



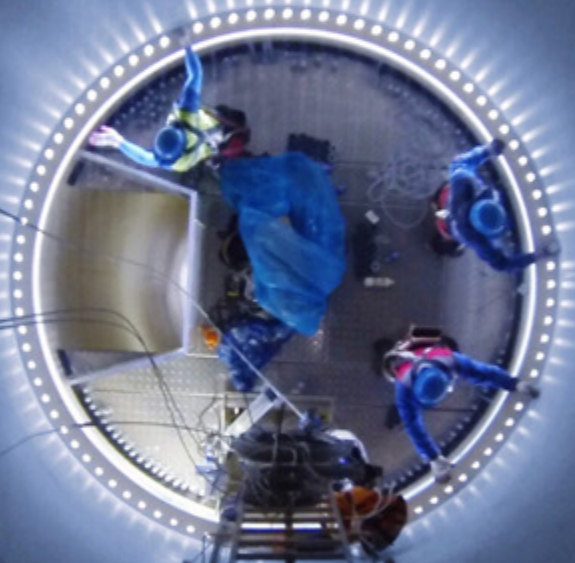
Supply chain transformation in energy

Industry focus

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KPMG in Thailand

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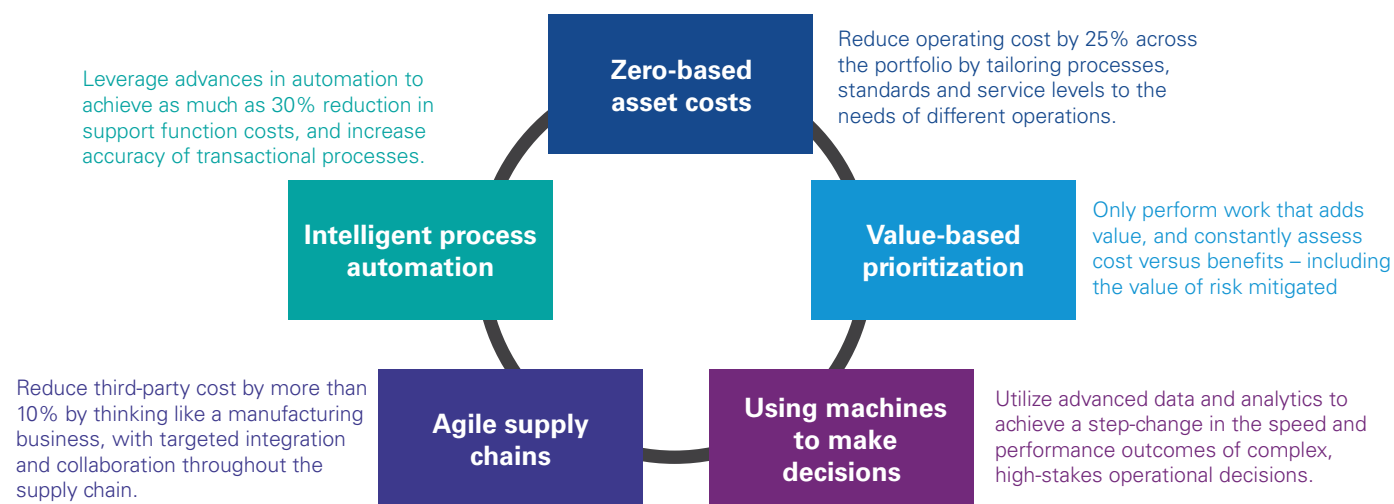
Supply chain transformation in energy

Whilst oil and gas consumption is forecasted to grow globally by 25% between 2015 and 2035, the growth rate is slowing significantly, with a further drag from decreasing energy intensity. The US's production capacity continues to be brought on stream at constantly falling unit costs, while new renewable energy capacity is being added at pace, with spectacular improvements in cost efficiency. At the same time, green field capital expenditure (Capex) has reduced dramatically. As a result, many E&P capex portfolios have shifted emphasis from high-risk, high-cost mega-projects towards a longer tail of smaller, incremental development opportunities, driving complexity into many business units.

In order to offset declining returns, upstream exploration and production (E&P), midstream, and downstream companies need to drive efficiencies with several transformations throughout their supply chain, including in digital technologies.

Upstream

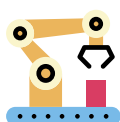
KPMG's *Delivering long-term value* in E&P publication suggests that there are five potential transformations to generate longer-term value for E&P process in upstream operations:



Source: KPMG Publication – *Delivering long-term value in E&P*

Midstream

Energy companies can also improve transportation and storage processes in midstream with these digital technologies:



Robotics are now used to optimize warehouse flows and processes through automated warehouse and dark stores to reduce labor and energy, and improve asset utilization.



Driverless vehicles, drones and on-board technologies such as GPS and track and trace devices are optimizing transport routes to reduce congestion and enabling major efficiencies for the economics of last-mile delivery.



Smart labels, QR codes and blockchain technologies enable consumers to scan products and harness specific information to better understand product provenance and supply chain performance.



Cloud-based centralized platforms can be used for tracking and managing materials, with data collected at a central hub. One central IT system is required to have visibility of all shipments, inventory and utilization.

Source: KPMG Publication – *Digital Supply Chain - the hype and the risks*

“Energy companies within the digital era need to adapt to the changing landscape in order to improve their growth, profitability and efficiency. This new evolution of the supply chain is more connected and intelligent and, as a result, putting pressure on companies to be agile, flexible and adaptable. The call-to-action is urgent. It is pushing all industry players to head into unfamiliar territories, challenge conventional perceptions and bring in new technologies to drive transformation.”



Natthaphong Tantichattanon

Partner, Audit
KPMG in Thailand

Digital supply chain in energy

Downstream

Energy companies can prepare their retail, lubricants, and refining businesses for change by positioning themselves for new value pools while at the same time repositioning existing assets ahead of disruption.

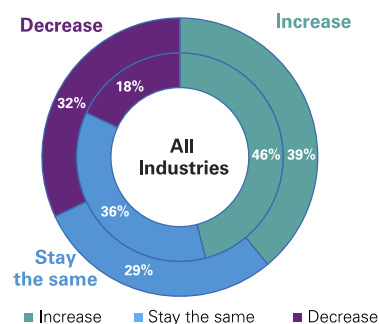
	Retail	Lubricants	Refining
Short term (protect the core)	<ul style="list-style-type: none"> Leverage Data & Analytics (D&A) to optimize margin capture (deeper customer understanding, pricing, etc.) Explore new capital structures and review portfolios 	<ul style="list-style-type: none"> Investigate adjacencies and positions in non-Internal Combustion Engines (non-ICE) applications/segments Diversify the added value beyond products to services 	<ul style="list-style-type: none"> Affirm/expand position in less impacted fuel segments Segment and evaluate 'advantaged' versus 'at-risk' assets
Medium term (investigate optionality)	<ul style="list-style-type: none"> Review forecourt fuel mix and pilot new offers (e.g. highway offerings) Investigate new partnerships and ownership models 	<ul style="list-style-type: none"> Expand plug-and-play solutions Create more dynamic lubricant formulation/process engineering via data feedback loops 	<ul style="list-style-type: none"> Develop export markets/new value chains Pilot alternative fuel manufacturing (e.g. biofuels, micro LNG, hydrogen)
Long term (shift the core)	<ul style="list-style-type: none"> Pursue digital strategies (e.g. attracting the connected car) Offer B2B/fleet services (e.g. integrated energy offer) 	<ul style="list-style-type: none"> Drive stickiness through vehicle-based technology Offer B2B/fleet services 	<ul style="list-style-type: none"> Re-gear technology and shift molecule mix (e.g. lighter ends, chemicals, etc.)

Source: KPMG Publication – Fueling the Future

Key issues and solutions for digital technology transformation:

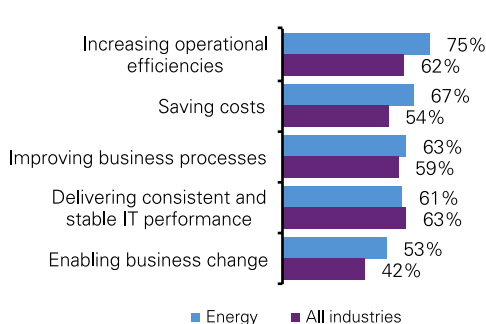
Among several supply chain transformations, energy companies are less likely to have a digital strategy due to greater challenges when overcoming resistance to change. *Harvey Nash/KPMG CIO Survey 2017* indicates key issues and solutions to overcome challenges from digital technology.

Looking forward, over the next 12 months, do you expect your IT budget to:



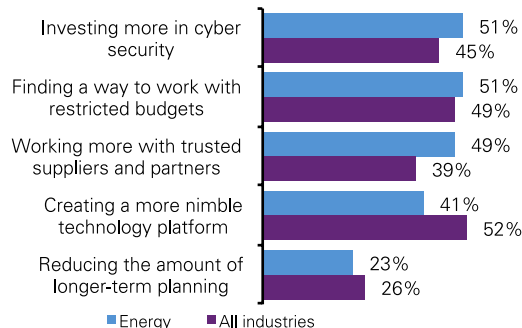
Energy companies are **much more pessimistic about their IT budgets for 2018** than those in other industries, with fewer expecting a budget increase (39% vs. 46% for all industries), and more expecting a decrease (32% vs. 18%).

What are the key business issues that your management Board is looking for IT to address? (top 5)



Energy company Boards **place a much greater emphasis on increasing operational efficiencies** (75% vs. 62% for all industries), **saving costs** (67% vs. 54%) and **enabling business change** (53% vs. 42%).

How have you adapted your technology plans to deal with uncertainty? (top 5)



To deal with uncertainty, energy companies are **much more likely to work more with trusted suppliers and partners** (49% vs. 39% for all industries), and **much less likely to create a more nimble technology platform** (41% vs. 52%).

Source: KPMG Publication – Harvey Nash/ KPMG CIO Survey 2017 (Energy Sector Findings)

“The energy sector is well positioned to shift focus from operational efficiency and cost savings to embracing the challenges and opportunities of the digital revolution. Although digital technology requires companies to adjust their business models and organizational structures, it provides a lot of opportunities for companies to improve their supply chain, reduce costs, improve logistics and storage, and understand their customers. This can help companies in the energy sector to overcome the challenges in the current market environment.”

Paul Flipse

Partner, Audit
Energy
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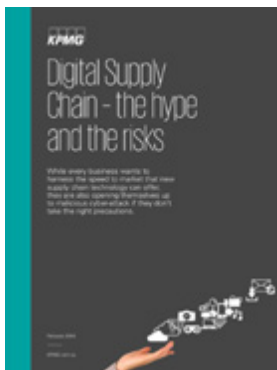
Delivering long-term value in E&P

Structural economic pressures have transformed upstream into a margin business. The urgent search for further sources of long-term value is revealing a number of exciting opportunities with the potential to reduce unit costs by a further 30%. This is not about another transformation program – those leadership teams that move fastest are likely to gain competitive advantage.



Fueling the Future

The increasing of electric vehicles will ultimately have a profound impact on oil refining, retail fuel, and lubricants demand. Oil and gas companies know this. And yet, it's common to underestimate how the confluence of multiple forces outside the oil and gas industry will increase the velocity and impact of the switch to the electric from the internal combustion engine.



Digital Supply Chain – the hype and the risks

Customers of today continually demand more choice of products, greater flexibility in delivery options and faster service. These expectations, combined with rapidly changing business models and channels to market, are putting previously unseen pressure on supply chains to be agile, flexible and adaptable to customer demand signals.



Harvey Nash/KPMG CIO Survey 2017 (Energy Sector Findings)

This energy sector snapshot provides survey responses from more than 100 energy companies on some of the key topics, and highlights several areas where this sector's responses differed significantly from those from across all industries.

Click on the links above to access the publications.

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