reduction in CO2 emissions.

Over the last 12 years, Peterson's Lighthouse suite of technology has been responsible for improving efficiencies and delivering insight into more than 8m tonnes of cargo worldwide.

The software ecosystem developed and used by Peterson's operational teams, and licenced via SaaS subscription to clients, provides real-time data and analysis of the movement of goods across the end-to-end logistics supply chain.

It is the driving force behind Peterson's Control Towers across multiple sites, informing on-the-ground decision-making, as well as long-term, strategic thinking through analysis and industry benchmarking.



"Our client in Qatar was operating on an outdated model resulting in inefficient processes. The client owns approximately 70% of all joint ventures in Qatar, meaning they have a significant incentive to join forces and share logistics with onshore and offshore platforms. However, inefficient processes and procedures made this a challenge for the client.

"We delivered a pre-go live phase, involving the implementation of processes and procedures that needed to be in place before sharing. The team also assisted with the implementation of the sharing process and the digitisation of the client's supply chain.

"By successfully applying our knowledge and expertise to the market in Qatar, we have delivered significant improvements for our client. Our Lighthouse technology suite played a large role in this, resulting in a reduction in administrative load and greater transparency in the supply chain."



Gregor Wilson, Peterson

Want to see more of your operations?

Lighthouse was developed by experts with decades of operational experience to build the technology of the future. We are an established digital partner with a track record of delivering best-in-class results for our partners. Your business doesn't need more systems: you need easier access to the data and insights.

We want to help you make confident evidence-based decisions, highlight potential efficiencies and streamline your logistics operations.

Contact us here to find out more.



References

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