



Survive & thrive

EIC Insight Report





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Contents

Executive summary	4
Overview of companies and strategies	7
Key statistics	8
Key lessons: government	10
Key lessons: industry	12
Participating member companies	15
Success stories	16
ABLE.....	16
Aiken.....	18
Airswift.....	20
ALE.....	22
Amec Foster Wheeler.....	24
Booth Welsh.....	26
Caltec.....	28
Carpenter & Paterson.....	30
Costain.....	32
Elfab.....	34
ENGIE Fabricom.....	36
Fluorocarbon.....	38
GPT.....	40
Hayward Tyler.....	42
HR Wallingford.....	44
IMI Precision Engineering.....	46
Langley Alloys.....	48
NRL Group.....	50
Petrofac Engineering & Production Services.....	52
PJ Valves.....	54
Servelec Controls.....	56
Swagelok.....	58
Transvac.....	60
VEGA Controls Ltd.....	62
Weir Engineering Service.....	64



Executive summary

Introduction

The EIC Survive and Thrive initiative was borne out of CEO Stuart Broadley's efforts to meet with as many EIC member companies as possible during his first few months in post.

Within his first 120 days he had met with 120 EIC members. These organisations' determination to 'stay in the game', and even to prosper and grow, in spite of, and increasingly because of the challenging markets was truly inspiring.

From these early meetings, it became apparent that there were common factors that led to their success. The EIC realised that if these strategies and best practices were identified and shared with the wider industry they could help UK businesses to flourish, even during the downturn.

In-depth interviews during February and March 2017 were organised with 26 EIC member companies, a representative sample of companies ranging from small UK-only SMEs to Tier 1 EPC companies with thousands of workers spread across the globe - and representing all segments of the energy industry: oil and gas, power, nuclear and renewables.

4. Diversification
5. Export
6. Optimisation

Hence, this special, inaugural **EIC Survive and Thrive Insight Report** summarises key findings for industry and for relevant departments of the UK government, providing in-depth case studies for each of the 26 participating companies. These 'success stories' provide valuable lessons on an individual company basis, of course, but are perhaps even more powerful when approached holistically, providing a best practise book, if you will, for how companies in any sector can learn to survive and thrive in challenging markets.

The strategies at the ends of the spectrum, those most and least employed, are extremely thought provoking.

Innovation and technology

The strategy most often employed was that of **innovation**, defined as how companies are getting much closer to their customers, often changing their own processes and structures, as well as offering significantly enhanced products, services and solutions, with new or applied differentiation, doing whatever it takes to meet the

have innovated their way out of the crisis.

Innovation and technology strategies had to be planned, normally with just one important target customer in mind at a time. Companies which successfully innovated in these case studies allocated time and resources to do so. It became part of their day-to-day life. Those innovations, be they technological or process based, often saved their clients' money, through enhanced efficiency and increased production. Likewise, innovation related to safety enabled companies to differentiate in an area where cost alone isn't the bottom line, it's something more fundamental – a customer's reputation.

A large number of companies have seen a considerable increase in revenues by moving from being a supplier of components to a one-stop-shop for their clients, becoming a complete solutions provider. This allows these companies to not only supply goods, but to become involved in the whole project life cycle, from pre-design work and material selection through to installation and operations, with the obvious commercial benefits this brings as well as positioning themselves as trusted and, importantly, long-term partners for their clients.

It is reassuring to read that innovation and technology are favoured strategies by British companies in a downturn, but important questions remain: the savings generated by these innovations for clients are huge – but are limited to normally only a few clients per company – due to their lack of scalability – both at home and abroad.

- What is the role of government

“ 73% of companies have innovated their way out of the crisis

The strategies being employed by these companies to survive and thrive during these tough times were grouped into six categories:

1. Innovation
2. Technology
3. Collaboration

changing needs of their key clients in these challenging times, with the key aim of retaining their valuable loyalty and business. If you include the strategy of **technology**, which in this context is the specific use of technology to solve clients' current problems, then 73% of companies

to unlock this potential and convert these local innovators to global dominators?

- Can SMEs find a way to scale up on their own, or will they ultimately be acquired by larger players, diluting that innovative spirit that made them special?
- Are truly disruptive innovations now presenting themselves in the mature offshore oil and gas arena? Are the traditional players, operators and contractors alike, ready for these innovations?
- Is there a simple way to match make problem solving innovators with solution-seeking operators?

Export

At the other end of the spectrum to innovation, is **export** – the least employed strategy at only 8%. This may seem like a surprise, and we at the EIC had to think hard about why this might be. The truth is clear from the case studies though – companies have not stopped exporting through the downturn, but they have typically not seen investing in ‘new exports’ as the way out of the crisis. Export markets for energy are often fraught with complexity and risk, and British companies are instead choosing strategies that are faster, cheaper, easier and allow them to focus on retaining their existing key customers.

This significant and worrying under deployment of export as a survive and thrive strategy raises fundamental questions for industry and the government. Many companies that considered exporting but decided against it, were either unaware of the assistance on offer from government

bodies such as the Department for International Trade or UK Export Finance, or felt that getting support was too complicated or did not apply to them for some reason.

Key recommendations centre upon ‘exporting short cuts’ in a downturn – targeted and high-profile mechanisms to encourage companies to overcome their obvious resistance to invest in new export markets:

- A mechanism that clearly works already is Fit4Nuclear – can we learn from this success and create a new government supported training and accreditation initiative for SME scale up?

benefitting hundreds of SMEs immediately?

Collaboration and diversification

Collaboration accounted for 31% of the strategies employed, but never on its own; always as an enabler or catalyst for a second or third strategy – be it to diversify, innovate, optimise or to gain a new technology.

The topic of collaboration gets a lot of attention and perplexes many for all sorts of reasons, including because operators struggle to contract with loosely collaborating suppliers, or because of the real or perceived challenges with internal



Companies have not seen investing in new exports as the way out of the crisis

- UK Export Finance large credit deals in major global energy projects are creating huge excitement within the UK energy supply chain already, but do enough companies understand how to take advantage of this major short cut?
- Well-resourced country campaigns led by the Department of International Trade, backed up with detailed and accurate market data, aligns well with multipliers like EIC and other trade associations. Can trade associations do more to help?
- Re-instated TAP funding for SMEs to exhibit abroad, and to learn about new markets, is essential – can the government make this simple change, at a small cost,

culture change needed to embrace a collaborative mindset.

However, the EIC believes collaboration at the supply chain level can be more easily swallowed when it is seen as one piece of a wider change strategy. Certainly, in these case studies, a sense of urgency was a pre-requisite for the companies that collaborated, so culture change was quickly embraced by all.

Diversification accounted for a surprisingly high 27% of strategies employed, be it from one sector to another (the most common being oil and gas focused companies making the move to offshore wind) or from CAPEX focus to the aftermarket, and was proven to yield excellent results.

Why do we say 27% is surprisingly





Savings and new orders calculated from one customer case study each exceeded £550m per year – imagine if this could be scaled up

high? Because the EIC has heard from many companies over the past months and years that diversification takes too long, especially because their clients' and their own internal culture would need to change first, but these case studies all prove that companies are embracing the culture changes needed to be able to successfully diversify in months, not years.

Diversification is seen as a means of futureproofing a business. Companies have recognised that overreliance on one sector is no longer an acceptable risk to take. Indeed, the companies with the most diverse portfolios, unsurprisingly, weathered the downturn best.

Optimisation

Finally, and perhaps also surprisingly, even two-three years after the start of the crisis, companies are still finding huge potential for **optimisation** of their costs and processes, and most importantly are finding ways to directly pass these benefits on to their customers. It may feel like efficiencies must have now been maximised after all the job losses and business closures, but companies are showing determination and creativity to move beyond cost reduction and cost avoidance, to cost and process differentiation.

This is another key lesson – it is never too late to look inside a company and expect further efficiencies, and these are most effective when the benefits are felt directly by your customers.

Conclusion

The UK and global energy industry is undeniably still not yet out of its market crises. However, the companies in this report have shown that with crisis comes opportunity: to innovate, to diversify, to further optimise, and ultimately to come out of the downturn stronger than ever.

The strategies for success identified in this report are proven, current, inspiring and important. The savings and new orders won by these 26 companies alone, through their survive and thrive strategies, and normally calculated from only one customer case study, exceeded £550m per year.

Imagine what this could be worth to businesses and the UK economy if this could be scaled up, at home and abroad?



Collaboration accounted for 31% of the strategies employed, but never on its own; always as an enabler or catalyst for a second or third strategy

Overview of companies and strategies

Company	Employees	Sector(s) served	Collaboration	Diversification	Export	Innovation	Optimisation	Technology	Government support for survive and thrive initiative?
ABLE	45	Oil and gas, utilities, food and beverage, pharmaceutical, chemicals and power	X			X		X	
Aiken	32	Oil and gas, and onshore infrastructure	X	X					Yes – Scottish Enterprise
Airswift	700	Energy, process and infrastructure	X			X		X	
ALE	1,800	Oil and gas, power, infrastructure and renewables		X		X			
Amec Foster Wheeler	36,000	Oil and gas, chemicals, mining, power, process, environment and infrastructure	X				X		
Booth Welsh	210	Life sciences/pharmaceuticals, oil and gas, nuclear and water		X		X			Yes – Scottish Enterprise, Scottish Development International and local council support
Caltec	9	Oil and gas						X	
Carpenter & Paterson	320	Oil and gas, power, petrochemicals and LNG			X	X			
Costain	4,180	Rail, highway, oil and gas, water, power, nuclear, diversified	X			X			
Elfab	65	Oil and gas, chemicals, pharmaceuticals and food and beverage	X			X			Yes – DIT
ENGIE Fabricom	450	Oil and gas, power, chemicals, offshore wind and energy from waste		X					
Fluorocarbon	450	Oil and gas, power, medical, aerospace, diversified		X		X			
GPT	150	Oil and gas				X			
Hayward Tyler	540	Power, oil and gas and nuclear	X				X		Yes – Scottish Development Agency; Nuclear AMRC; Regional Growth Fund
HR Wallingford	250	LNG, oil and gas, and ports	X	X		X			
IMI Precision Engineering	5,800	Energy, commercial vehicles, rail, life science, food and beverage and industrial automation						X	
Langley Alloys	42	Oil and gas, chemicals and marine				X			
NOV Gateshead	190	Oil and gas, and nuclear		X		X			Yes – Nuclear AMRC
NRL Group	130	Nuclear, petrochemicals, renewables, construction, energy from waster and oil and gas				X			
Petrofac	13,500	Oil and gas, and offshore wind	X			X			
PJ Valves	85	Oil and gas			X	X	X		Yes – DIT; UKEF
Servelec Controls	105	Oil and gas, power, nuclear, infrastructure and defence				X		X	
Swagelok	5,400	Oil and gas, chemicals and petrochemicals				X		X	Yes – DIT
Transvac	53	Oil and gas, and water						X	Yes – Innovate UK and local development agency
Vega Controls	1,100	Oil and gas, chemicals, food, nuclear and pharmaceuticals	X					X	Yes - training grants
Weir Engineering Services	628	Power, nuclear, renewables, industrial, downstream				X			-
Total	70,372		8	7	2	15	6	8	



Key statistics



26

the number of companies which took part in the EIC Survive and Thrive initiative

£550

million

per year savings and new orders (normally based upon only one customer case study per company – imagine if this were scaled up)

0

the number of companies who mentioned Brexit

73%

of companies survive and thrive through innovation including applying technology to solve customers' problems

65%

of companies used more than one strategy

58%

of participating companies were SMEs

27%

the percentage of companies which received government support

0

ONLY

8%

of companies used
export strategy

31%

of companies used
technology strategy

23%

of companies used
optimisation strategy

58%

of companies used
innovation strategy

27%

of companies used
diversification strategy

100%

of companies that **collaborate** use it
as a platform for other strategies

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Key lessons: government

1. What about Brexit?

A surprising finding was that none of the companies mentioned Brexit as a reason for them to employ a new type of strategy. Indeed, the biggest reason given for change was responding to the oil price crisis.

“ ‘In each of the 26 interviews, we asked companies to explain the context of their story, the urgent reason why they needed to develop new survive and thrive strategies. Many reasons were given – oil price crisis, electricity pricing squeeze, environmental legislation requiring investment, etc. – but no one even once mentioned Brexit’ – the EIC

2. SMEs need help to scale-up

Time and again SMEs come up with great ideas but are poorly equipped to scale-up their business fast enough to take advantage, no matter how great their strategy may be. The EIC favours a new programme of SME scale up training and accreditation to address this issue, building on the successful model of Fit For Nuclear.

“ ‘Oil and gas companies are traditionally cautious about being first to adopt new ideas. SMEs with disruptive technology need support to scale-up’ - Servelec Controls

3. Raise your profile – connect with the supply chain

73% of the companies interviewed for the Survive and Thrive initiative did not receive or were not aware of any kind of government support. Government bodies must work harder to raise awareness about their services and benefits.

“ ‘WES would welcome government support and further consultation on growing the UK energy sector supply chain’ – Weir Engineering Services

4. Export needs to be prioritised

Export support after Brexit is essential but companies do not fully understand what services are offered by UK Export Finance (UKEF) and the Department for International Trade (DIT) or how they are of benefit. It's telling that 92% of companies interviewed didn't contemplate export as a strategy to combat the downturn.

“ ‘Bank guarantees were a big issue at first and support from UKEF would have helped’ – Carpenter & Paterson

5. Make financial support truly available

Although some companies received financial support from local development agencies, UKEF and sector focused initiatives (e.g. Fit4Nuclear, Regional Growth Fund, Scottish Development International), most did not and highlighted the necessity of funding, particularly for R&D. ***TAP funding for SMEs to exhibit abroad and learn about new markets is considered essential.***



‘Although government funds were available in the early stages, a shift of policy has contributed to an acute shortage of funds for product development’ – Caltec

6. Collaboration and diversification matters to suppliers as well as operators

The government should support suppliers of goods and services to diversify not only into new sectors but also from the CAPEX to the OPEX segment. It was noted that many DIT and UKEF initiatives, particularly those relate to diversification, were geared up for operators and large contractors, not SMEs. When trying to diversify, companies looked towards industry collaboration rather than the government for support.

‘Diversification should be actively encouraged among goods and services suppliers’ – ENGIE Fabricom



7. The value of people

The development of technical skills is one of the pillars of innovation and competitiveness, and vital to produce the next generation of energy workers and must be supported by the government. One of the primary reasons that SME scale-up is failing is because ready and trained people are simply not available in the right place or at the right time.



‘Technical apprenticeships should be provided in all UK regions’ – VEGA Controls

8. We’re here to help

Well-resourced country campaigns led by the DIT, can really benefit from detailed and accurate market data. This is easier said than done. The UK energy supply chain is very fragmented and complex. This is where the EIC and other trade associations can help. We can get close to the supply chain and find out what they are doing and what support they need. We will work with the DIT and UKEF to make sure they have all the information and support necessary to help the UK energy industries thrive at home and abroad.

‘Use multipliers like trade associations to accelerate sharing of best practices’ – Amec Foster Wheeler



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Key lessons: industry

1. Move out of your comfort zone: seek markets abroad

Exporting is a possibility not just for large companies, but SMEs as well. A good export strategy, supported by government agencies such as the Department for International Trade (DIT) and UK Export Finance (UKEF), allows companies to tap into new market opportunities and boost revenues.



‘Today, over 70% of the company’s revenues derive from export opportunities, compared with 20% in 2011’ – PJ Valves

2. Use technology to stand out from the crowd

Companies that actively invest in the development of a broad technology portfolio can differentiate from rivals and provide diverse solutions to industry challenges. Using customers to highlight the benefits of innovative technologies removes risk perception and accelerates market acceptance.

‘Technology companies must retain a healthy pipeline of innovations and patents’ – GPT Industries



3. Become a one-stop shop

Companies should be able to offer complete solutions to clients instead of separate supply of equipment or services. Not only does a one-stop shop approach provide value and efficiency to customers, but it also enables suppliers to get involved in the whole life cycle of a project and stand out from the competition.



‘Offer complete solutions, as a one-stop-shop, instead of separate services, to differentiate your offering’ – ALE

4. Collaboration is a GREAT enabler

Our findings show that collaboration was used 100% of the time to support the successful implementation of another strategy. Whether it’s to speed up technological development or to add credibility when entering a new market, finding the right partner is key.



‘Active collaboration opens up diversification and growth more quickly’ – HR Wallingford

5. Fully diversified companies survive the crisis best!

Companies with low exposure to the oil and gas market were better prepared to deal with the industry downturn. For example, many oil and gas service companies have found new opportunities in the renewables (e.g. offshore wind, energy from waste) and nuclear sectors, among others.

‘Offshore oil and gas businesses can apply their skills and resources to multiple different sectors’ – Aiken Group



6. Improve your marketing – sell the financial benefits of your innovation

Companies often focus on the technical rather than the economic benefits of their products. Suppliers should emphasise the savings resulting from increased efficiency, productivity and safety that their equipment and services can deliver.



‘Companies must change how they promote themselves, to emphasise delivered savings’ – Swagelok

7. Don’t optimise for you, optimise for your customers!

After three years of constant process optimisation, the big opportunity now is to optimise so that your customers directly feel the benefit.

‘It is never too late to further optimise shop floor processes’ – NOV Gateshead



8. OPEX is as good as CAPEX

As greenfield projects dwindle during the industry downturn, operations and maintenance activities unlock new business segments for the supply chain. Asset integrity is now a prime focus for operators. OPEX is as good an opportunity as CAPEX.



'In a downturn, companies that can easily switch from CAPEX to OPEX are more likely to avoid losses' – HR Wallingford

9. Get intimate with your client

Customer feedback is a tool of utmost importance to identify opportunities for effective innovation. Product development should closely follow customers' aspirations and challenges.

'Product development is a continuous process that is shaped by customer feedback' – IMI Precision Engineering



10. Never waste a good crisis

The search for efficiency during the industry downturn is the ideal opportunity to develop innovative services and equipment. Suppliers offering radical solutions during the crisis are now more likely to win.



'In a downturn, customers are often more willing to accept challenges and new business models from their suppliers' – Amec Foster Wheeler

11. Work 'inside the fence'

Suppliers with highly-skilled personnel working inside the client's facilities become trusted, long-term partners, which allow them to challenge assumptions and contribute with more efficient solutions.

'Inside-the-fence supplier relationships with clients build strong loyalty and openness to challenge as well as keeping up with changing scope' – Booth Welsh



12. Give your head a shake

How can you expect to help a customer in crisis if you're not willing to change your own mindset first. Many of these stories are about success through culture change. It could be as simple as speaking to your customers, asking your staff for their ideas, or simply taking a good long hard look at your inventory process. The solution to success might be staring you in the face.



'Understanding customers' needs generates business opportunities' - Carpenter & Paterson

13. Imagine if Google did O&G

Challenging industry norms can lead to disruptive innovation, which sets new standards and paradigms. Digital technology, for example, can be applied to existing industry practices and generate ground-breaking solutions.

'Existing industry practices in offshore platform O&M have not changed for 40 years and are ripe for disruptive innovation' – Servelec Controls



14. Does your customer recommend you?

Too many companies do amazing work for their customers but are unable to then promote this success. Don't let your clients go silent. Find a way for your customers to become ambassadors for your company – your business will grow much faster. Meanwhile, operators also have a responsibility to share their problems with industry and share their success stories as well. The best ideas are worthless if no one finds out about them.



'In a downturn, a company's key existing clients are a rich source of opportunities for innovation and growth' – Booth Welsh



15. Collaboration is a short cut to success

Collaboration in the industry, not just between customer and supplier but also within the supply chain, can hugely accelerate the successful implementation of your new strategy, whether it be new technology, innovation, diversification, etc.



'Innovative solutions often require collaboration to unlock new technologies and potential' – Airswift

16. Focus, focus, focus

Finding a specific niche in which your company can offer a high degree of specialisation enhances differentiation and greatly increases your chances of success, rather than spreading yourself too thin.

'Focus on niche sectors' – ALE



17. Don't give up! Stay in the game

While it's true that many of the companies developed their strategies over a long time, and for many this is about survival, for others the pay back for them and their customers came very quickly. And the common behaviour from companies was a determination to stay in the game, driving new strategies and culture change.



'Technology that pays back in days, not years.' – Caltec

18. Be part of the bigger picture

Companies should realise that their products, services and expertise can be applied throughout a project's life cycle. Supporting clients from concept to execution helps establish loyalty and long-term relationships. You may need to be courageous though to convince your customer that you need more access than they currently give you.

'Using the same highly-skilled team from concept to execution boosts customer trust' – Costain



19. Love your partner

The word collaboration can imply temporary or non-binding relations, but the truth is that a successful collaboration should require a long-term binding relationship with complete trust, respect and transparency.



'Collaboration requires radical mindset change to bring fast success' – Aiken

20. For innovation, look to SMEs

A lot of real innovation has come from SMEs. Although we do have some large companies innovating, the vast majority is from SMEs. If you're looking for innovation seek them out. But operators, please then be generous enough to be a passionate advocate for their innovation afterwards. Don't keep it a secret.

'Innovative companies, often SMEs, need more help to commercialise their innovations' – ABLE



21. Match solutions to problems

These case studies show that the energy market desperately needs some type of process that efficiently matches all the common problems customers face with the suppliers that have the best solutions.



'The EIC needs to change its model beyond connecting buyers and suppliers for project opportunities, to also match making customers' operational problems with British innovators and their proven solutions' – the EIC

22. Say no to negativity

All companies expressed a belief that the market was turning the corner in 2017 and there was evidence of green shots of recovery. Don't be the company that is doing nothing but waiting for the market to recover.

'These case studies seem to prove that companies with a positive and proactive mindset are more likely to survive and thrive' – the EIC



Participating member companies

ABLE
Instruments & Controls

aiken
group

airswift
TRUSTED WORLDWIDE

ALE
SMARTER, SAFER, STRONGER

**amec
foster
wheeler**

BOOTH WELSH
Integrated Engineering Services

CALTEC

Carpenter & Paterson Ltd
Pipe Support Solutions Worldwide

COSTAIN

ENGIE
Fabricom

elfab pressure intelligence

FLUOROCARBON

GPT
an EnPro Industries company

HR Wallingford
Working with water

HAYWARD TYLER

IMI
Precision Engineering

Langley Alloys

NOV

Petrofac

nrl

PJV

servelec controls

Swagelok

transvac

WEHR

VEGA



Innovative flow measurement products under the ‘Master’ series



How is ABLE thriving?

ABLE has been developing successful bespoke solutions to tackle customers’ flow measurement needs, helping them to boost efficiency and lower costs. The company has been integrating existing technologies, adding successive layers of innovation to its own products, and using its own algorithms to tackle challenges that previously could not be solved.

The challenge

Four challenges will be highlighted in this case study as they represent opportunities that helped ABLE thrive.

In 2004, the company received a request from Talisman and a client in Central Asia to develop a system which could robustly & effectively measure liquid flow under all conditions including those of a very high and varying gas volume fraction. Two existing ultrasonic technologies – DERF time-of-flight and Fast Fourier Transform (FFT) – were already being used for this application, but neither technology alone could provide a measurement solution for all measurement conditions.

In 2010, ABLE was approached by TUV NEL, which at the time had a Joint Industry Project (JIP) with major international and national oil

companies. This time, a solution was needed to quantify the content not just of water, but also oil and gas, i.e. a true multiphase flow measurement.

The flow measurement requirements of ABLE’s customers reached another level between 2012–14, when the Apache Corporation was seeking the Holy Grail of partially full pipe mass flow measurement to optimise and automate its drilling operations.

In 2015, Total approached ABLE needing a multi-phase metering system, especially for wet gas.

The solution

For each of the challenges above, ABLE succeeded in developing fully-operational solutions. For Talisman, ABLE combined the FFT and DERF time-of-flight ultrasonic technologies, using its own patented algorithm, and created **SlugMaster** an integrated system capable of determining the flow of liquids to meet produced water fiscal requirements, without interruptions. Measuring just the liquid content of produced water with SlugMaster enables operators to determine the accurate percentage of hydrocarbon sediment being discharged to the sea, an activity which is regulated by government authorities. Ensuring an accurate analysis allows operators to separate the water from sediments and ultimately prevents unnecessary financial penalties.

“ The distilled essence of ABLE’s Master Series is that it maintains a robust measurement under conditions of process upset that would defeat conventional meters. The development echoes ABLE’s whole raison d’être, which is to step outside the confines and parameters of a typical instrumentation company when solving customer problems.

Dave Quelch
Business Development Manager



For TUV NEL, ABLE introduced **PhaseMaster** as a dual phase version of its existing SlugMaster. At the time no truly clamp-on multiphase flow meter existed anywhere in the world and ABLE provided the first patented prototype. The PhaseMaster delivered better than 1% uncertainty for liquids and typically 5% for gas. This ground breaking development lead to several successful field trials.

The dual phase variant augments the offshore separation process with the clear benefit of higher quality and quantity of oil output. An additional advantage is that an improved separation process reduces wasteful gas flaring.

For Apache, once again adapting its existing technologies and using its own patented algorithms, ABLE introduced **MudMaster** to meet mass flow measurement requirements under partially full pipe conditions. Quantifying mass flow and composition of the drilling mud at the outlet of the well enables operators to determine the exact amount of drilling fluids lost to or gained from the well formation, which is essential for healthy well maintenance. Drilling fluid costs can amount to 10% of those incurred running the well. MudMaster also plays a key safety role in the drilling operation, as changes in the composition of the mud can lead to a broken drill bit, blow-outs or even a lost well.

For Total in 2015, ABLE took PhaseMaster a step further into the wet gas measurement arena. The company used an existing liquid PhaseMaster system and once again developed a fully functioning solution that met the customers'

wet gas requirement. In December 2016, ABLE was contracted by a major North Sea operator, to use PhaseMaster to predetermine phase fluctuations for the optimisation of three-phase pump performance. A successful conclusion will enable highly productive yet unstable wells to be fully utilised for the first time in the North Sea.

About ABLE

Founded in 1985 with the aim of tackling customer's challenges by embracing innovation, ABLE Instrument and Controls is a specialised solution provider focused on the design, supply and project management of large and small measurement solutions.

Although oil and gas is a key market for ABLE, chemicals and petrochemicals, pharmaceuticals, food and beverage and a host of other sectors also benefit from ABLE's varied portfolio of level, flow, temperature, pressure, gas and liquids analysis equipment.

Story type:

#innovation #technology
#collaboration

Benefits:

- Savings: £1.5m p.a.
- Production enhancement: 100,000 barrels

Key findings:

For the industry:

- Truly innovative companies need to allocate adequate time and resource to commercialising their solutions, as well as continuing to innovate further
- Operators have multiple problems linked to field viability and efficiency, and desperately need innovative suppliers to solve these problems
- Innovative SMEs are sometimes unable to commercialise innovation because operators fail to follow through

For the government:

- Innovative companies, often SMEs, need more help to commercialise their innovations, rather than seed funding at the concept stage, if these innovations are to materially impact production enhancement and exports on a global basis

Government support?

Financial support for the development of successful prototypes came from the operators themselves, not the government

ABLE at a glance

Key products and services: level, flow, temperature, pressure, gas and liquids analysis equipment

Main sector(s) served: oil and gas, utilities, food & beverage, pharmaceutical, chemical and power industries,

Headquarters: Reading, UK

Year established: 1985

Number of employees: 45

Revenue: £10m (2016)



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Rapid diversification from offshore to onshore; collaborating to accommodate excellence



How is Aiken thriving?

Aiken has overcome the rapid downturn by successfully and radically diversifying into other sectors. Previously focused on the offshore oil and gas market, Aiken refocused its resources and management to move into multiple completely new onshore sectors, through the collaborative mindset it created over the last two years.

The challenge

Like many other companies in Aberdeen, Aiken was greatly impacted by the downturn of the oil and gas industry and its effect on activities on the UK Continental Shelf. Although the company had engaged with BP on a large project on the Magnus platform, as this contract came to end it became clear there was an obvious shortage

of work available in the offshore market. This negative outlook reluctantly led to a downsizing process, although a 30-strong core team was maintained. It was acknowledged change was needed, and fast.

The solution

Change began to take place in late 2015, when the company realised that diversification was needed. Aiken found Jan Snel, a Dutch company with onshore module solutions. Aiken decided to embrace collaboration, a culture change for the company. A sole agent deal was struck and Aiken began tracking onshore tenders by using E-Tracker, opening their eyes to the wealth of opportunities beyond their traditional offshore markets. Aiken developed other collaborative partnerships focusing on a few key onshore sectors. The first 'flat pack' modular concept contract with the Blackfriars railway station in London, for installation, operation and maintenance work was quickly followed by business for pre-assembled modules at Gatwick airport.



As an independent, locally owned business with a corporate history stretching back almost three decades, Aiken Group is well placed to weather the vagaries of the current marketplace and looks to the future with optimism as we draw on the strength of our synergistic approach to business.

Danny Donald
Managing Director



Aiken is currently forging two additional key partnerships: one with Hunter a US company specialising in blast rated modules and most recently one with Global Advantech strengthening its environmental division. This expansion into new areas hasn't been without its challenges: at one time Aiken saw itself participating in too many tenders, which stretched the company's resources too much, following analysis of the problems being encountered the management team refined its approach to pursuing only appropriate tenders for work. A purpose-built Jan Snel facility in the UK is being considered, which could potentially lead to a full joint venture with Aiken.

About Aiken Group

Aiken is well known for its work on plug and play accommodation modules, including new structures and upgrades. A multi-disciplined one-stop shop historically servicing the oil and gas sector, Aiken provides engineering and project management services specialising in modules, accommodation, hot work welding habitats, electrical, plumbing and HVAC related disciplines.

From Brazil to Singapore, Aiken has worked on projects around the world. In addition to its headquarters, Aiken has offices in York and UAE. The company works with more than 200 contractors when involved with large projects.

Story type:

#diversification
#collaboration

Benefits:

- Order intake: £1.6m

Key findings:

For the industry:

- Offshore oil and gas businesses can apply their skills and resources to multiple different sectors
- Diversification can be accelerated through collaboration
- Collaboration requires radical mindset change to bring fast success
- Use of business intelligence tools accelerates business development focus

For the government:

- Collaboration should be supported at the supply chain level, not just between operators

Government support?

Scottish Enterprise provided a lot of support through its seek and solve scheme

Aiken at a glance

Key products and services: plug and play accommodation modules
Main sector(s) served: oil and gas
Headquarters: Aberdeen, UK
Year established: 1987
Number of employees: 32
Revenue: £26m (2015)



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Unique, packaged ‘data, analytics and expertise’ to optimise recruitment decisions

How is Airswift thriving?

Responding to an industry requirement, Airswift teamed up with a technology solutions provider to create **Total Talent Insights** (TTI), an analytical tool that provides key workforce information for customers. TTI enables clients to make critical business decisions, especially important during the oil and gas industry downturn.

The challenge

The recent crisis in the oil and gas sector had a significant impact on Airswift’s key clients. Like the many other companies hit hard, they were seeking increased efficiency and productivity, but at lower costs. However, the necessary information about the talent market to make sound decisions related to pay, availability and benefits is scarce, unstructured and the information available is often not backed up by objective data. Innovation was needed to provide essential information, transparently, so the right decisions could be made.



The solution

Airswift responded to this challenge by innovating. The company

started a collaboration with a digital solutions provider to develop an analytical tool that enabled clients to obtain the workforce information they needed for their decision-making process. This tool, named Total Talent Insights, is a ready-to-use, algorithm-protected system that makes the entire workforce visible to the client by allowing them to access internal and external data on talent availability, location, cost and capability, based on industry benchmarks as well as data uploaded by the clients themselves.

This tool was introduced to the market via a soft launch in the first quarter of 2016, with a full launch planned for Q2 2017. Airswift customers interested in the system can sign up to a single region or a



Total Talent was birthed from witnessing organisations make winning and losing workforce decisions – the difference between the two often came down to the ability to make informed decisions.

Janette Marx
Chief Operating Officer

specific sector of the tool. Access is provided via membership or a licence fee.

A unique package of tools, TTI provides benefits such as cost savings and increased productivity. The system has made possible, on average, a 5-8% reduction in contractor and contingent labour costs when it is actively used. In the case of a copper smelter company, TTI has led to a 20% improvement in productivity, while at an oil sands operation a 25% increase in productivity was achieved. A global oil and gas company using TTI is saving US\$6.4m annually through 850 contractor rate adjustments averaging 9.5%.

Airswift recognises that TTI is a product that goes beyond the oil and gas industry. Consultancy options are currently being considered to ensure that the benefits from TTI are maximised for clients.



About Airswift

A global recruitment specialist, Airswift was created in 2016 as the result of a merger between Air Energi and Swift Worldwide Resources, two workforce solutions providers with more than 30 years of experience.

Airswift has over 50 offices across the world serving the energy (oil and gas, power and renewables), process and infrastructure industries. In addition to recruitment services, Airswift also provides services related to global mobility (immigration, assignment and mobilisation, employment services and finance), managed solutions (provided by Singular, a wholly-owned subsidiary), outsourcing of hiring campaign management and consultancy services.

Story type:

#innovation
#collaboration
#technology

Benefits:

- Workforce efficiency: 20–25% improvement
- Cost saving: US\$6.4m for one client

Key findings:

For the industry:

- Innovative solutions often require collaboration to unlock new technologies and potential
- Solutions that help clients to make better critical business decisions in a downturn can be very attractive

For the government:

- It must work harder to ensure businesses understand the capabilities of and benefits of working with the Department for International Trade

Government support?

Airswift has not received any government support

Airswift at a glance

Key products and services:

workforce solutions

Main sector(s) served: energy (85% of revenues)

Headquarters: Houston, US

Years established: 2016 (merger between Air Energi and Swift Worldwide Resources)

Number of employees: 700

Revenue: US\$1bn (2016)

Improved efficiency of talent related spend – 5-8% reduction in contractor and contingent labor spend.



Copper Smelter Project – **20%** improvement in productivity and **13%** spend recovery



Global Oil & Gas Operator – **\$6.4M cost saving**



Oil Sands Mine – **25%** improvement in productivity



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ALE's innovative DNA enabled its rapid diversification from oil and gas heavy transport and lifting to become a turnkey contractor for the wind power sector



How is ALE thriving?

During the downturn in the oil and gas sector ALE has diversified its offering by exploring the opportunities available in the onshore wind segment. The company's innovation was highlighted by offering an

outsourced turnkey solution for developers and OEMs in the wind market.

The challenge

Like most in the supply chain ALE's activity within oil and gas related projects was significantly impacted

by the fall in oil prices. Although the company benefitted from a one-two year backlog of oil and gas projects, the slowdown in oil and gas projects, left ALE looking for new sources of revenue.

The solution

One of ALE's core strengths is its low leverage and debt capacity, which makes it able to react quickly and flexibly to events such as industry downturns. Not being highly indebted also allows the company to adapt to industry trends and technology shifts.

This was the case when ALE made the decision to diversify into wind power projects. The company has embraced innovation, offering a complete transport, construction and installation 'TCI' package for onshore wind farms worldwide, and is now expanding this further to include the necessary civil engineering and site preparation, aiming to become a one-stop-shop for developers and OEMs, a wind farm turnkey



In the current market, clients are actively looking for dynamic, innovative supply chain partners that will bring real value to their projects. By diversifying our services and focused investment in R&D, we provide our clients with innovative solutions and best in class service so we can continue to grow as leaders in the heavylifting industry.

Toby Allin
Global Projects Division Director



solution if you like. ALE is now in final discussions on a £45m turnkey contract in the wind segment.

Another factor that contributes to the company's success in the downturn is its strategy of focusing on a niche market segment for crane capacity of greater than 500 tonnes. By acquiring very large cranes and leasing smaller cranes as needed, the company stands out from the competition. Today, 50% of ALE's revenue comes from the >500 tonne market.

About ALE

Founded in 1983 and present in 35 countries through autonomous business units, ALE specialises in handling, transportation and installation services for heavy and indivisible loads. The multinational company portfolio extends to various industrial sectors including oil and gas, petrochemicals, conventional power, renewables, infrastructure, civil, ports, shipyards, nuclear and minerals.



Story type:

#diversification
#innovation

Benefits:

- Expected order intake £45m

Key findings:

For the industry:

- Debt capacity is essential to react to opportunities quickly
- Offer complete solutions to your customer, a one-stop-shop instead of separate service providers, to differentiate your offering
- Focus on niche sectors

For the government:

- Provide support to indebted companies (e.g. special credit lines) to help the industry overcome downturns

Government support?

ALE has not received any government support but now hears UK Export Credit readily discussed in overseas markets

ALE at a glance

Key products and service: heavy lifting and transportation

Main sector(s) served: oil and gas, power, civil and renewables

Headquarters: Stafford, UK

Year established: 1983

Number of employees: 1,800

Revenue: US\$350m



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Amec Foster Wheeler

Thinking differently to deliver #More4Less by collaborating and challenging

How is Amec Foster Wheeler thriving?

Realising that a change of approach was needed to deliver results more efficiently and at lower costs, Amec Foster Wheeler adopted **More4Less**, an initiative based on collaboration with customers and the supply chain. Supported by an efficient use of internal resources and a change of culture, this approach has enabled the company to save costs and man-hours as well as retain existing and win new contracts.

The challenge

The EPC business is marked by a constant search for savings, but this does not mean that customers always know what is the best way to save or specify what they need. In many cases, clients don't have the right information to demand the right solutions, which prompts the need for a collaborative mindset. Wouldn't it be better if clients stated their problems and worked together with engineering contractors to find the best fit-for-purpose solutions?

The solution

Even before the sharp fall in oil prices, Amec Foster Wheeler

more 4less



realised that it could deliver better results through collaboration and optimisation. It was not just about collaborating with customers and the supply chain – a change of culture within the company was also essential. Amec Foster Wheeler concluded that its approach was geared towards large EPC projects, with cumbersome, slow, inflexible and expensive contract models that failed to meet the needs of the open and low-cost approach the company was pursuing.

But how could this be changed? The company acquired Scopus – a unit dedicated to the execution of small repair orders – that typically delivered savings of 30-40%, and Amec Foster Wheeler saw the opportunity to involve them directly in the O&M and minor EPC opportunities for their core customers. Scopus immediately brought a 'small project' mindset along with its procedures and cost savings, which made the company more nimble, flexible and open. Amec Foster Wheeler then created 'The Hub', a collection of people who started working on larger modification projects for various clients, but using the same open mindset as Scopus. Additionally, the company made better use of its Indian engineering team, which brought savings of up to 30%. On top of this, Amec Foster Wheeler introduced 'Drop box', a initiative in which employee ideas from both operators and contractors are examined and acted upon,



More 4 Less isn't a gimmick, it's a real culture change, delivering tangible value to our customers through challenge and collaboration.

Nicola Mason
VP Asset Support Aberdeen E&C



generating savings of £500,000 in 18 months. This series of improvements are the pillars of the More4Less strategy, which is about challenging everything in order to deliver a simpler, collaborative solution that improves efficiency and ultimately saves time and money.

More4Less has been a game-changer for Amec Foster Wheeler and has gained recognition from the industry. The company was awarded the Offshore Achievement Award in 2017 for its More4Less contract with Maersk.

About Amec Foster Wheeler

With over 160 years of engineering expertise, Amec Foster Wheeler is the result of the merger between Amec and Foster Wheeler. Based in London and listed on the NYSE and FTSE stock exchanges, the company is present in 55 countries with customers from both the private and public sectors. Amec Foster Wheeler's main areas of focus are the oil and gas and chemical sectors, but the company also has a significant presence in the mining, power, process, renewables and infrastructure segments. It provides clients with everything from expert consultancy and project management to operations and construction services and project delivery. Amec Foster Wheeler merged in 2016 with Wood Group. A due diligence process is underway at the time of writing.

Story type:

#optimisation
#collaboration

Benefits:

Savings: £2.5m (2016 compared to 2015) for one client

Key findings:

For the industry:

- In a downturn, customers are often more willing to accept challenge and new business models from their suppliers
- Larger companies can kick-start culture faster through acquisitive rather than organic change

For the government:

- Use multipliers like trade associations, and industry leaders as their NEDs, to accelerate sharing of best practices

Government support?

Amec Foster Wheeler has not received any government support. However, the company found the Project Collaboration Toolkit by the Engineering Construction Industry Training Board (ECITB) very useful. Amec MD John Pearson was previously Chairman of O&GUK and set up the Efficiency Taskforce.

Amec Foster Wheeler at a glance

Key products and services: engineering consultancy, EPC and project management

Main sector(s) served: oil and gas, and chemicals

Headquarters: London, UK

Years established: active for over 160 years

Number of employees: 36,000

Revenue: £5.4bn (2016)



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Booth Welsh

Trusted EPC partner for de-risking and optimising client project delivery



In 1989 we started our business in very difficult times learning tough lessons fast. By far the greatest lesson was that relationships matter. Building relationships has helped us keep our top three performing clients for over 25 years. Surviving through difficult times requires strategy, consistency and persistence. Staying close to our clients and embedding our high-quality engineering teams ‘inside the fence’ has delivered year on year growth of over 12% despite two recessions and numerous crises. This one will also pass and, by staying close and listening to our clients, we will still be there with them to help build their future.

Martin J Welsh
Managing Director

How is Booth Welsh thriving?

The company’s ‘**inside the fence**’ engineering services are helping customers de-risk their assets and speed up projects.

The challenge

Booth Welsh was acquired in 2014 by Clough, an Australian company that aimed to increase Booth Welsh’s footprint in the energy market by 30% in three years. However, the transaction took place one month before oil prices plummeted, which posed significant difficulties to the expansion plans envisaged by the parent company.

Booth Welsh also faced challenges in the nuclear sector. Electricity prices in the UK reduced following a regulator intervention, which put power generators under financial strain. The company’s relationship with one of its key nuclear clients, had been built around providing asset management support, but electricity price reductions and strict requirements to invest in new environmental legislation and

BOOTH WELSH

Integrated Engineering Services

critical life extension improvements meant this client needed to cut costs, putting in jeopardy the asset management revenues.

The solution

Booth Welsh decided to focus on protecting its existing client relationships by adapting contracts and work scopes to meet new demands.

Benefitting from a strong 25-year relationship with this particular key client, Booth Welsh managed to secure projects on new life extension and safety upgrades, assisting other EPC contractors and OEMs with its site knowledge, engineering services and project management. The scope of work, carried out by a Booth Welsh team of Suitably Qualified and Experienced Personnel (SQEP), included detailed engineering, control system build, field installation and commissioning.

Booth Welsh's core strength of key account and relationship management was becoming more important in managing complex projects for major clients. Booth Welsh's clients were now benefitting from the company's engineering services and growing EPC capability. Supported by its extensive knowledge of the client's assets, processes and culture and with highly-skilled personnel working 'inside the fence', Booth Welsh's multi-discipline engineering services delivered these projects efficiently and ensured they met exacting compliance standards.

The key benefit for the client is the de-risking made possible by using a trusted and long-term partner

that is immediately able to carry out complex engineering tasks on new upgrades. If plant problems are ever experienced, Booth Welsh, using its unique and in-depth knowledge, can expediently recommend innovative and compliant solutions and provide full service support.

Booth Welsh has set its sights on increasing its EPC offering across various sectors. The company is currently in discussions with a large Australian oil and gas company, to offer its automation EPC capabilities to improve operating efficiencies using other industry learnings. Diversification remains key for the continued growth of Booth Welsh and the company's track record with its existing clients will be a major contributor to this strategic imperative.

About Booth Welsh

Started as a family business in 1989, Booth Welsh was acquired in 2014 by Clough, an Australian EPC contractor. Booth Welsh is Clough's Centre of Excellence for Electrical, Control and Automation, delivering multi-discipline engineering services across the entire asset lifecycle. Booth Welsh delivers its niche integrated engineering services to a variety of industries across Europe, the Middle East, Africa and North America. Its multi-discipline service offering includes full EPC project management, process engineering, design engineering, systems integration, installation and control panels, asset management as well as technical recruitment services. Booth Welsh's has a multi-sector approach and is involved within the life science/pharmaceuticals, nuclear, oil and gas, utilities, defence and food & beverage segments.

Story type:

#optimisation
#diversification

Benefits:

- De-risking projects through thorough client knowledge and relationship coupled with specialised engineering services circa 15%

Key findings:

For the industry:

- In a downturn, a company's key existing clients are a rich source of opportunities for diversification, innovation and growth
- Structured account management greatly assists with managing complex and large clients/contracts
- Inside-the-fence supplier relationships with clients build strong loyalty and openness to challenge and changing scope

For the government:

- There is just as much innovation to be highlighted in O&M as there is in CAPEX or new projects

Government support?

Booth Welsh is account managed by Scottish Enterprise and over the years has received a level of financial and local council support for the creation of new jobs and upskilling current personnel.

Booth Welsh at a glance

Key products and services: EPC project management, engineering services and control systems,
Main sector(s) served: life sciences/ pharmaceuticals, oil and gas, nuclear, defence and utilities
Headquarters: Irvine, UK
Year established: 1989
Number of employees: 210+
Revenue: £18.5m (2016)



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Production enhancing technology that pays back in days, not years

How is Caltec thriving?

Over the last 14 years, Caltec's surface jet pumps (SJPs) have been helping oil and gas companies save millions of dollars by using the available energy which is often wasted to enhance production from existing facilities. This has proved instrumental in preventing flaring gas, increasing production, extending field life and making payback on capital spent possible not in years, but in days - which makes this solution invaluable in times of crisis.



The challenge

A key topic in the oil and gas sector is productivity and maximum recovery of oil and gas reserves. As hydrocarbons are extracted and fields reach maturity, reservoir pressure drops and wells become less productive. If no action is taken, this could potentially lead



WELLCOM™ PACKAGE
Caltec's patented production boosting system.

to a premature suspension of production.

Maintaining production rates and extending the lifetime of fields are decisions that are very much

influenced by economic factors and the available and practical technology. This requires field life extension solutions to be effective and provide value for money, particularly when the price of oil and gas is low and capital spending is restricted.

The solution

Caltec has responded to this challenge by developing and deploying a production enhancing technology featuring SJPs, which use a high-pressure fluid to boost a low-pressure fluid to an intermediate level. Combined with Caltec's compact separation technology, this patented solution, called **Wellcom system**, delivers an effective boosting method for oil wells at low cost.

By making use of energy that is often wasted, such as fluids from high-pressure wells or recycled



Survival of each company depends partly on the range of products which it offers. Caltec has tried to invest considerably and develop new products and cost effective innovative solutions related to oil and gas production and processing for improving and maintaining revenue in challenging times.

Sacha Sarshar
Chief Technology Officer

gas from compressors, Caltec's Wellcom system enables production enhancement and debottlenecking of processes without a major investment, as it fits into existing facilities. It is a solution that is self-funding, self-fuelling, self-controlling, unmanned operation and with almost zero maintenance.

Used in more than 105 applications related to production boosting, multi-phase boosting, gas/liquid separation, flare gas recovery, de-gassing liquids and oil/water separation, Wellcom extends the life of assets, increases productivity and profitability and helps companies to meet environmental obligations, all with a very short payback period.

About Caltec

Originally a division of the BHR Group, Caltec Limited was formed in 2003 by highly specialised



and experienced professionals. In addition to providing process and mechanical engineering, concept and FEED services, Caltec specialises in supplying SJPs and compact separation systems (I-Sep and HI-Sep) for all segments of the oil and gas industry.

A high-tech company that is committed to developing the next generation of industry workers through its partnership with the Cranfield University, Caltec, to date, has registered 38 patents and collected nine top awards for innovation since 2004. A Petrofac company since 2008, Caltec's solutions have been employed in more than 100 oil and gas projects around the world.



Story type:

#technology

Benefits:

- Typical production enhancement ranges from each oil well from 100 bbls/d to 500 bbl/d.
- Increase in gas production has been from a few mmscfd to over 50mmscfd, depending on the number of wells involved

Key findings:

For the industry:

- Cost-cutting should not hamper innovation, which greatly benefits the industry and boosts export opportunities
- Partnerships between high-tech companies and universities yield economic benefits

For the government:

- Encourage and support SMEs to develop products and improve exports
- Encourage oil and gas companies to support product development by SMEs as they will be the main benefactors
- Financial support is needed for full scale field trials, which are the costliest stages of product development

Government support?

Although government funds were available in the early stages, a shift of policy has contributed to an acute shortage of funds for product development.

Caltec at a glance

Key products and services: surface jet pumps and compact separation systems

Main sector(s) served: oil and gas

Headquarters: Bedford, UK

Year established: 2003

Number of employees: 9

Revenue: average of US\$5m per year



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Carpenter & Paterson

Its innovative energy-saving pipe support system is saving money for customers in Asia



How is Carpenter & Paterson thriving?

Carpenter & Paterson grasped the opportunity to benefit from overseas markets and innovated to provide an energy-saving solution that met the needs of Asian customers and made sure it stood out from the competition. Carpenter & Paterson's unit in Thailand came through the industry downturn not merely unscathed, but in fact reported record revenues in 2015 and 2016.

The challenge

The global energy industry has experienced a rapidly changing environment in recent years. The fall in oil prices led to reduced activity levels in many segments, but opportunities appeared in emerging markets and new EPC players from all over the world have joined the sector. This created an opportunity for companies that could help customers in different markets save money by providing innovative products.

The solution

Carpenter & Paterson had long wanted to expand its reach in Asia, the opportunity to do so presented itself in 2012 when personnel experienced in the Asian market came on board. Leveraging the experience and expertise of this new team, the company set up Carpenter & Paterson Asia (CPA) in 2012, without any external support.

By using their own sales people, rather than agents, CPA built close relationships with customers thus understanding their constantly evolving needs. As a result, CPA identified the requirement to develop a product that not only supports the pipe but also minimises heat loss and so saves energy. CPA further developed products from its base in the UK to provide the heat loss solution. Instead of just pipe supports, the product is a true energy-saving device that allows customers to save hundreds of thousands of \$ per annum, with a payback time of two to four years (depending on oil price).

CPA now focuses on consolidating



Think outside the box to find innovative solutions to make products attractive to customers. Ensure that every person in the company is tuned into the objectives of the business. Always achieve commitments made.

Richard G Jones
Managing Director
Carpenter and Paterson (Asia) Ltd



its track record. The company already has a 170-strong team working in Thailand, with revenues soaring from US\$2.7m in 2013 to US\$15.8m in 2016.

About Carpenter & Paterson

Founded in 1956 and headquartered in Wales, Carpenter & Paterson specialises in the design, manufacturing and supply of pipe suspension equipment, spring hangers and fabricated steelwork for process pipelines. The company also provides on-site services such as pipe support inspection, integrity analysis of piping systems and pipe support management services. It serves the power, petrochemicals, LNG (receiving and liquefaction), oil and gas (offshore) and other process-related industries. Carpenter & Paterson today has a global reach, represented in 34 countries with its products installed at facilities across the world.

Story type:

#export
#innovation

Benefits:

- Typical heat loss savings: US\$100–500k per retrofit
- For new petrochemical plants for whole facility: US\$30m p.a. savings potential, with 3–4 years payback

Key findings:

For the industry:

- Expansion into other countries opens up large markets that can grow revenues quickly
- Understanding customers' needs generates business opportunities
- Selecting the right team to take a project forward is crucial
- Instead of using agents, developing your own sales force allows better interface with costumers

For the government:

- SMEs need support to establish a presence in overseas markets, especially with lines of credit
- Companies are not aware of UKEF rules of engagement

Government support?

No support from the Department for International Trade. Bank guarantees were a big issue at first and support from UKEF would have helped, but it was assumed that it wouldn't be available to the company's Thailand unit, although it is 100% UK owned

Carpenter & Paterson at a glance

Key products and services: pipe support systems

Main sector(s) served: offshore oil and gas, power, petrochemicals, LNG

Headquarters: Welshpool, UK

Year established: 1956

Number of employees: 320 (110 in the UK, 170 in Thailand and 40 in India)

Revenue: US\$30m globally



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Costain

Substantial CAPEX and schedule improvements through holistic innovation and collaboration



How is Costain thriving?

Costain's customer-centric approach allows the company

to secure the desired project results while reducing costs and execution time. The company's innovative, proactive approach

to identify project improvement opportunities has led Costain to be regarded as a trusted partner by clients.



The strategy of collaborative engagement with customers allows us to survive and thrive through delivering holistic value-adding lifecycle solutions based on a unique combination of technology, trust and expertise.

Robert Pitman
Oil & Gas Business Development

The challenge

A traditional approach by operators and plant owners when faced with an issue is to invite tenders from contractors, which must deliver exactly what is required. Although this has been the norm in the oil and gas sector across the world, this approach can be considered restrictive as it hinders opportunities to challenge assumptions and look at the problem from a holistic perspective.

The solution

In 2012, Perenco started a modification project at a natural gas facility following a requirement to comply with new environmental regulations. Initial solutions presented by the supply chain required a large investment and a lengthy execution time. In addition, Perenco felt that the supply chain failed to understand the project's business case requirements. Costain was given a chance to become involved with this project by conducting an initial study, which indicated a cheaper and faster way to get results that exceeded Perenco's requirements. Following a broader assessment, Costain demonstrated it could enable massive savings, shorten the project schedule and, more importantly, allow the facility to retain its 600MMscf/d capacity after the project was concluded (the previous supply chain solution offered only approximately 60% capacity following completion).

Perenco abandoned the previous supply chain solution and chose Costain to carry out the project. The engineer was able to reduce CAPEX by 65% (more than £50m), cut two and a half years from the project schedule and maintain the plant's full capacity. Costain earned the client's trust as a result of this project and now works with Perenco – including onshore and offshore facilities – to analyse a full range of issues and concepts for possible improvements.

Through this collaboration Costain became a key Perenco partner, with a relationship based on openness and sharing. Costain uses this relationship to work with Perenco



to innovate by evaluating scenarios where it is able to tackle cost, schedule and capacity issues faced by Perenco. This is done using the contractor's total life cycle approach – from concept to EPC, technology to execution, and including on-site personnel and asset management.

Costain's customer-focused strategy continues to yield benefits, thanks to the company's 'inside the fence' engagement with clients and flexibility to meet requirements. The company also realised that long-term relationships with customers are built with highly-skilled, loyal and passionate people within the company who become trusted by clients and further consolidate the partnership between Costain and its customers.

About Costain

Founded in Liverpool in 1865, Costain today is one of the UK's leading engineering solutions providers. A broadly diversified company, it is involved with the rail, highways, power, water, nuclear, and oil and gas markets. Costain provides technology-based engineering solutions, including advisory and concept development, specialist design, programme management, complex project delivery, technology integration as well as asset optimisation and support services. The company is focused on UK projects and has offices in Manchester, Aberdeen and Immingham, in addition to its headquarters in Maidenhead.

Story type:

#innovation
#collaboration

Benefits:

For just one client, Perenco

- CAPEX: 65% reduction
- Savings: >£50m
- Project schedule: reduction of 2.5 years
- Facility capacity: 100% retained post-upgrade, instead of 60% reduced

Key findings:

For the industry:

- Contractors/suppliers are perceived as true partners by clients when they fully challenge client assumptions at an early stage, and are given access to the whole system to review
- Customers want personnel they know and trust: people who know their facilities and issues and can be 'inside the fence', joining meetings and taking part in decisions
- Using the same highly-skilled team from concept to execution boosts customer trust

For the government:

- Support industry with the development of a long-term skills pipeline

Costain at a glance

Key products and services: technology-led integrated engineering solutions

Services: consultancy, asset optimisation, technology, complex delivery.

Main sector(s) served: energy, water and transportation infrastructures

Headquarters: Maidenhead, UK

Years established: 1865



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Truly diversified pressure management expertise for safety critical assets



By understanding our customers' applications, operational requirements and business objectives we better positioned ourselves to offer a complete pressure management solution not just a pressure relief product to our global customer base.

Philip Fedosenkov
Sales Director

How is Elfab thriving?

Traditionally a conventional pressure relief components manufacturer to the process sectors across the UK and Europe, Elfab managed to increase sales to wider markets and expand its client base by transitioning to become a true expert in pressure management solutions.

By doing this, the company reduced the risk of growing too dependent on a specific segment and became better equipped to deal with industry and economic downturns.

The challenge

Rather than just marketing its existing products to already established customers, Elfab was compelled to adopt new ideas to stay ahead of the competition, offering the wider benefits of its solutions to an expanded global client portfolio. Diversifying the client base and expanding its product portfolio was a strategic decision taken to prepare for industry downturns before they happen, as focusing on a single sector poses a significant risk.

The solution

As early as 2002 Elfab started the journey to enhance and expand its product portfolio, moving away from being a traditional pressure relief manufacturer to a complete pressure management solutions provider. All while focusing on a wider range of industry and geographical sectors.

The oil and gas sector has traditionally been a significant business source for Elfab. The transition to becoming a solutions expert for its wider customer base proved fundamental when the sector entered the current challenging climate. While 35% of the company's sales were linked to the oil and gas sector before 2013–14, this share was reduced to around 15% in 2015–16. Elfab's solution-based approach and diverse market strategy ensured Elfab went from strength to strength during this time, offsetting the reduction in oil and gas business by allowing the company to tap into new opportunities in alternative sectors, such as OEMs, chemical and pharmaceuticals.

The company expanded its product range by truly understanding its



customers' applications and requirements. However, it was only in 2013–14, following the oil and gas downturn, that the company began in earnest to differentiate itself even further through a wider product offering, enabling Elfab to offer a wider range of pressure relief solutions to its customers. Elfab's brand is now well established as a pressure management solutions expert and not just a components manufacturer. One of the keys to success was to develop the skillset and culture of its sales team, moving away from selling a product to advising on complete pressure management solutions.

About Elfab

Established in 1936, Elfab specialises in pressure management solutions.

The company has a manufacturing facility in north-east England and global sales offices, supplying rupture discs, rupture disc plugs, explosion panels, buckling pin relief valves, tank production products (including flame arresters and breather valves) and associated detection systems for a range of industrial sectors including oil and gas, chemical, pharmaceutical, food and beverage, and OEM among others.

The company also provides pressure management-related design, testing and consultancy services.

Elfab was acquired in 1994 by the Halma Group, an FTSE 250 company with over 40 subsidiaries operating worldwide.

Story type:

#diversification
#innovation

Benefits:

- Expanding its client base and sectors served has led to long-term sustainability and success
- De-risk: serving different markets is a safeguard against downturns

Key findings:

For the industry:

- Over dependence on a single sector poses a risk in the case of an industry downturn
- Moving from selling components to being a complete solutions provider is a key differentiator, however, this requires a change in company culture

For the government:

- Better engagement with industry needed to showcase the benefits of the Department for International Trade

Government support?

Elfab has met with the Department for International Trade and received advice and information on expanding its operations

Elfab at a glance

Key products and services:

pressure management solutions
Main sector(s) served: oil and gas, chemicals, pharmaceuticals, food and beverage, and OEM

Headquarters: North Shields, UK
Year established: 1936, acquired by Halma in 1994

Number of employees: 65
Revenue: £10m (2016–17)



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ENGIE Fabricom

Proven EPC capability for all emerging global renewable technologies



How is ENGIE Fabricom thriving?

Following the reduction in CAPEX and OPEX in its oil and gas markets ENGIE Fabricom diversified by focusing on niche sectors and adopting a different approach towards its EPC offering. This allowed the company to find new business opportunities and its revenues to bounce back.

The challenge

Prior to 2012, ENGIE Fabricom focused on large modular EPC/ construction work for the oil and gas sector. This brought challenges, as it was a segment with fixed prices, high risks and intense competition from lower-cost EPC companies from the Far East. In addition, industrial relations issues at UK refineries and onshore O&G facilities caused delays and risks to many projects in the country. This situation only got worse when oil prices plummeted in 2014 and the company saw itself over reliant on a small and weak local oil and gas market.

The solution

ENGIE Fabricom saw an opportunity to get out of the crisis through targeted diversification and a change of approach to its core business. Rather than continuing as a conventional construction contractor, the company became a multidisciplinary Tier 2 EPC player targeting plant expansions and upgrades in niche sectors such as energy from waste, chemicals (focusing on renewable segments and offshore wind (grout repair and mechanical maintenance)).

The company's strategy involved



Following our strategy of becoming our clients' partner of choice, ENGIE Fabricom has achieved our goal of repositioning ourselves in the marketplace as one organisation delivering end to end solutions which is now providing positive results for the business.

Andrew Mitchell
Strategic Development Director



the supply of in-house skills and expertise for customers possessing reduced technical competence in these specific industrial segments.

ENGIE Fabricom became a partner of choice for emerging sectors delivering end to end EPC solutions. This approach brings various benefits as contracts are delivered more efficiently and the requirement for customers to have extensive engineering and management teams are greatly reduced.

In addition, ENGIE Fabricom also carried out a re-structuring process in 2016 which reduced the number of its business units from five to two. This simplified the organisation and increased efficiencies.

This new strategy bore fruit delivering a game-changing contract in the last quarter of 2016, when ENGIE Fabricom was awarded a significant order from a major offshore wind operator to carry out grout remediation work on 20 turbines installed at the Greater Gabbard offshore wind farm.

This diversification process is allowing the company to turn things around: while revenues decreased from £110m in 2012, the forecast for 2017 projects is in excess of £50m in revenue, thanks to growth in niche sectors. While O&G-related revenues fell sharply (90% in 2012 to just 15% in 2016), revenues related to the energy from waste, chemicals and offshore wind sectors grew from 0% to 85% in the same period, with Energy From Waste alone accounting for 40% in 2016.

ENGIE Fabricom has set its sight on building its brand and recognition

as partner of choice EPC contractor for the specialised sectors it is now involved with. Looking ahead, asset management services for offshore wind farms around the world is a great opportunity for the company.

About ENGIE Fabricom

Part of the ENGIE Group (previously known as GDF Suez), ENGIE Fabricom provides multidiscipline engineering design consultancy and construction services for the UK market.

Traditionally involved with the oil and gas sector, the company has undergone a major diversification process and today its main markets are energy from waste, chemicals and offshore wind. It focuses on CAPEX opportunities, which today form 95% of its revenues.

Story type:

#diversification

Benefits:

- New revenue from offshore wind in 2017: £12m

Key findings:

For the industry:

- Renewables provides a rich seam of new opportunity
- Diversification is not just about working with different industry sectors, but also providing different services
- Over-reliance on one sector is risky

For the government:

- Diversification should be actively encouraged among goods and services suppliers

Government support?

This has been achieved without any government support

ENGIE Fabricom at a glance

Key products and services:

consultancy, engineering and design, project management, procurement, manufacturing, construction and commissioning

Main sector(s) served: energy from waste, chemicals and offshore wind

Headquarters: Grimsby, UK

Year established: +40 years ago

Number of employees: 450

Revenue: £50m



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Fluorocarbon

High and low friction polymers that save millions when moving structures



How is Fluorocarbon thriving?

Responding to an enquiry from E.ON, the company developed a friction pad to be used in a **cradle** to more securely support monopiles for offshore wind turbines aboard transport vessels. This innovative solution allowed E.ON to save costs and increase efficiency, and opened

a new market opportunity for Fluorocarbon.

The challenge

Fluorocarbon received a request from E.ON's contractor its first from the offshore wind sector, for a solution that minimised the risk of large monopiles of offshore wind

turbines sliding off vessels during transportation. Not only was this a completely different challenge for the company, which specialises in the production of low-friction polymer products, but it was also an opportunity to get involved in a new sector.

The solution

Fluorocarbon already had a diversification strategy in place, so this enquiry didn't pose any issues for the company. Indeed, most of the company's business involves low-volume orders for products that are innovative and bespoke to the client's needs.

Benefiting from its in-house polymer engineering and blending capability, Fluorocarbon was able to develop the right polymer to meet E.ON's requirements. As part of a contract worth £350,000, the company supplied new materials for cradles

“ Fluorocarbon works in collaboration with our customers. Our long term customer service and ability to react rapidly to customers' requirements means we are often called upon to provide new and innovative solutions.

Tom Savage
Director and General Manager



that provide a high-friction surface for the monopiles carried by the transport vessels.

This solution generated operational and economic benefits for E.ON. The new cradle designs incorporating Fluorocarbon's FL491 material led to faster loading times compared to the previous clamping method and, consequently, sped up the project by allowing an increased number of journeys from the port to the project site. In addition to lower vessel rental and insurance costs the simpler clamping was utilised leading to further cost savings. The cradles also brought safety improvements, as they provide a more stable system that minimises slippage during transport. Ultimately, the efficiency gains provided by the polymer cradles allowed E.ON to start operations at the wind farm on schedule bringing in profits from electricity revenues.

Fluorocarbon has always promoted themselves as problem-solvers. The company has a Special Projects division to address opportunities like the one presented by E.ON. This contract also highlights the contribution of its R&D team, which has expanded over the last two years.

Fluorocarbon is now marketing its

FL491 material for cradles to OEMs, initially for offshore wind farms and is also targeting further diversification through collaborations in the subsea sector. The contract also underlines the importance of building and maintaining strong networks which aid diversification: E.ON was a new customer, but the request had been made by an old contact who changed sectors.

About Fluorocarbon

Active since 1962, Fluorocarbon is one of the UK's largest fluoropolymer processors. Specialising in plastics, the company is an expert in the design and manufacture of complex machined components, PTFE seals, slide bearings, skidway systems and high-performance coatings. Oil and gas is Fluorocarbon's largest market and provides approximately 27% of its revenues. The company also serves the aerospace, automotive, chemical processing, food, semi-conductor and water and environmental sectors, among others. Fluorocarbon has five manufacturing offices, four in the UK and another in Romania. They are supported by sales offices in Europe and the US as well as partners around the world. Approximately 50% of the company's polymer products are exported.



Story type:

#innovation
#diversification

Benefits:

- New order worth £350,000
- Savings: clamps no longer required, lower insurance costs
- Efficiency: 50% faster loading times
- Productivity: earlier start-up of wind farms

Key findings:

For the industry:

- Companies should keep their network of contacts active, as you never know when they might help diversification
- An entrepreneurial approach is essential to be able to grasp new opportunities when they come
- A positive mindset towards diversification and innovation positions a company better to listen, adapt and respond to new customers bringing new questions

For the government:

- Support SMEs with R&D funding
- Maximise opportunities for UK supply from the large and lucrative UK offshore wind market

Government support?

Fluorocarbon has not received any government support

Fluorocarbon at a glance

Key products and services:

polymer products

Main sector(s) served: oil and gas

Headquarters: Hertford, UK

Year established: 1962

Number of employees: 450 (100 in the UK)

Revenue: £25–30m (2016)



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End-user approved, fire-safe flange isolation systems for oil and gas applications



With GPT's increased focus on marketing, promoting and demonstrating its Fire Safe system, GPT achieved an increase in sales from 2015 to 2016 of 61%. As well as improving the safety of facilities the Fire Safe system has the potential to reduce end-users' insurance premiums.

Robert Colton, Business Manager and Director, Europe, Middle East and Africa

How is GPT thriving?

GPT decided to innovate to maintain its leading position in the market with an enhanced product and a trusted advisor approach to the world's largest oil and gas operators.

The challenge

GPT, having lost a key product patent a few years ago, found itself competing with low-cost suppliers as well as companies which marketed imitation products. This put the company in a challenging position, especially considering the downturn of the oil and gas industry in recent years.

GPT™

an EnPro Industries company

The solution

In a bid to maintain market leadership, GPT started developing innovations to their products to block low-cost entrants. One of these innovations was the introduction of **Fire-Safe isolating gaskets** which in the event of a fire would not fail and allow media to leak from the flanges. This solution is marketed through live demonstrations (which guarantee the product's wow factor) and partners well with their new trusted advisor approach to customers.

GPT's marketing strategy involved liaising with end-users (who can specify GPT products and make them the preferred option in tenders) as well as EPC contractors. The company has established partnerships with two key distributors in Europe (Klinger in the UK and ERIKS in the Netherlands). These relationships have yielded positive sales of their fire safe options particularly in the North Sea and also Kazakhstan.

In addition to its trusted advisor approach, GPT now plans to look to end-user insurers to prove that the use of its Fire-Safe innovation leads to a reduction in risk and increased safety, thus offering savings on insurance premiums for end-users. The company continues to develop new innovations, ensuring that the relevant patents are protected.

About GPT

GPT is a division of EnPro Industries, USA and is the world's leading manufacturer of critical pipeline sealing and electrical isolation products. The

company serves the oil and gas, petrochemical, waste/wastewater, construction and infrastructure industries.

With products approved and preferred by end-users such as ADMA-OPCO, BP, Saudi Aramco and Shell. GPT's products protect assets from corrosion and people from harm.

GPT was formed in 2011 following the combination of two EnPro businesses: Pipeline Seal & Insulator (PSI) and Pikotek.

Story type:

#innovation

Benefits:

- The new Fire Safe offering assists end users in keeping their facilities and employees safe in the event of a fire within hazardous locations

Key findings:

For the industry:

- Securing trusted advisor status with end-users boosts product value and supplants low-end competition
- Technology companies must retain a healthy pipeline of innovations and patents

For the government:

- Work harder to make sure all SMEs are aware of services that are freely available, and their benefits

Government support?

GPT has not received any government support

GPT at a glance

Key products and services: flange isolation kits

Main sector(s) served: oil and gas (upstream, midstream and downstream segments)

Headquarters: St Neots, UK (GPT UK)

Year established: 2011

Number of employees and revenue:

UK: 20 employees (£5m)

Denver: 100 employees (US\$35m)

Houston: 30 employees (US\$15m)



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Hayward Tyler

Optimisation and future proofing through its new Centre of Excellence



How is Hayward Tyler thriving?

Hayward Tyler recently welcomed Prince William and Kate, the Duke and Duchess of Cambridge, to open their new Centre of Excellence (CoE), focused on the design, manufacture, assembly and test of performance-critical motors and pumps. At the heart of its

CoE are state-of-the-art business systems, tooling, simulation and testing capabilities, combined with a dynamic business culture built around Kaizen philosophies. The optimised plant efficiency (which has improved by over 30%) has further increased Hayward Tyler's competitiveness and also resulted in Hayward Tyler winning the

prestigious 'Smart Factory of the Year' in the UK's Manufacturer MX Awards.

The challenge

Hayward Tyler sells and operates in the global energy market including power generation, oil and gas and nuclear. Looking at the long term positive trends driven by an ever-increasing demand for energy from a growing global population Hayward Tyler recognised that despite a decline in the oil price and its negative impact on the whole sector it was going to have to invest in its capability, technology and people in order to remain competitive over the longer term in its global markets.

The solution

Having looked at a number of options globally Hayward Tyler chose to underpin its main centre for OEM in the UK by embarking on its biggest investment in over 50 years. Its new CoE, a state-of-the-art facility focused on performance-critical induction and permanent magnet



The global energy market is continually evolving and the Centre of Excellence and all that it embodies is our catalyst to focus on future growth by transforming existing technologies, innovating new ones, developing new products and solutions, and generating new ideas and new thinking through our next generation of engineers.

Ewan Lloyd-Baker
CEO



motors and associated pumps is also perfectly positioned for nuclear-related work building on its existing nuclear pedigree and work in the demanding subsea sector. The company has already invested in over 50,000 hours of training among the entire workforce including training in 5S, 7Wastes, Clean Lean, in addition to the enhanced physical capability, which includes a clean assembly area utilising a positive pressure particulate control system that meets the ISO Class 9 nuclear clean room specification.

The CoE is not just about the building, plant and machinery, but also about efficiency, standardisation and developing the company culture of continuous improvement. Hayward Tyler have developed an innovative business management system which allows the company's commercial group to be intimately linked to its operations group, as well as its supply partners, a truly seamless advanced marketing, sales and operational planning tool. An efficiency gain of more than 30% has been delivered, made possible with the new facility and business systems, which further improves Hayward Tyler's competitiveness.

Hayward Tyler's enhanced capabilities have enabled them to forge partnerships with key strategic customers, including a global subsea production alliance agreement with TechnipFMC for the manufacture of permanent magnet motors for use in subsea pump systems. The agreement also includes a dedicated test facility for the subsea motors.

Another partnership has been signed with Ebara, one of Japan's leading global pump companies, to supply boiler circulating pumps to support Japan's stated target of

building 40+ new coal fired power stations over the next decade and specialist wet-wound motors for the municipal water market.

Both of these partnerships support Hayward Tyler's belief in developing long-term, mutually beneficial partnerships that are focussed on meeting market and customer demands. Commitment is demonstrated through major investment and willingness to share and exchange technology which in turn creates value and loyalty.

Hayward Tyler is now focused on forging new partnerships as a differentiating factor against competitors, and further optimising its processes. The company's CoE is building on its established nuclear heritage and enhancing its capability to meet the exacting standards demanded by modern nuclear new build companies, including French company EDF. Looking to the future, Hayward Tyler plans to leverage its capabilities in the subsea and submersible segments as well as seeking new niche opportunities.

About Hayward Tyler

A company with over 200 years of experience, Hayward Tyler designs, manufactures and services performance-critical fluid-filled electric motors and pumps for high-pressure, high-temperature applications and environments across the global energy sector. The company has a 60% installed base global market share and approximately 90% of its revenues come from exports, which earned the company the Queen's Award for Enterprise: International Trade in 2016.

Story type:

#optimisation
#collaboration

Benefits:

- Plant efficiency: >30% increase
- Increased order book due to collaboration with OEM partners: >£10m

Key findings:

For the industry:

- 100% commitment to partnerships can yield great results; avoid tentative partnerships that are more likely to fail and distract
- It's never too late to innovate in business systems
- It's never too late to set a new standard in operations – through CoEs
- Government support does not guarantee fast orders

Government support?

- Grants from the Scottish Development Agency for plant optimisation in East Kilbride
- Funding from CNSIG for the Fit For Nuclear (F4N) programme
- Support from the Regional Growth Fund for the Centre of Excellence

Hayward Tyler at a glance

Key products and services:

specialist motors and pumps

Main sector(s) served: power

generation, oil and gas, chemical refinement and processing, nuclear

Headquarters: Luton, UK

Year established: 1815

Number of employees: 540 in the HT Group (200 in Luton)

Revenue: £65m+



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HR Wallingford

Its innovative new ship-to-shore compatibility tool SHIPMOOR is improving safety for the LNG industry



How is HR Wallingford thriving?

HR Wallingford is collaborating with a new partner to develop **SHIPMOOR**, an innovative ship-to-shore compatibility analysis tool

for the LNG industry. This solution, which enables the company to diversify into the OPEX segment, improves safety by reducing the risk of disconnections between LNG terminals and carriers.

The challenge

The oil and gas industry downturn led to increasing competition and the commoditisation of consulting services related to mooring analysis, a critical aspect of the marine facility design and a key market for HR Wallingford.

More focus on cost has motivated customers to invite competitive tenders instead of contracting single-source service providers. This led to reduced margins and competition from low-cost players in the market.

Faced with this reality, HR Wallingford had to increase its footprint and diversify.

The solution

HR Wallingford was approached by



SHIPMOOR is an exciting development that should transition HR Wallingford from provision of conventional consulting to subscription type services. This will give clients easier access to our analytical tools.

Iain Gunn
Oil and Gas Sector Lead



Witherby Publishing, a company that provides web based publishing services for the port industry, with the aim of collaborating on the incorporation of HR Wallingford's existing mooring analysis software in a web based tool for the LNG sector. This gave HR Wallingford an opportunity to diversify into the OPEX market, having traditionally been used for CAPEX project developments.

The two companies started working together on an innovative solution that embedded HR Wallingford's mooring analysis capability within a port information system including a ship-to-shore compatibility tool. Dubbed SHIPMOOR, the solution matches data on LNG vessels and terminals to produce a summary report that is used to support mooring and cargo handling operational planning and decision.

By optimising a process that is currently undertaken manually, SHIPMOOR helps minimise mistakes and provides reliable data to port operators, vessel owners/charterers and cargo owners by maintaining up-to-date characteristics of individual ships and LNG terminals in a central database. In doing so, the tool improves safety by mitigating the risk of mooring line failure, excessive motions or disconnection during LNG loading/unloading operations.

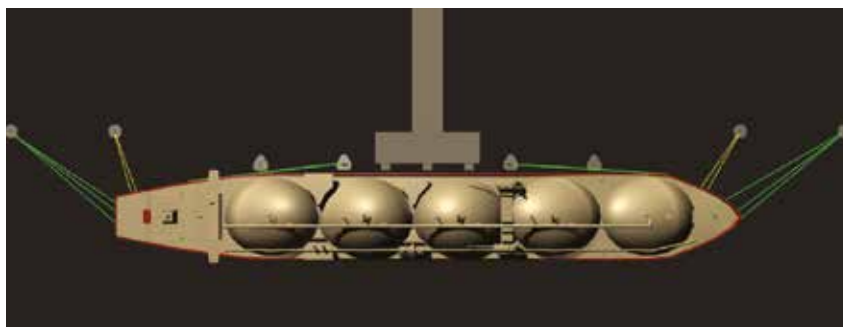
SHIPMOOR has a payback of one-two years, which further enhances its business case.

HR Wallingford now plans to extend its partnership with Witherby to a full joint venture. The SHIPMOOR concept was presented to the industry in April 2017 at the Gastech LNG conference in Japan and the product will be launched globally in the second half of 2017.

About HR Wallingford

HR Wallingford is a specialist provider of analysis, advice and support in engineering and environmental hydraulics as well as the management of water and the water environment. It has expertise in the following areas: energy (oil and gas, petrochemicals and power, with a particularly strong track record in the LNG sector), environment, flood and water management, maritime and coasts, and hydraulic laboratory equipment.

A pioneer in numerical analysis of time-domain ship dynamic mooring, the company was created in 1947 as the Hydraulics Research Station for the UK government. It became a private entity in 1982 and since then has operated as an independent organisation that re-invests its profits in strategic research and development programmes.



Story type:

#innovation
#collaboration
#diversification

Benefits:

- Lower cost-of-safety: 100% payback by avoiding just one safety event – an emergency coupling release on the loading arms due to excessive motions of the vessel would take in the order of 12 hours to reconnect and with the associated demurrage, one such event would cost much more than the price of this product. More importantly however this would be a significant safety event that would have knock on effects for the terminal which are difficult to quantify

Key findings:

For the industry:

- Diversification into the OPEX segment is possible for companies traditionally involved in capital project development
- In a downturn, companies that can easily switch from CAPEX to OPEX are more likely to avoid losses
- Active collaboration opens up diversification and growth more quickly

For the government:

- Work harder to make sure SMEs are aware of DIT capabilities and benefits

Government support?

HR Wallingford has not received any government support

HR Wallingford at a glance

Key products and services: research and consultancy services

Main sector(s) served: energy, infrastructure and environment

Headquarters: Wallingford, UK

Years established: 1947

Number of employees: 250

Revenue: £25m



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IMI Precision Engineering

New technology to improve confidence in emergency shutdown systems

How is IMI Precision Engineering thriving?

Based on feedback received from customers, IMI Precision Engineering saw an opportunity to add an additional layer of technology to its existing solenoid valves to increase safety, integrity, efficiency and performance.

The challenge

While the downturn in the oil and gas industry has not altered IMI Precision Engineering's commitment to new product development, it has affected the CAPEX and OPEX budgets of its major end-users and driven an increased focus on operating efficiency. In particular, IMI Precision Engineering received feedback about deficiencies related to partial stroke testing (PST) technologies from clients who were seeking



safer and more reliable equipment – a major factor in a low oil price environment.

The solution

The feedback provided to IMI Precision Engineering created an opportunity to integrate partial stroke testing capability within the company's existing solenoid valves. PST is an established industry principle whereby a critical shut-down valve is moved part way through its stroke, allowing the safety system to be tested without fully shutting down the process. However, despite the recognised benefits, plant operators are sometimes reluctant to use PST solutions. This is typically due to a lack of confidence in the reliability of available technologies, where initiating a partial stroke test sometimes results in an unplanned full stroke, or a so-called 'spurious trip' of the shutdown system.

In addition, some PST solutions provide limited diagnostic coverage (they don't allow certain parts of the safety system to be tested) while in the worst cases, inadequate PST technologies can fail or be misused in such a way as to prevent the valve from closing when required, leading to a dangerous failure of the safety system.

IMI Precision Engineering had to satisfy three main requirements: reduce the potential for spurious trips (unexpected shutdowns resulting from PST equipment failure), ease of installation and simple operation.

IMI Precision Engineering made the decision to adapt its long-



Engineering is often about choosing a solution with the fewest compromises – I genuinely believe that the ICO4-PST provides a solution for PST that doesn't require these compromises to be made.

Richard Edwards
Business Development Director (Energy)



Precision Engineering

established Maxseal ICO4 valve, adding extra technology including new electrical components, algorithms and sensors. This led to the creation of the **Maxseal ICO4-PST valve**, the first smart solenoid valve with fully integrated PST capability. The revamped equipment simplifies installation, features self-calibration and provides the highest level of diagnostic coverage.

As well as delivering increased safety, IMI Precision Engineering's improved Maxseal valve provides economic benefits by greatly reducing the probability of spurious trips (10 times better than prevailing technologies), by monitoring valve condition to facilitate planned preventative maintenance and by increasing the intervals between expensive process shutdowns.

Considered by the company to be the ideal solution for partial stroke testing, IMI Precision Engineering's Maxseal ICO4-PST valve was developed in 2016 and has successfully completed field trials with several global oil and gas companies. At the moment it is only available for pneumatic applications but a hydraulic option is under development.

Built upon proven and well regarded IMI Precision Engineering's Maxseal branded valves, the addition of PST capability further consolidates the reputation of IMI Precision Engineering's products.

About IMI Precision Engineering

A division of IMI plc, IMI Precision Engineering specialises in motion and fluid control technologies.

The company, which has 26 manufacturing centres across the world, develops products that are used in a range of sectors including energy (oil and gas, nuclear and power), industrial automation, commercial vehicles and rail. In the energy sector, it supplies end-users, actuator OEMs and valve automation companies. Due to their quality and reliability, IMI Precision Engineering's instrumentation products are often specified by major operators.

Story type:

#technology

Benefits:

- A single spurious trip (unplanned shutdown) could cost over US\$1m in lost production

Key findings:

For the industry:

- Product development is a continuous process that is shaped by customer feedback
- To react to O&G customers in a downturn, suppliers must demonstrate adaptability and nimbleness, and must apply technology and innovation to solve customers' problems
- Safety critical equipment always provides opportunities for suppliers to innovate and differentiate, often beyond simple price and delivery metrics

IMI Precision Engineering at a glance

Key products and services: fluid control systems

Main sector(s) served: energy, commercial vehicle, rail, life science, food/beverage and industrial automation

Headquarters: Birmingham, UK

Years established: +150 years (IMI plc)

Number of employees: 5,800

Revenue: £708m



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Langley Alloys

An innovative approach with metallic expertise to deliver cost savings for OEMs with high corrosion solutions



How is Langley Alloys thriving?

In a bid to differentiate itself and increase revenues, Langley Alloys

decided to focus more closely on OEMs and market the value of its technical expertise and capabilities, moving beyond the perception that

they are just stockists.

The challenge

Although Langley Alloys had diversified into many different industries prior to the fall in oil prices in 2014, the company was still affected by the ensuing downturn of the oil and gas sector. Improved margins and a reduction of the company's reliance on the O&G industry was necessary but this required a different approach.

The solution

Langley Alloys' core customers can be divided into two groups: machine shops / fabricators and OEMs. While the first are very much



When we speak with OEMs and end users we find more opportunities. Our products 'travel' so the challenge is to promote our unique metals and services more widely to key decision makers.

Rodney Rice
Business Development Director



Langley Alloys

focused on price and delivery times, OEMs provide a more complex opportunity as they often need assistance to select the best alloys to tackle their corrosion challenges. Langley saw an opportunity to increase its direct revenues from OEMs to 50% by adopting a different strategy.

Focusing initially on Tier 1 OEMs in the oil and gas sector, the company innovated in 2015 by offering an approach that involves working more closely with customers and understanding what they really need, moving beyond the role of a simple stockist. Supported by their engineering expertise, Langley Alloys began to challenge customers' assumptions and specifications to deliver the most cost-effective alloys, with the appropriate performance that could be readily sourced. This approach is complemented by Langley Alloy's other strengths, such as its global footprint, flexibility with logistics, local price competitiveness, manufacturing practicality and the availability of alloys within the required lead time.

Langley Alloys has decided to continue focusing on doing business with Tier 1 OEMs in the oil and gas, marine and chemical sectors, while

still maintaining its stockist business to provide 50% of its revenues.

Major players such as Weatherford, Baker Hughes and Flowserve have benefitted from this innovative approach. Baker Hughes, which describes Langley as 'disruptors' has already enjoyed a £10m cost reduction as a result of working with Langley.

About Langley Alloys

Langley Alloys is a manufacturer and stockist of high-performance stainless steel, bronze and nickel alloys especially suited to high-corrosion applications. Based in Newcastle-under-Lyme, the company has a 65,000sq ft facility equipped with stocking, machining, and NDT testing facilities. Its markets are varied, but revenues come primarily from the oil and gas (30%), chemical (30%) and marine (20%) sectors. The most frequent applications in these sectors include tooling, tension risers, downhole and subsea (O&G), agitators and shafts (chemicals) and cylinders, shafts and sensors (marine), among others. Langley Alloys' offices in Houston, Portland and Singapore allow the company to supply alloys to clients around the world.



Story type:

#innovation

Benefits:

- Savings: Baker Hughes has benefitted from a £10m cost reduction by adopting Langley Alloys' approach

Key findings:

For the industry:

- Companies can upsell and offer greater value if they invest in engineering capability to solve customers' technical problems
- It takes time to convince a customer that you are serious about being treated as a solution provider, when in the past you were seen as a stockist or component company

For the government:

- Work harder to make sure SMEs are aware of the Department for International Trade and other agencies' capability and benefits

Government support?

Langley Alloys has not pursued any government support. However, the company is interested in obtaining support from UK Export Finance related to bonds and Nuclear AMRC's Fit For Nuclear programme

Langley Alloys at a glance

Key products and services: metal alloys

Main sector(s) served: oil and gas, chemical process industry and marine

Headquarters: Newcastle-under-Lyme

Years established: 1938

Number of employees: 42 (25 in the UK, 15 in the US and 2 in Singapore)

Revenue: £11m (2016)



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 NRL Group

The NRL Group's new company LINX offers an innovative and tailored approach to workforce solutions



L I N X

How is NRL Group thriving?

To differentiate itself from its competitors NRL developed **LINX**, an innovative service based on designing bespoke recruitment solutions for clients with a clear focus on cost savings, compliance and efficiency .

The challenge

The technical recruitment industry has been faced with many challenges in recent years. In addition to the downturn of the oil and gas sector, NRL, like all recruitment service

providers, had to deal with increased competition, higher scrutiny of margins and costs and an increased drive for efficiency. In addition, customers started self-managing and bringing recruitment in-house in a bid to cut costs. The reliance on traditional recruitment providers to recruit workers in a suppressed market became less important. However, this approach does not necessarily create a competitive advantage over the long term when market conditions change and skills shortages emerge.

In such a tough business environment, NRL found that

traditional recruitment options were failing to meet their clients' needs as they were too limited and restrictive. The company recognised that, while the recruitment process outsourcing (RPO) approach delivered some financial and compliance advantages it often resulted in a disengaged recruitment supply chain, whilst engagement with a diverse range of preferred and niche suppliers was also problematic.

The solution

NRL innovated by creating LINX, whose approach is to fully understand the end to end workforce landscape and then design innovative, bespoke solutions to respond to identified areas of friction. This means Linx can draw on their experience to improve pain points or offer a complete workforce process update.

The introduction of LINX resulted in a four-year contract with a launch customer worth approximately £350m. LINX's scope includes legal support to renegotiate terms of supply, resulting in a 99% sign up rate with the supply chain,



Opportunities to improve your offering and relevance through innovation can unlock growth opportunities in challenging markets – launching Linx has seen revenues and margin grow, and taken the NRL Group into a new industry space.

David Redmayne
Director



as well as managing the tender process to establish a best in class supply chain moving forward and introducing technology in the form of a digital platform to drive in efficiencies, transparency and compliance. This is supported by a dedicated customer services team, resulting in improved time-to-hire, reduced administration and greater accountability. Linx were also able to deliver cost savings from increased productivity and efficiency as well as economies of scale with recruitment suppliers through greater opportunity of supply.

A separate entity from NRL Limited, LINX is expected to evolve to a full-fledged independent company within a year. NRL hopes to keep the company focused on the energy sector but understands that this may be a limiting factor. The aim is to leverage NRL's long standing close relationships with customers to roll out this collaborative and customer-led approach to their unique workforce dynamics, challenges and requirements, whilst ensuring that any potential internal conflicts of interest between NRL and LINX are avoided. It is recognized that the growth of LINX in the future could partially cannibalize NRL, however the need for technical recruitment specialists in the supply chain is essential and LINX's service offering is complimented by the close association with NRL. This disruptive innovation is an accepted risk that the NRL team has decided to take.

LINX has been refined and tested and NRL is now taking this new approach to targeted and loyal

clients to deliver an optimised and aligned recruitment supply chain that responds to their unique business challenges.

About NRL Group

A technical services company with 34 years of experience, NRL Group's vision is to be the most trusted, collaborative and innovative service provider in the technical sector. The company provides technical recruitment, rail maintenance, training and non-destructive testing (NDT) services for technical, engineering and construction applications in the UK and around the globe.

Most of the NRL Group's revenues comes from the nuclear, petrochemicals/refining, renewables and construction sectors, but the company is also involved with the mining, conventional power, rail, and mechanical, electrical and instrumentation segments.

Story type:

#innovation

Benefits:

- Order intake: £350m over 4 years
- Customer benefits: Streamlined workforce processes, £606,000 YTD savings, 40% cost of service savings, 100% worker retention, cost reduction implementation, improved compliance, 99% supplier acceptance

Key findings:

For the industry:

- Disruptive innovation can be a fast way to grow, but brings its own management challenges

For the government:

- Work harder to make sure businesses are aware of Department for International Trade capabilities and benefits

Government support?

NRL Group did not seek any government support

NRL Group at a glance

Key products and services:

recruitment, training, rail maintenance and NDT services

Main sector(s) served: nuclear, petrochemicals, renewables, construction and energy from waste

Headquarters: Cumbria, UK

Years established: 1983

Number of employees: 130

Revenue: £145m (2017 forecast)



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Petrofac Engineering & Production Services

Proven capability to safely reduce cost of production and extend asset life



How is Petrofac Engineering & Production Services thriving?

The company saw the opportunity to create synergies by managing two Duty Holder contracts as one. This allowed the two operators involved to save costs and enhance efficiency.

The challenge

In 2015, Petrofac had Duty Holder contracts in the Southern North Sea (SNS) area with Eni and Faroe Petroleum for the Hewett and the Schooner/Ketch fields, respectively. Including Operations & Maintenance (O&M), logistics and safety case

support, the contracts scopes were very similar.

The fall in oil and gas prices was already forcing operators to drive down costs and maximise efficiencies wherever possible. This also applied to Duty Holder contracts, which have aligned key performance indicators to provide incentives for cost and efficiency improvements.

The solution

Petrofac ran the contracts with Eni and Faroe Petroleum separately, but saw the synergy potential if the two contracts were managed as one, with aspects of the O&M infrastructure being shared by the two operators.

Four opportunities were identified and agreed between Petrofac, Eni and Faroe under a tripartite agreement.

Firstly, the operators used two



Reducing the cost of operations in the UKCS is a collective industry responsibility and Petrofac is absolutely committed to playing its part. By delivering cost reductions and synergies safely we benefit our clients and support a cultural step change.

Walter Thain
Managing Director

Petrofac

helicopters: Faroe had the sole use of an AW139 helicopter with spare capacity during the entire year, while Eni used a helicopter on an ad hoc basis. Eni agreed to use Faroe's AW139 helicopter, thus saving costs related to its own ad hoc aircraft use.

Secondly, an agreement was reached regarding the supply vessels used by the two companies. Eni had the sole use of a vessel during the full year, while Faroe had an ad hoc vessel. The companies agreed to swap vessels to drive overall savings and, more importantly, balance the savings evenly between them.

Another deal was struck for the offshore accommodation. The two companies agreed that offshore personnel contracted to the normally unmanned Schooner and Ketch assets would stay at Eni's Hewett platform instead of returning to the shore every day.

Lastly, the companies agreed that Petrofac teams would work together on the assets and backlog programme by working on the manned Hewett platform during winter and on Faroe's unmanned platforms during summer.

This innovative collaboration has allowed the two operators to save more than £2.15m in OPEX costs since May 2015. There are no more

lost weather days, there are fewer helicopter flights and the backlog has been reduced, which led to an asset availability of 98-99% and a 10% efficiency gain on labour utilisation. In order to make the adjustment of costs and benefits possible, an open book was used to allow fair re-balancing of costs for both operators.

The contracts are ongoing and the collaboration is now established between Petrofac and the two operators. The AW139 helicopter still has spare capacity and Petrofac has started talks with a third operator – a potential Petrofac Duty Holder client – to join the collaborative agreement.

About Petrofac

Petrofac is an international service provider to the oil and gas production and processing industry. It has been supporting the industry for over three decades.

Through its Engineering and Production Services division, it provides a range of operations, maintenance, engineering and training services to the oil and gas sector. It has been supporting the SNS area from its hub in Great Yarmouth for more than 10 years, providing manpower support services as well as O&M, Engineering, Duty Holder and, more recently, Service Operator services.



Story type:

#innovation
#collaboration

Benefits:

- OPEX savings: £2.15m+ per year
- Improved safety
- Reduced backlog to achieve asset availability of 98–99%
- 10% efficiency gained on labour utilisation
- Mitigated lost weather days

Key findings:

For the industry:

- All norms should be challenged
- Collaboration works best when all stakeholders have an appetite to adapt, and more so when the service provider can demonstrate the benefits of doing so
- Collaboration is not just between operators, but also between clients and suppliers

For the government:

- Oil & Gas Authority could take these types of best practice ideas and incentivise all to take them on board

Government support?

Petrofac has not received any government support

Petrofac at a glance

Key products and services:

operations and maintenance, engineering, asset management, well engineering, late life asset management and decommissioning, training and competence solutions

Main sector(s) served: oil and gas

Headquarters: London, UK

Years established: 1981

Number of employees: 13,500

Revenue: US\$7,873m 2016



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PJ Valves

A global approach for valves to support oil and gas projects effectively and competitively



“

Our company has wrestled with the challenge of low demand over the last few years, like many others. It's clear that the answer to this, is to do a better job for our customers. Not only through the manufacture and supply of valves, but by broadening and deepening our customer relationships to provide more value while reducing cost. There's no doubt it's been a challenge – but one we have relished. We emerge from this downturn a strong and committed team across our group with a very positive outlook for future growth.

Dan Munro
Group Managing Director

How is PJ Valves thriving?

PJ Valves (PJV) has thrived during the oil and gas downturn by adopting a three-pronged approach: expanding into new markets, investing in a new manufacturing facilities, and ensuring both sales and manufacturing processes focus on the individual needs of each project.

The challenge

The fall in oil price motivated several cost reduction initiatives in the oil and gas sector. This led to a change in behaviour among the end-users of PJV's products, who increased their focus on cost-effective, enhanced supplier support.

PJVs international offices provided some protection against the industry downturn as the company could focus on demand hot spots.



The solution

PJV is part of a fragmented market which requires manufacturers to differentiate. The company innovated by identifying target projects and then supporting the various end-users and engineering companies throughout FEED to EPC – ensuring operations were prepared for individual project requirements. PJV leverages its long-established valve knowledge and expertise to support the project specification development through to execution – always putting the customer and their project first.

PJV has evolved its role from a valve manufacturer and supplier to an advisor, expert and partner to ensure customers receive fit-for-purpose, cost-effective valves. The international nature of its business has allowed PJV to increase close customer support across America, Europe and Asia while maintaining strong supply chain relationships. PJV has seen small incremental benefits by having good IT practices to help team work across time zones. This approach has succeeded in cultivating approximately US\$15-20m of new business opportunities over the last two years, the equivalent of one year's revenue.

PJV's success is also due to two other factors. Firstly, the company successfully managed to develop its export capabilities. Today, over 70% of the company's revenues derive from export opportunities, compared with 20% in 2011. Secondly, PJV's decision to optimise its manufacturing capabilities by investing in a factory in India provides a compelling cost-base to customers. The company is now evaluating new regions for

expansion and is considering a fast-growth approach to stay ahead of competition.

About PJ Valves

PJV manufactures and supplies valves to energy projects all over the world. Its portfolio includes ball, butterfly, double block and bleed (DBB), gate, globe and check valves, in addition to other special products and solutions, e.g. actuation integration.

The company's key customers are oil companies, EPC contractors and equipment packagers. In addition to the UK, it has operations in the US, Singapore, India and Italy.

Story type:

#export
#innovation
#optimisation

Benefits:

- New revenues: US\$15–20m

Key findings:

For the industry:

- Differentiation is enhanced if you can move up the value chain from component supplier to advisor with expertise
- Export growth is possible in a downturn, and can be achieved quickly and economically

For the government:

- When businesses actively engage with Department for International Trade (DIT) and UK Export Finance (UKEF), value is delivered

Government support?

The DIT provided export support. PJV is currently working with UKEF to obtain 80% coverage for bonds

PJ Valves at a glance

Key products and services: engineered industrial valves
Main sector(s) served: oil and gas
Headquarters: Hertford, UK
Year established: 1976
Number of employees: 85 (group)
Revenue: US\$20m



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Servelec Controls

New remote O&M technology that enables long-term field viability

How is Servelec Controls thriving?

The company has introduced a remote operation, maintenance and monitoring solution to convert mature manned offshore platforms to unmanned. This disruptive innovation decreases O&M costs, improves safety and ultimately maximises asset value. This is a game-changing idea for the oil and gas sector and an opportunity for oil companies across the world.

The challenge

During prosperous times oil and gas companies are very complacent, less prone to taking new risks and closed to new ideas. With the fall in oil prices, operators suffer, start cutting on spending and see their assets lose viability. In this context, Servelec Controls considered a key question: could they make fields



viable again by innovating and using new technology efficiently?

The solution

Following a helicopter accident suffered by a major operator in the North Sea in 2006, Servelec Controls began to consider why

offshore platforms needed to be manned. The company produced a study in 2007 that identified new solutions to reinvent the maintenance of old offshore assets, concluding that the key to cutting OPEX expenses was to simplify the process by converting manned offshore platforms to unmanned.

“ Servelec Controls appreciates the problems faced by our industry, and we are determined to help our customers resolve them. With our vendor-neutral approach we are uniquely placed to help operators meet their targets for efficiency, productivity and safety. Our remote operations solution is a game-changer for the industry as it allows operators to extend the operational life and increase the commercial viability of ageing assets.

Andrew Mills
MD, Servelec Controls (Oil & Gas)

Making use of its experience in control and safety systems, Servelec Controls developed a remote operations solution via automation systems. Routine maintenance can be undertaken remotely via SCADA (supervisory control and data acquisition) systems which monitor and enable remote restart of systems, assisted by drones, CCTV cameras and other monitoring technologies. Over the last two-three years the company has also developed a fully-remote unmanned restart capability for black start scenarios.

In addition to safety improvements and efficiency gains, this solution presents various benefits for the industry. It enables massive OPEX savings in various areas (e.g. 38% for helicopters and 25% for labour, depending on the asset), reduces downtime and brings down



insurance as well as logistics costs. Also, the overall cost reduction improves field viability and provides an opportunity for operators to delay abandonment, an activity which brings massive costs.

While de-manning platforms is an innovative opportunity, it also presents some issues. Making remote O&M possible involves the replacement of pneumatic valves with electric valves, which requires upfront investment (an unpopular proposition considering the current investment climate). These valves are controlled by a distributed control system, which decides whether the platform is still safe to operate following a spurious trip event and allows a remote restart. Indeed, monitoring and assessing restarts is a key aspect of the remote O&M concept as it avoids having technical teams fly out to the platforms at short notice, which ultimately invalidates the value proposition of the remote concept.

The launch customer of this innovative solution was Centrica, which awarded a contract to Servelec Controls in December 2016. Centrica is implementing this approach on its eight platforms in the East Irish Sea, with the potential for savings of up to £10m annually per platform. This disruptive innovation brings important consequences to the oil and gas sector. It could compromise existing business activities in the brownfield sector and lead to job losses due to de-manning of platforms, but it also opens the way for new opportunities. Drone applications will massively increase and onshore control rooms are set to expand. Major maintenance will change from being an ongoing activity when manned, to being a planned outage

activity, more like major onshore facilities. Also, greenfield projects will also eventually be developed with this unmanned concept in mind, leading to lighter topsides. This could potentially be a watershed moment for marginal fields, extending the life of basins across the world.

Servelec Controls' next steps involve the marketing of this concept to other operators in the UK and abroad. While the current offering requires limited manned support, the company plans to evolve to a 100% unmanned concept with a focus not on cost and risk reduction, but rather production enhancement and new field viability.

About Servelec Controls

A part of the Servelec Group, Servelec Controls Ltd has been active since 1977 and is celebrating its 40th anniversary by encouraging its employees to take part in charitable activities with the aim of giving back to charities and the local community in 2017. By uniting hardware, software and engineering, the company provides safety and controls systems to customers in the oil and gas (mainly offshore) power and infrastructure sectors.

The company prides itself on being a complete one-stop-shop, delivering a whole lifecycle service that provides everything from initial conceptual design to installation and maintenance. With offices in Sheffield, Aberdeen, Warrington and Glasgow, the company's recent strategy for growth is to focus on core UK customers, putting in account management structures and developing targeted campaigns, centering primarily on OPEX on the UK Continental Shelf.

Story type:

#innovation
#technology

Benefits:

- Annual OPEX savings of £80–90m for one UKCS operator (based on tangible savings estimated for one asset, multiplied by 8 platforms)
- Production enhancement – O&M savings fund upgrades to improve production and efficiency
- Extended field viability by 15 years

Key findings:

For the industry:

- Existing industry practices in offshore platform O&M have not changed for 40 years and are ripe for disruptive innovation
- Even the best idea needs a brave first customer
- New technologies are enabling huge shifts to remote O&M

For the government:

- Policy-makers need to prepare for the implications of this type of disruptive innovation
- SMEs with these types of important ideas will need help to scale up fast
- The UKCS regulator (Oil & Gas Authority) and the Oil & Gas Technology Centre should have direct roles in encouraging industry to adopt these changes – in line with the MER strategy

Government support?

Servelec Controls has not received any government support

Servelec Controls at a glance

Key products and services:

safety and controls systems

Main sector(s) served: oil and gas, and power

Headquarters: Sheffield, UK

Years established: 40

Number of employees: 105

Revenue: £10–15m (2016)



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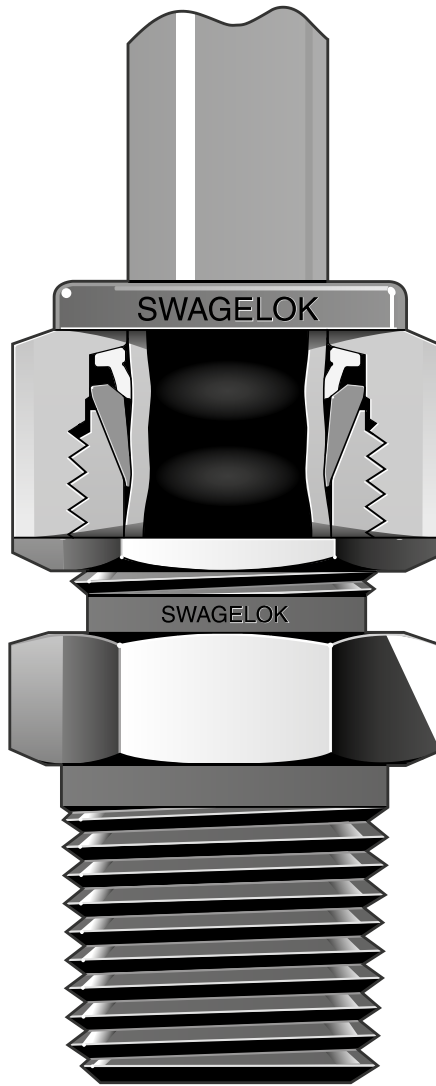
Engineered combinations that add value and enhance asset integrity in the oil and gas industry

How is Swagelok thriving?

Swagelok's patented SAT12 low temperature carburization process which is being used to harden the surface of back ferrules has enabled clients to significantly reduce costs by avoiding the use of more expensive tube fitting materials when using special alloy tubing on new projects and upgrades to existing installations. This innovation has led to the company transitioning from a component supplier to a technology solutions partner which offers a leak-tight guarantee.

The challenge

For many years, oil and gas companies across the world have encountered corrosion-related issues on their facilities. While corrosion is a very common problem, harsh environmental conditions in the North Sea caused pitting and crevice corrosion problems on 316 stainless steel tubing. Historically, some operators had addressed this problem by using Tungum tubing, a copper-zinc



alloy. While this material solved the main problem of pitting corrosion, it is more expensive and operators are often unable to afford this substitution in a lower oil price environment.

Ten years ago, UK based Swagelok authorised distributors started receiving enquiries for tubing and tube fittings from superaustenitic 6 Moly stainless steel, which has high resistance to pitting corrosion because this alloy contains 6% molybdenum. 6 Moly alloys began to be used in the North Sea and their use quickly spread to the rest of the world.

While 6 Moly has many benefits in its favour, price isn't one of them. 6 Moly tubing and fittings cost about four times the price of standard stainless steel tubing and fittings. Another challenge with 6 Moly bar stock and tubing is their more limited availability.

Higher costs and lower availability of 6 Moly presented a significant challenge for Swagelok and their clients, as an entire instrumentation system featuring 6 Moly stainless steel tubing and tube fittings meant that projects would run a very real risk of being economically unviable. Also, customers who already installed Swagelok fittings prefer not to replace them with fittings from other manufacturers due to the costs involved and also safety concerns about interchange/intermixing fittings from multiple manufacturers on the same installation.

The solution

Just over three years ago, Swagelok



At Swagelok London, we have learned that in difficult times, it is essential to understand the challenge facing our customers and focus on providing engineered solutions that help them meet their business objectives.

Adrian Wynne
Managing Director

Swagelok

found that its 316 stainless steel tube fittings worked very well with 6 Moly tubing, thanks to a patented and innovative in-house process. The company determined that the 316 stainless steel rear ferrule, a component which grips the tubing inside the fitting, was much harder than the 6 Moly tubing, as a result of having been hardened with the Swagelok-patented SAT 12 low temperature carburization process. The hardened advanced geometry rear ferrule retains ductility, and reliably grips 6 Moly tubing which can be harder than 316 stainless steel tubing.

It is a key benefit for customers that the 316 stainless steel tube fittings can be used with 6 Moly tubing in new projects and upgrades, allowing for significant cost savings compared to having to use 6 Moly tube fittings with 6 Moly tubing. For a large oil and gas facility these savings can amount to hundreds of thousands of British pounds, thus making these projects and upgrades affordable again.

About Swagelok

A specialist in the design and manufacturing of fluid system components, Swagelok grew from a small Cleveland start-up in 1947 to a multinational company, present in more than 70 countries through 225 authorised sales and service centres. Swagelok serves many industries including oil and gas, power, chemical/petrochemical, semiconductor and alternative fuels industries.

In the UK, Swagelok is represented by four distribution companies providing sales and service on

a geographical basis trading as Swagelok Scotland, Swagelok Manchester, Swagelok Bristol and Swagelok London. From its base in Kings Langley, Swagelok London (the trade name of London Fluid System Technologies Ltd) covers southern England and selected international markets including Central Asia and West Africa. In Asia, its two biggest markets are Azerbaijan and Kazakhstan (it has operations in both countries), while in West Africa its most important markets are Nigeria, Ghana and Côte d'Ivoire.

The oil and gas sector accounts for more than 75% of the company's business in Central Asia and West Africa and 35% of London's UK business.

Story type:

#innovation
#technology

Benefits:

- Savings: £100–500k per project

Key findings:

For the industry:

- Companies must change how they promote themselves, to emphasise delivered savings
- A lifetime guarantee should be offered
- Get closer to your key customers, and add more value, by changing mindset from component supplier to innovation partner, which may involve developing new engineering skills

For the government:

- Companies that progress from component focus to solution/innovation focus add more value and are likely

Government support?

Yes. The Department for International Trade supported its participation at a trade show in Kazakhstan, now a key market for Swagelok.

Swagelok at a glance

Key products and services:

fluid system components

Main sector(s) served: oil and gas, chemical/petrochemical, semiconductor

Headquarters: Cleveland

Year established: 1947

Number of employees: 5,400

Revenue: US\$2bn



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Oil and gas majors are approving liquid-jet compressors



How is Transvac thriving?

Transvac developed a new ejector solution that provides massive cost savings, enhanced efficiency and production gains.

The challenge

One of Transvac's main challenges is to expand the industry's understanding of technology and reduce its perceived risk. This is no easy task as customers usually don't have the funds or the appetite for perceived or actual new technology unless it comes from global brands.

The solution

Transvac successfully enhanced the efficiency of its ejector solutions by investing £5m in research and development in the last two years. The company was able to introduce **new ejector systems** that are custom-designed, application-specific and can replace the need for turbo/jet compressors. The technology itself is established and proven, but Transvac's R&D efforts enhanced efficiency by allowing ejectors to use 35% less

input 'motive' flow to provide the same gas compression duty. Three examples illustrate the business case for Transvac's new ejectors:

Petroleum Development Oman (PDO)

The company was planning on acquiring a US\$100m gas compressor for a CAPEX project. Transvac provided an alternative which cost just US\$20m, available in 50% of the lead-time (one year instead of two). This solution required zero maintenance and no ancillary protection system.

Maersk Skjold platform

An old well risked being lost because of a failing gas lift system. Transvac's ejector, supplied in just 10 weeks at a cost of £100,000, managed to reduce wellhead pressure from 5bar(g) down to 0bar(g), allowing the platform to produce 350 barrels per day (an annual revenue of approximately



Continually develop and improve your product. Then re-evaluate your target market. It may have changed and you may have new opportunities to explore.

Peter Ainge
Business Development Manager
(Worldwide)



US\$5m). Maersk is preparing an SPE paper to showcase the Ejector's benefits.

Statoil

A Transvac ejector is being used for flare gas recovery; boosting low pressure gas that would otherwise be flared back up into the gas process stream. This reduction in flaring is both good for the environment and allows the operator avoid emission taxes and associated penalties.

Transvac's R&D results have unlocked new applications for ejector technology, even allowing entry into entirely new industry sectors such as subsea mining. With no moving parts, ejectors are an ideal tool for pumping abrasive sand and mining debris. This new sector for Transvac is expected to take a 20% share of revenues in 2018. This also creates opportunities in the aftermarket sector, which currently is almost non-existent. A key strategy for Transvac is to have its operator customers praise the benefits of the new ejectors through respected bodies such as the Society of Petroleum Engineers (SPE), which is the fastest way to remove risk perception and boost confidence in the product. Numerous papers have already been presented major operators such as Maersk and Chevron.

About Transvac

A world leading supplier of ejector solutions since 1973, Transvac is a privately owned company that serves the oil and gas, water treatment, food, pharmaceuticals and chemicals industries. Its products are also found in

applications such as steam and vacuum, handling of fluids and solids, scrubbing and air pollution control.

Previously heavily reliant on the oil and gas sector, Transvac has managed to diversify since the downturn and today the O&G market is responsible for 60% of its revenues (down from 75% in 2014), followed by the water treatment (20%), food/pharmaceuticals (10%) and chemical (10%) sectors. Approximately 75%-80% of the company's revenues come from export sales, which are conducted by a global network of agents.

In a bid to make technology more accessible, Transvac developed an online ejector sizing tool that allows engineers to enter their process information and predict quickly if ejectors can add value. This tool has been met with great success and has contributed to the company's sales effort.

Story type:

#technology

Benefits:

- Efficiency: new ejectors using 35% less motive flow to provide same compression output; reduced lead times
- Production: 350bbl/d – equivalent to US\$5m per year
- Savings: 80% cost reduction

Key findings:

For the industry:

- Using operators and your customers to highlight the benefits of new technologies removes risk perception and can accelerate market acceptance

For the government:

- R&D funding is a game-changer for SMEs

Government support?

Transvac received funding from a local development agency and Innovate UK (which awarded the company the Innovate UK National Award).

Transvac at a glance

Key products and services:

ejectors (also known as jet pumps)

Main sector(s) served: oil and gas

Headquarters: Derby, UK

Years established: 1973

Number of employees: 53

Revenue: £6m (2016)



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VEGA Controls Ltd

Process expertise and proven technology for safety critical applications



How is VEGA Controls thriving?

VEGA is working with its customers to provide in-house technology solutions that meets their requirements, improves safety and increases production.

Sharing knowledge across its units and acting as one VEGA Group rather than separate entities has also had major commercial benefits for the company.

The challenge

A major, Aberdeen-based oil company, had an ongoing problem on one of their platforms with a glycol contactor level trip transmitter which was subject to intermittent, spurious and erroneous measurements, causing major operational and safety issues. The company was using guided radar measurement technology, and although the equipment was re-mapped, this didn't fix the problem. They then decided to tackle this issue by replacing them with alternative devices of the same technology, but this also failed to solve the problem. Further alterations and changes to settings were made but they were, again, unsuccessful.

The solution

At this time an engineer from the company attended an oil and gas technology seminar hosted by VEGA in Germany, at which there was a demonstration of the very same guided wave radar measurement technology they were trying to use. At the seminar VEGA explained why it would not be able to do what they wanted, which was to measure and detect the interface between hydrocarbons and glycol.



We pride ourselves on supplying the right solution, combining the full range of instrument technologies strengthened by shared application knowledge.

Gary Baker
Projects Manager

VEGA

A series of subsequent discussions and demonstrations led to them finally understanding why the guided radar equipment wasn't working, something no other company had been able to explain.

VEGA proposed an alternative solution, based on nucleonic instrumentation, that could be deployed to solve the problem and providing certainty of operation when required. Called PROTRAC, it is a patented technology developed within the VEGA group after the acquisition of a US-based company many years ago. The VEGA engineering team promptly responded to the oil company's requirements and proceeded with detailed design to facilitate the installation and commissioning of the equipment offshore. The device proved successful and reliable in the application.

Besides the ability to provide a direct process measurement control, VEGA's PROTRAC solution provides important benefits. By providing increased safety and reliability, it avoids false trips, which ultimately boosts productivity by reducing costly outages. The equipment's low installation and ownership costs also strengthen its economic and operational benefits.

In addition to the company's process expertise, one of the main reasons why VEGA obtained the contract was the company's ability to provide a detailed understanding of why the existing technology was not working. VEGA earned the customers trust during this process, which led to a collaborative approach between supplier and customer, with VEGA gaining access to the oil company's project engineers.

This collaborative approach is very much engrained in VEGA's culture. Instead of operating as separate autonomous business units, VEGA is one global business, sharing knowledge to deliver both client and scope synergies wherever possible. Recognising the importance of these behaviours and value to customers, VEGA formed a Global Energy Team in 2009. It was initially dedicated to the downstream segment within oil and gas, but it has more recently expanded to cover all the energy sectors the company serves.

About VEGA Controls

VEGA Controls is the UK unit of the VEGA group, a family-owned company specialised in level, pressure and density instrumentation for the control of liquids, solids and gases. Its main market segments are oil and gas, chemicals, food, power generation, and pharmaceuticals. VEGA Controls' support customers in UK and Ireland and its oil and gas clients include operators, drillers, contractors, packagers, resellers and distributors.

Story type:

#collaboration
#technology

Benefits:

- Improved productivity and safety due to reliable performance and eliminated safety trips

Key findings:

For the industry:

- Demonstrating close and detailed understanding of, and collaborating with, customers to tackle their challenges is essential
- A broad, diversified and protected technology portfolio is a key differentiator
- Acting as one group instead of having various autonomous units brings commercial benefits

For the government:

- Provide technical apprenticeships and training for employees in all regions of the UK

Government support?

VEGA Controls has received training grants for apprenticeships and employee training

VEGA Controls at a glance

Key products and services:

process control products

Main sector(s) served: oil and gas, chemicals, food, nuclear and pharmaceuticals

Headquarters: Burgess Hill, UK (parent company is based in Germany)

Year established: 35 years

Number of employees: 40

in the UK, 1,100 globally

Revenue: £11m (UK unit),

US\$350m (group)



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Weir Engineering Services

Overwhelming customers with service optimisation and a total care mindset



How is Weir Engineering Services (WES) thriving?

Facing a challenging business environment, the company decided

to optimise the services offered to its key customer. This led to WES becoming a trusted long term engineering partner for valves and pumps.

The challenge

Like the oil and gas business, the power industry in the UK has also experienced a downturn. Many conventional power stations have been closed in the last three-five years, which has greatly affected the supply chain. WES was no exception, and the company lost over 50% of its thermal power business due to closures.

Nuclear plants were also impacted by low retail power prices, one of the results being that plant owners have streamlined the scope of work undertaken by O&M providers from what was undertaken in previous years. This posed a challenge for WES, as the company had to



Continuous improvement and innovation are key to surviving and thriving. Power station outages depend on sound planning, so it's vital that our team integrate, deliver efficiencies, and contribute to a safe environment.

Kevin McGurk
Commercial Manager

WEIR

provide a critical proposition at sustainable value to win and retain contracts.

The solution

One of WES' main customers is EDF, which owns the Heysham 2 nuclear power station. WES has an O&M Framework Agreement with EDF which has been in place for nine-years covering all of EDF's AGR fleet. The contract is of major significance as it enabled WES to more than double turnover with EDF over contract lifetime. Demonstrating value to EDF and maintaining them as a customer was a strategic priority.

When WES was awarded the contract by EDF originally its service was very different – it was ad-hoc, remote, without much information flow and integration with on-site teams. Over the years, however, the company optimised by enhancing communication, increasing the speed of its response to EDF's needs and becoming 'embedded' in their plans and facilities.

WES started to become more involved with the customer in various ways. The company participated in the planning stage for outages, provided dedicated site managers that attended daily briefing meetings and were an integrated part of the EDF team on a day to day basis. Additionally, WES built up its reputation as a valve, pump and engineering specialist, providing advice on ways to add value and deliver efficiencies while reducing risk. WES' approach was that of a total care ethos, going beyond the wording of the contract.

This optimised service created

many benefits. Heysham 2 broke a world record in 2016 by staying in continuous service for 940 days. During this time WES had no lost time accidents across the EDF fleet as well as other customers (equivalent to 1m man-hours), and experienced minimal quality issues, all thanks to highly qualified engineers, supervisors, technicians and apprentices.

Looking ahead WES is committed to further strengthening the service offering available to EDF as well as evolving it's capabilities to meet the needs of a changing UK market. Continuous improvement is central to their differentiated proposition and the company has ambitious plans to support both the current and future UK power fleet through technology and innovation.

Additionally, WES has just won a pump contract with EDF under this total care approach and aims to expand this model to other sectors and customers, even if tenders don't specifically state this requirement.

About Weir Engineering Services

WES is part of the Weir Group and is an engineering specialist supplying equipment and maintenance solutions. Its core sectors are power and nuclear, however, it is also involved with the downstream and renewable sectors.

WES provides operational efficiency enhancements, availability and reliability improvements as well as the life extension of plant assets. WES has five service centres offering various specialist services for testing, overhaul and refurbishment services.

Story type:

#optimisation

Benefits:

- Value: significant year on year operational efficiencies for EDF
- Safety: two years without lost time accidents
- Long term partnership for WES with valued customer

Key findings:

For the industry:

- Service and O&M optimisation increases value proposition for clients just as much as new project optimisation
- Exceptional service mentality can go beyond contract wording, delighting clients and enabling value and trust to grow

For the government:

- There appears to be a large gap in government support relating to service specialists and related optimisation

Government support?

WES would welcome government support and further consultation on growing the UK energy sector supply chain

Weir Engineering Services at a glance

Key products and services:

valve and pump services include: outages, field services, refurbishment and upgrades

Main sector(s) served: power, oil and gas, marine and general industry

Headquarters: Bellshill, UK

Established: 1871

Number of employees: 628

WES Revenue: ~£70m



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About the EIC

Established in 1943, the EIC is the leading trade association for UK-registered companies working in the global energy industries. Our member companies, who supply goods and services across the oil and gas, power, nuclear and renewable sectors, have the experience and expertise that operators and contractors require.

As a not-for-profit organisation with offices in key international locations, the EIC's role is to help members maximise commercial opportunities worldwide.

We do this in a variety of ways from providing detailed project information and regional market insight; to showcasing specialist skills and connecting suppliers with buyers; through to running tailored training courses and events that inform and engage the industry.

The services we offer play an important part in supporting over 600 member companies to do business in a competitive marketplace.

EICDataStream

Our projects database, EICDataStream, provides extensive information on 7,500 active and future projects in all energy sectors worth US\$10tn. By tracking the full project life-cycle from feasibility to construction and then completion, it helps members to identify opportunities and plan their business development strategies.

Interested in becoming an EIC member?

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