



Survive & thrive

EIC Insight Report

VOLUME II



www.the-eic.com

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Executive summary

The first-ever EIC Survive and Thrive Insight Report was released in 2017. It was received to great acclaim from an industry keen to learn about the proven business development strategies the report contained, while the UK government used the recommendations from the participating companies to feed into its ongoing industrial strategy work.



A year on and Survive and Thrive Volume II once again reports on the strategies being put in place by 26 companies of all sizes – from small family run SMEs right through to Tier 1 contractors – and covering all energy sectors: oil and gas, power, nuclear and renewables.

We revisit the six strategies for growth during a downturn identified in volume 1 to see if these are still relevant and whether their use is increasing or decreasing as well as focusing on two new business development strategies being put in place to tackle the tough times: digitalisation, and service and solutions.

The strategies being employed by the 26 companies in Survive and Thrive Volume II are:

- Collaboration
- Digital
- Diversification
- Export
- Innovation
- Optimisation
- Service and solutions
- Technology

In addition to the actual strategies being used by this year's participants, the report also examines if and how they are scaling-up the solutions they've developed.

At the heart of nearly all the survive and thrive strategies seems to be the need, acceptance and embracing of culture change. The case studies show that any new growth strategy will inevitably bring about a change of culture and ultimately the success of a new solution, and by extension the company, is dependent on the degree to which a company is able to adapt to the new energy landscape and the new ways of doing business which it requires.

Survive and Thrive Volume II also takes a timely look at how the participating companies are dealing with and preparing for Brexit.

Once again we provide recommendations from the UK energy supply chain for government – invaluable first hand data from what is a fragmented industry – as well as key lessons for other companies on how to prosper even during a crisis.

Not only are the 26 EIC member companies' case studies inspirational for an industry which really does need to hear more good news stories, more importantly they provide real tangible advice and best practices which can be used by organisations of any size and working in any sector. These solutions are proven, having generated over £357m per year savings and new orders for these 26 companies alone, and they could and should be working for your business too.

Key findings

Below we outline what we at the EIC consider to be the most important findings to have come out of Survive and Thrive Volume II.

An overview of the companies and their survive and thrive strategies can be found on page 6, while each one's success story is described in detail in its individual case study along with its own recommendations for government and industry.

Nobody seems to realise that Brexit is just around the corner

One year on from the first edition of Survive and Thrive, and now just seven months away from the UK exiting the EU, it is apparent that our exit from the EU is still not being planned for within the energy service sector. Not only are they not gearing up for Brexit, many are currently feeling no impact from the Brexit preparations or implications, so have no sense of urgency to address potential risks or changes to business models.

In 2017 none of the participating companies mentioned Brexit as an issue or part of its future planning. In the second volume of Survive and Thrive only five companies reported having felt any impact from Brexit – negative or positive – and only one organisation is in the process of developing Brexit contingency plans.

It appears companies are assuming there will be a deal that includes a two-year transition period allowing them time to plan later. But there is a real possibility of a no deal outcome as well, when there would be no transition period and we would switch to WTO rules immediately. This would be very disruptive, and companies should start to plan for this scenario now.

Export is the hardest way to grow a business

The findings of this year's report

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regarding export are a mixed bag. The good news is that the number of companies turning to export as a growth strategy during the industry downturn has grown from 8% to 19%. Also, approximately 50% of the participating organisations have some existing export revenues from past investments to develop international trade. However, export, for a second-year running, remains the least used survive and thrive strategy. Given the phenomenal results which an export strategy can achieve it's surprising. With Brexit looming, it's very troubling.

Export is still regarded as the hardest of all growth strategies in a downturn because of the upfront costs required, the risks involved with entering a new market and the time it takes to yield results meaning as a strategy it's not palatable for cash strapped companies.

Innovation remains the number one strategy

While export remains bottom of the list, innovation is once again the favourite growth strategy.

The figures across the two studies show a remarkably similar take up: innovation including the use of technology was used by 73% of the participants in 2017 compared to 69% this year.

In contrast to export, which takes time to produce tangible results, the majority of companies which used innovation saw a fairly quick return on their investment – perhaps explaining the ongoing popularity of this business development strategy.

Scale-up is below 50%

While Survive and Thrive Volume II is full of remarkable case studies describing how the participating

Survive and Thrive Volume II strategies at a glance

Collaboration

Working with partners to enable another survive and thrive strategy

Digital

The application of digital systems, analytics and technology to innovate

Diversification

of product, sector or market

Export

In this report we focus on investment in 'new exports' as a means of dealing with the current downturn

Innovation

Enhanced products, services and solutions with new or applied differentiation

Optimisation

Making physical and administrative processes more efficient and cost effective

Service and solutions

The focus on adding value to customers in their OPEX and O&M value chain, and the specific broadening of scope of work to provide a one-stop-shop approach

Technology

Refers to the specific use of technology to solve clients' problems

companies are getting back in the black, across the report only 42% of the participants scaled-up their new tools and solutions.

This leads to the question, if companies are having success with a product or service what's stopping them from maximising their returns even more?

It raises concerns that the UK lacks the infrastructure and funding to make sure that each and every company scales-up.

While a very impressive £357m of savings and new orders were generated by the 26 companies, imagine just how high this figure could climb if 100% of the organisations scaled-up. Then imagine it applied to the whole of the UK energy industry, scaling-up at home and abroad.

Government support on the up

Although funding is perhaps an issue when it comes to scale-up, a pleasing finding of Survive and Thrive Volume II is that the number of companies receiving government support has increased, with 65% of this year's respondents having benefitted from the services and funding offered by agencies such as the Department for International Trade, UK Export Finance and Scottish Development International, compared to just 27% in 2017.

Of the support received almost half was financial and half non-financial. Those companies that hadn't received any government support, approximately a third, in some cases cited a lack of awareness about where to get help from, while others stated that governmental agencies' lack of responsiveness was an issue.



Overview of companies and strategies

Company	Employees	Sector(s) served	Collaboration	Digital	Diversification	Export	Innovation	Optimisation	Service/solutions	Technology	Culture change	Scale-up
ABLE	43	Oil and gas, water, chemicals, pharmaceuticals and power					X			X		
Advanced Insulation	315	Oil and gas, marine/buoyancy and offshore wind					X				X	X
Alco Valves	110	Upstream, midstream, downstream and industrial					X	X			X	X
ALE	2,200	Renewables, oil and gas and power					X				X	X
Blaze	35	Renewables, upstream, defence, NHS and midstream			X	X	X				X	
Bureau Veritas	75,000	Construction and industrial/energy	X	X					X		X	
Capula	280	Energy and defence	X	X	X		X		X	X	X	X
Costain	4,100	Rail, highways, energy and water	X				X		X		X	X
DNV GL	13,000	Oil and gas, maritime, renewables, digital and certification	X				X			X	X	
IMI Precision Engineering	5,000	Energy, automotive, life sciences and commercial vehicles						X			X	X
Imtex	25	Oil and gas and other process industries					X				X	X
James Fisher SE	20	Oil and gas, renewables and civils			X		X		X		X	X
JoBird	20	Upstream, wind, defence and marine	X				X	X			X	
KBR	34,000	Hydrocarbons, government services and technology	X	X			X		X		X	
Lionweld	190	Construction, renewables/energy from waste, water, conventional power, oil and gas and nuclear	X				X	X			X	
Malin Group	80	Shipbuilding, oil and gas, aquaculture and renewables			X		X		X		X	X
Micropack	21	Upstream, downstream and midstream					X	X		X		
px	400	Midstream, power, fuel storage, chemicals and energy trading	X		X				X			X
Servelec Controls	100	Oil and gas and power	X	X					X			
Severn Glocon	960	Oil and gas and power		X	X	X			X		X	
TPG Engineering	51	Upstream, petrochemicals and nuclear/defence	X		X			X			X	
TTE	110	Oil and gas				X						
Wilton	300	Offshore wind	X		X						X	
Wood (Nuclear)	2,000	Civil and defence	X			X			X		X	
WRS	70	Energy, maritime, mining and infrastructure			X				X		X	X
YPS Valves	43	Oil and gas, petrochemicals, mining, power and nuclear			X	X		X			X	X
Total	138,473		12 46%	5 19%	10 38%	5 19%	15 58%	7 27%	11 42%	4 15%	21 81%	12 46%













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Company	Brexit impact	Government support for survive and thrive initiative?	Oil & gas	Power, nuclear and renewables	Others (non-energy)
			Industry split		
ABLE		Yes – R&D tax credits	50%	5%	45%
Advanced Insulation			85%	5%	10%
Alco Valves			90%	0%	10%
ALE			25%	54%	21%
Blaze	Yes – positive and negative	Yes – Scottish Enterprise	25%	50%	25%
Bureau Veritas			7%	6%	87%
Capula			5.8%	82.4%	11.8%
Costain		Yes – Innovate UK	23%	26%	51%
DNV GL	Yes – negative		24%	18%	58%
IMI Precision Engineering			Not disclosed		
Imtex		Yes – Welsh Government	70%	0%	30%
James Fisher SE		Yes – SDI	75%	22%	3%
JoBird	Yes – positive	Yes – DIT	64%	16%	20%
KBR		Yes – support in the infrastructure sector	Not disclosed		
Lionweld			10%	40%	50%
Malin Group		Yes – Scottish Enterprise	30%	5%	65%
Micropack		Yes – Scottish Enterprise and SDI	100%	0%	0%
px		Yes – R&D tax credits	80%	10%	10%
Servelec Controls		Yes – R&D grants	66%	33%	1%
Severn Glocon	Yes – negative	Yes – regional growth fund	85%	10%	5%
TPG Engineering		Yes – regional growth fund	90%	10%	0%
TTE		Yes – Education and Skills Funding Agency	60%	0%	40%
Wilton		Yes – DIT and UKEF	0%	100%	0%
Wood (Nuclear)		Yes – FCO and BEIS	0%	70%	30%
WRS		Yes – DIT	15.75%	9.25%	75%
YPS Valves	Yes – positive		73%	15%	12%
Total	5	17			



Comparison table

	Volume I	Volume II
 Number of participating companies	26	26
 Per year savings and new orders	£550m	£357m
 Companies using collaboration as a platform for other strategies	100%	100%
 Companies using innovation and technology as S&T strategy	73%	69%
 Companies using more than one strategy	65%	85%
 Diversification strategy	27%	38%
 Export strategy	8%	19%
 Innovation strategy	58%	58%
 Optimisation strategy	23%	27%
 Technology strategy	31%	15%
 Number of companies receiving government support	27%	65%
 Number of companies who mentioned Brexit	0	5

Participating member companies



Key statistics



26

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

£357

million

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

5

the number of companies impacted so far by **Brexit**

1

The number of companies **developing a Brexit strategy**



69%

of companies used **innovation** (including **technology**) as a strategy

42%

Of companies used a **service and solutions** strategy

19%

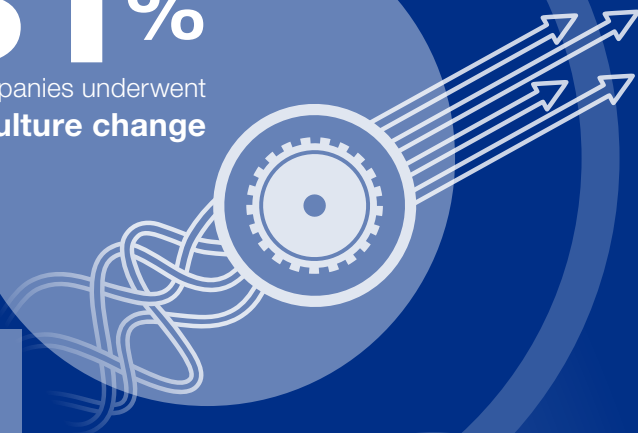
of companies used **export** to grow during the crisis



7

81%

of companies underwent a **culture change**



65%

Of companies received **government support**

27%

of participating companies used **optimisation**



38%

of companies **diversified**

19%

used a **digital** solution



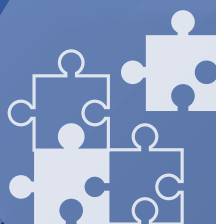
46%

of companies **scaled-up** their solution



100%

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



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Government support: what are the missing pieces?

1. Brexit

2. Financial

3. Non-financial



Lessons for government

1. Brexit



1. Don't be surprised by the industry's lack of Brexit advice or recommendations to minimise its impact. They have little or no idea what the impact will be, let alone what needs to be done to minimise any negative outcomes or take advantage of any opportunities.

2. Government must engage more with industry and explain the different Brexit scenarios and possible consequences for business – what would a no-deal scenario mean for the energy industry? How will a transition period affect us? The industry will then be able to advise the government on what it needs from them.

3. Avoid any changes to regulations and technical standards post Brexit.

4. Avoid visa delays or changes post Brexit.

5. Avoid customs delays and red tape.

6. Industrial strategy needs to match with investor's long-term decision making – it is currently unclear how the energy Sector Deals link to investor drivers.

2. Financial



1. Scale-up finance needed – same model as export finance, repaid from profits from exports.

2. Tangible action needed to make energy exports grow not just promotion.

3. Interest in energy diversification is growing (e.g. from oil and gas to offshore wind), but it's not yet rooted in the talent pool or supply chain and hence is vulnerable to being lost.

4. Make sure innovators don't just invest in new technologies, but then take them to market – address the cultural issue of invest and then move on/ sell out, instead of taking to market.

5. Increase the UKEF threshold for UK content in primary finance deals for energy projects from 20% to 40%.

6. Assess gaps in UK energy supply chain capability (e.g. with our new EICSupplyMap database) – and then address gaps with FDI.

7. Provide free SME support when exporting for the first time to new territories, e.g. currency, bonds, taxes, attending delegations and exhibitions, etc.

3. Non-financial



1. **Good progress connecting with industry in the last year – but still need to raise awareness more.**

2. **Pick winners – countries, sectors, operators, contractors, technologies.**

3. **Take more advantage of help being offered by EIC and other associations – but find more tangible ways to reward that loyalty and openness.**

4. **Structure your stakeholders (e.g. trade associations, development agencies, chambers, business groups, etc.) so overlaps, competition and unhelpful confusion are minimised.**

5. **It's good to point to industry for the answers, inspiration and case studies – but don't appear to not be taking enough accountability for policy and tangible help.**

6. **UK technology, skills and culture are respected around the world – have a tangible plan to take advantage of this, e.g. government to government, target countries.**

7. **Energy sector is competing against other 'sexier' sectors to attract engineering and digital talent.**

8. **Perhaps the greatest perceived risk of export is choosing the wrong local partner – government should find tangible ways to reduce or eliminate this risk.**

9. **Use government to government relationships to open more doors – pick winners.**

10. **Encourage use of advocates for key innovators, exporters and sub-sectors, e.g. Global Scots, OGTC Tech X+, customers being encouraged to share the success stories of their key innovative suppliers, universities, catapults, etc.**

11. **Avoid policy stop-starts – it's costly, demotivating for innovators and wastes time on the global competitive stage. Pick your winners early on and commit to them.**



Lessons for industry

'Identify a productised service to 'hang your hat on' instead of just providing a general service.'
Servelec Controls

'When trying to sell, it is vital to get decision-makers to understand an innovative product.'
Imtex Controls

'Don't undervalue a new innovation – commercial and technical disciplines should be separated when discussing pricing with customers.'
ABLE

'Companies must be prepared for the new reality presented by enhanced cyber security practices.'
px

Innovation

'Follow your customers to obtain business from existing clients in different countries and market segments.'
Severn Glocon

'Know your customer – have a local, on-the-ground presence to understand their culture.'
Advanced Insulation

'Agility, a good understanding of the market and the development of networks and alliances is key when expanding internationally.'
DNV GL

'Expert advice on currency and taxation is essential for exporting.'
Blaze

Export

Culture change

Scale-up

'Get the most from the supply chain by asking them to achieve outcomes not inputs.'

Costain

'Collaborating with equity players enables the biggest potential for change and growth.'

px

'The challenge of managing a group of companies and bringing them together should not be underestimated.'

Malin Group

'Leadership teams must be fully committed to new strategies.'

Wood

'When scaling-up, make sure CAPEX will not consume all profits from the first contract. A better option is to synchronise investments with growing income.'

Advanced Insulation

'Take out loans when your financial position allows you to do so.'

Blaze

'Do not cut and run: re-investing profits is preferable to being over-reliant on external financing.'

YPS Valves

'Scaling-up is facilitated by a low fixed cost base and positive cash flow.'

Micropack



Lessons for industry

Export

1. **Export is the hardest of all growth strategies – focus on making exports easier (risk, time to market, access, targeting the best opportunities, finance, etc.).**

2. **Take advantage of the export strategy while others look to grow elsewhere – huge chances to be first to market.**

3. **If exporting for the first time, seek advice from the experts first to improve your hit rate – e.g. DIT, SDI, local embassy, the EIC, chambers of commerce.**

4. **When exporting to a new territory – do your homework first on local rules, licences and customs, and then get help to pick the right, experienced, trustworthy, proven partner.**

5. **Steal a march on your competitors by embracing higher risk territories to benefit from less competition, higher margins and grateful customers.**

6. **In many cases, exports start for suppliers by following your best UK customers to their overseas project opportunities – they already know and trust you and will be your advocates.**

7. **More companies are talking to UKEF about help with export funding – why aren't you? A small amount of time and effort can open up huge and lucrative new markets and scale-up.**

8. **For larger contract wins overseas, cover all the bases - all stakeholders must know and trust you, not just your first point of contact, which takes multiple trips, the right partner, lots of time and even more patience. The prize is a customer for life.**



Services are often harder to export than products so make sure you are diversified across CAPEX and OPEX, and across products and services ”

Innovation

1. **Innovation is a fast way to satisfy your best customers, but it's not easily scaled-up – find ways to do both.**

 2. **OPEX and CAPEX combined is how to maximise value to your customers, protect against the downturn and integrate your back office.**

 3. **Digital strategies are still largely imagined, not backed up with proven and shareable case studies – this creates huge opportunities for businesses to be first to bring digital to life.**

 4. **Leaders only know what they've experienced – so bring in new and younger talent to stay fresh and aware of the opportunities from technology and digital.**

 5. **The power of story-telling is underutilised – be the supplier that customers remember because your case studies were the most memorable, proven and told by your customers, not just by you.**

 6. **The basic strategy of spending more time with your key customers at the highest level is still the best way to gain customer loyalty and to win wider scope of trust and long-term contracts.**

 7. **Understand your business strengths and weaknesses in fine details, so you can adapt to market changes quickly.**

- “ Try to ‘hang your hat’ on selling a product rather than a service. This creates more value and is easier to differentiate. Find a way to convert your services into bundled products ”**
8. **Differentiate not just through strategies and product features but also through internal processes such as the speed of your new product development process.**

 9. **Wider scope and longer-term contracts are a by-product of innovative selling – so make sure your sales team makes the journey from fast sales, to strategic sale or you will destroy value.**

 10. **SMEs are often faced with problem of not selling directly to the end user so have to use a two-tier selling process – direct sell to EPC or OEM, but influence-sell to end user to persuade them to specify SME technology as the standard, so EPCs and OEMs are then unable to go to tender but have to use that SME's technology as per the specification.**

 11. **Split your ‘bread and butter’ business from your new ideas – to allow both the chance to prosper but in different ways, at different speeds, and with different prices and strategies.**



Scale-up

1. **Collaboration on its own is not a growth strategy – it is, however, a vital enabler for other strategies to work faster and better.**

2. **Move from being a diversified company (e.g. 80% oil and gas, 10% renewable, 10% other) that is vulnerable to slipping back to over-reliance on one market, to becoming a fully integrated supplier (e.g. 30% oil and gas, 30% PNR, 40% other) that is robustly diversified for the long-term.**

3. **Sort out your marketing and messaging - still the greatest weakness of companies, of all sizes, is their inability to elevator pitch their best strategies, products and services.**

4. **Make sure scale-up capital requirements are synced with your revenues, team capacity, supply chain capacity and your access to short-term finance.**

5. **Building up your team is about quality, not quantity. Hire for attitude, train for expertise. Retention is then as important as hiring.**

6. **Scale-up training is needed to address tangible skill gaps and perceived risks of scaling-up (e.g. Fit4Energy, a mix of academic training and business case studies and coaching).**

7. **Too much talk about ‘start-up’ – not enough about ‘scale-up’.**

8. **Business development – recruit more sales people earlier.**

9. **Process – don’t under-estimate the IT scale-up challenge.**

10. **Focus – stick to your knitting, e.g. diversify close to what you know, don’t take too large a leap.**

11. **Work on how you sell to your clients. Instead of offering a generic elevator pitch, focus on the customer’s problems and how your company can solve these. You need to know your clients inside out: what projects have they done? What will they be working on next? What problems do they need solutions for? Do your homework - Be an informed supplier who knows how to make a client’s life easier.**

“ Borrow money while you’ve got money ”

Culture change

1. If you have to retrench to survive, make sure you come out the other side stronger, leaner and much more flexible.

2. Companies of all sizes and strategies have embraced culture change, although it's clear that a crisis forces many to change before they were ready, i.e. a sense of urgency resulting from the crisis.

3. Simple actions can be taken to improve efficiency and cost – anyone can pick the low hanging fruit.

4. When in a crisis, believe in your team, pull them closer, stay loyal to them, fully involve them in all aspects of the survival journey.

5. Often the hardest barrier to change and risk-taking in larger organisations is internal convincing of HQ and the patience to allow time and money for the new strategy to work.

6. Be bold, think and act big, and don't lose belief at the first hurdle, but have a clear and well researched plan with aligned stakeholders first.

7. When in a market crisis, go back to basics and stick to what you're best at.

8. Leadership tip - work ON your business, not IN your business.

9. Culture change success can be measured by retention, feedback, net promoter score and ultimately by strategy success.

10. Don't be afraid to put non-performers on the bench.

11. Leadership tip – fix/focus / grow – top down.

12. Make sure you create a robust change process that all have bought into – and then execute it fully, which can often be the hardest phase of change – make time for the change, make it structural and know it is working when people instinctively work in the new ways.

13. Use technology and modern IT to reduce cost and speed up processes, but this can also lead to a sometimes hard decision to reduce headcount.

14. Invest in training of the whole team to ensure new culture is successful as fast as possible.

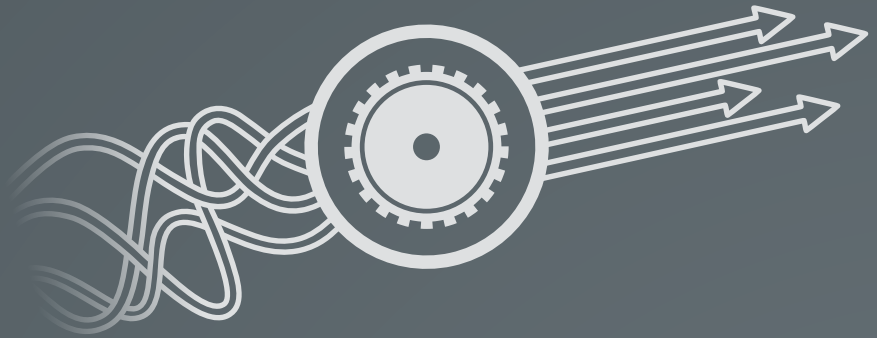


Employ people from outside your sector. Bringing in new skills, ideas, can sometimes facilitate faster diversification at a lower cost as well ”



Examining cultural change

The oil and gas sector is no stranger to cyclical market downturns. What sets the current downturn apart from the rest, is a distinct cultural change taking place across the sector based on export, innovation and technology, and scaling up. Now more than ever, the UK energy supply chain must adapt to ensure they can survive and thrive in the new energy world.



The rapid growth of the sector since the 1950s has caused international political, social and economic volatility. The booms and busts of the 1970s, 1980s, 1990s, 2003, 2008 and today's downturn has forced the industry to become much more sophisticated in how it combats downturns. With financial markets existing which allow risk to be mitigated, downsizing via capital expenditure and headcount, the innovation of new technologies to identify and efficiently produce oil and gas, the industry is reducing risk and improving returns. These offensive measures have been due to cultural changes adopted by industry to combat crisis or 'shock' events.

Of the 26 companies interviewed in *Survive and Thrive Volume II*, 81% stated that it had experienced some sort of cultural change within

its organisation. Aspects of cultural change which has helped EIC members to thrive included:

- Investing in staff training to ensure the workforce is upskilled as well as multi-skilled
- Keeping staff engaged and taking on a one-team approach where the workforce is allowed to collectively debate and act – creating an environment of open, honest communication
- Being open to new ideas and identifying what is 'out there' and learning from other sectors
- Taking risks while protecting the organisation's 'bread and butter', while at the same time being flexible – one opportunity may lead to another

- Communicating with stakeholders – early collaboration with partners, clients and equity players, and subcontractors is key to success
- Managing mergers and/or group of companies to ensure everyone is aligned with the group's mission, vision, objectives and values

With regards to the strategies of innovation and export and a company's ability to scale-up, culture changes touches on each one. As per the Venn diagram on page 16 a clear overlap is present.

Change is not simple, yet EIC members are embracing it, and adapting in every aspect of their business strategies to survive and thrive in current market conditions.



EIC Survive and Thrive **success stories** **2018**



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ABLE's new game-changer FlareMaster solution integrates proven technology in new ways to solve multiple flare gas measurement problems, reducing reporting uncertainty and cutting O&G emissions taxes

How is ABLE thriving?

Building on the technological sophistication of its previous products while staying faithful to its tradition of developing game-changing solutions that boost efficiency and save costs, ABLE introduced FlareMaster to enable oil and gas companies to accurately measure flare gas and save money by reducing reporting uncertainty.



The challenge

As the oil and gas industry grows increasingly conscious of the impact of climate change, legislation is being passed to tax oil and gas producers for carbon emissions from production platforms. This new scenario creates particular challenges for operating companies, as gas emissions taxes are based on the accuracy of flare measurement. Conditions such as blowdown make this task

problematic, as normal sensors stop operating. This leads to measurement loss and increased uncertainty, which in turn increases emissions taxes.

The solution

ABLE's research and development efforts have always been driven by real challenges faced by the oil and gas industry. In December 2016, the

company did a survey of erratic flare meters used by ADNOC in the UAE. One of the problems they faced was that two dominant parts of natural gas – the methane and nitrogen – were separating at low/zero flows, causing a distortion to the ultrasonic sound waves used in the flow measurement equipment. ABLE quickly determined that it would be capable of tackling various problems by developing a single solution.

“ The philosophy underpinning ABLE's innovative FlareMaster extended velocity, dual supervisory system is the resolution of demanding application challenges in order to consistently deliver accurate flare flow measurements during process upsets and fluctuations in composition that would defeat conventional meters.

Dave Quelch
Business Development Manager

Taking advantage of the fundamentals of its existing SlugMaster product, a patented intelligent metering system specifically developed to consistently measure liquid flow without interruptions caused by changes in process parameters, ABLE introduced FlareMaster, the latest of its highly successful Master instrumentation products series. FlareMaster, which has already been patented, is a modular system featuring a Rockwell Automation Allen Bradley controller. The first module has a flare meter which correctly measures (with a +/- 1% uncertainty) the full gas density of the flare, preventing over-reporting of gas emissions and reducing

associated financial penalties. The second module, used in conjunction with the first, equips the flare with a complete dual redundancy supervisory system which allows measurement to take place under all process conditions, including extreme flare stack blowdown. Not only does this innovative product boost efficiency, it also reduces taxes that apply to gas emissions.

ABLE has been very successful with FlareMaster's Module 1, having obtained several orders. The company is about to begin field trials of FlareMaster's Module 2 at Premier Oil's Voyager FPSO, with hopes that this solution will establish itself as the global industry standard for coping with flare metering, opening up thousands of market opportunities globally. Each

FlareMaster sells for approximately £50-60k, providing excellent business prospects for ABLE.

Should FlareMaster become highly successful in the near future, global demand could be large, triggering a scale-up process. This would require investment in infrastructure and resources, in addition to new manufacturing and leadership roles.

About ABLE

Established in 1985, ABLE Instruments & Controls designs, manufactures, supplies and services bespoke engineered solutions related to the flow and level, temperature and pressure, gas analysis, process, density and vision disciplines. The company is also involved in systems integration



and project management. ABLE follows the principle that the rigid supply nature of boxed products is too inflexible, which creates opportunities for bespoke solutions enjoying a highly flexible approach. The company is active in a range of industry segments, with a focus on oil and gas.

ABLE's products for the oil and gas market include SlugMaster, MudMaster and PhaseMaster, three solutions based on company's existing technologies and algorithms (for more information on these products please see the 2017 edition of the EIC Survive and Thrive Insight Report).

Story type:

#innovation #technology

Benefits:

- Allows operators to achieve the Tier 3 emissions tax compliance required of large installations (those emitting more than 500,000 tons of CO2 annually). This involves the highest level of accuracy and being able to report gas flares to within +/-7.5% uncertainty to avoid financial penalties
- Cost savings estimated at £30,000 p.a. for smaller production units and more than £100,000 p.a. for larger FPSOs

Key findings:

For the industry:

- Companies should protect their 'bread and butter' core business, but be flexible enough to allow opportunities to emerge
- Don't undervalue a new innovation – commercial and technical disciplines should be separated when discussing pricing with customers

For the government:

- Engagement with innovative companies is necessary to determine their needs
- The Department for Business, Energy & Industrial Strategy should set FlareMaster as an industry standard, as well as enforce continuous oil and water monitoring for overboard dumping of produced water
- The government must step up efforts to promote supporting initiatives among the industry

Government support?

ABLE has received R&D tax credits. The company once tried to obtain a local grant fund but was unsuccessful. ABLE is unaware of other support available.

ABLE at a glance

Key products and services: level, flow, temperature, pressure, gas and liquids analysis equipment, systems integration and project management

Main industries served:

- Oil and gas (40%)
- Water (25%)
- Chemicals (10%)
- Pharmaceuticals (10%)
- Power (5%)
- Others (10%)

Headquarters: Reading

Year established: 1985

Number of employees: 43

Revenue: £10m (UK and global)

Revenue from exports: 50%



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Advanced Insulation

Its MS400 panels are enabling EPC companies to save 50% in topsides weight and enhance fire protection, insulation and blast resistance



How is Advanced Insulation thriving?

The company's innovative MS400 phenolic foam panel has enabled EPC contractors and yards to reduce topsides weight by 50% compared to conventional steel-made products, while providing greater fire protection, thermal insulation and blast resistance.

The challenge

The weight of topsides is a major issue for oil and gas players worldwide. As market dynamics require increasingly leaner projects and offshore platforms become ever more complex, light-weight topside options are sought to guarantee that E&P projects remain safe as well as

physically and economically feasible. Moreover, reduced weight not only enables more equipment to go onto the platform itself (e.g. to improve living conditions) but also reduces transport and lifting costs.

The solution

One of the earliest opportunities presented to Advanced Insulation to tackle this challenge was BP's Clair Ridge platform. The project was so critically overweight at the design stage (10%) that the operator started looking for new ideas, challenging everything. In 2009, Advanced Insulation was approached by BP, which was looking for a quick solution for light-weight blast panels to protect the platform underdeck from fire, sea and low temperatures. The oil major had used stainless steel previously, but found they were not only expensive but heavy and easily-dented.

Advanced Insulation had the ideal solution for BP. Thanks to valuable insights provided by an employee who had worked at a major South Korean shipyard for years, the company pushed for the development of a better blast



The use of ContraFlame® provided significant architectural weight saving during the Statoil Mariner Design Development period. MS400 was used to achieve structural fire protection, ensuring the structural integrity of the steel members supporting the Escape Tunnel. Advanced Insulation supported this with a MS400 Loaded Beam Fire Test Certificate along with all supporting documentation.

Peter Johnson
Lead Architectural Engineer at CB&I

protection solution that would last longer, be easier to apply on-site and weigh less. This led to the introduction of the MS400 light-weight syntactic phenolic foam material. Featuring dry-fit panels that can be installed on deck and bulkhead plates, they do not require any welding, which removes corrosion risk. After an extensive testing period by BP, which involved a four-month certification process, the MS400 material showed impressive results: topside weight was reduced from 30kg to 14kg per square metre.

After Clair Ridge, more and more O&G players became aware of the benefits offered by MS400. One such company was the Daewoo Shipbuilding & Marine Engineering shipyard, which was working in partnership with CB&I on the topsides of Equinor's (then Statoil) Mariner project on the UKCS. The qualification process for MS400 – conducted by CB&I – took six months and, as the contractors and operator perceived the product's advantages, its scope in the project increased from 1,000 to 8,000 square metres. Advanced Insulation enabled a 110-tonne weight saving

on the project, with CAPEX savings estimated at US\$12m.

The experience with the Mariner project opened doors for additional business opportunities at Equinor. The operator, which is pushing for the use environmentally safer materials, now specifies MS400 for all its projects. Advanced Insulation is now working on the Johan Sverdrup project, in which MS400 panels will be installed on a 500 square metre surface.

A game-changing solution for the offshore oil and gas industry, Advanced Insulation's MS400 panels are reducing costs, making projects viable and guaranteeing performance in fire protection and blast resistance.

About Advanced Insulation

The company is a global leader in the engineering, manufacture and application of insulation and passive fire protection systems, buoyancy and subsea, umbilicals, risers and flowlines (SURF) products for the offshore and onshore oil and gas industry, including the LNG segment.



In addition, Advanced Insulation's Manuplas range of buoyancy, flotation and protection systems have been engineered and manufactured to be used effectively by boat builders and maintenance companies, ports and harbours, yacht, sailing clubs and marinas and offshore wind farms.

Advanced Insulation has recently been ranked 30th in the Sunday Times HSBC International Track 200, which lists Britain's mid-market private companies with the fastest growing international sales. Headquartered in Gloucester, the company has three additional facilities in the UK and further facilities located in Asia, Africa, the Middle East, North and South America.

Story type:

#innovation

Benefits:

- US\$12m in savings for one client
- 120-tonne weight reduction

Key findings:

For the industry:

- Know your customer – have a local, on-the-ground presence to understand their culture
- Provide advice and guidance to your clients

- Set up project teams to support and manage a client – but for a price
- Loyalty is key with customers
- When scaling-up, make sure CAPEX will not consume all profits from first contract. A better option is to synchronise investments with growing income

For the government:

- Make regulatory advice available to UK suppliers wanting to export

Government support?

The company has not received any government support.

Advanced Insulation at a glance

Key products and services:

engineering, manufacture and application of insulation and passive fire protection systems in addition to buoyancy and SURF products

Main industries served:

- Oil and gas (85%)
- Marine/buoyancy (10%)
- Offshore wind (5%)

Headquarters: Gloucester, UK

Year established: 2007

Number of employees: 315

Revenue: £50m (2017)

Revenue from exports: 97% (O&G), 50% (Marine/buoyancy)



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Alco Valves

Major lead time reduction combined with next-gen engineered products boosting competitiveness

How is Alco Valves thriving?

Adapting to new market conditions, Alco Valves greatly increased its competitiveness by going through a comprehensive improvement process that included a new and integrated company location, improved machining capabilities and the introduction of a more engineered and bespoke product offering.

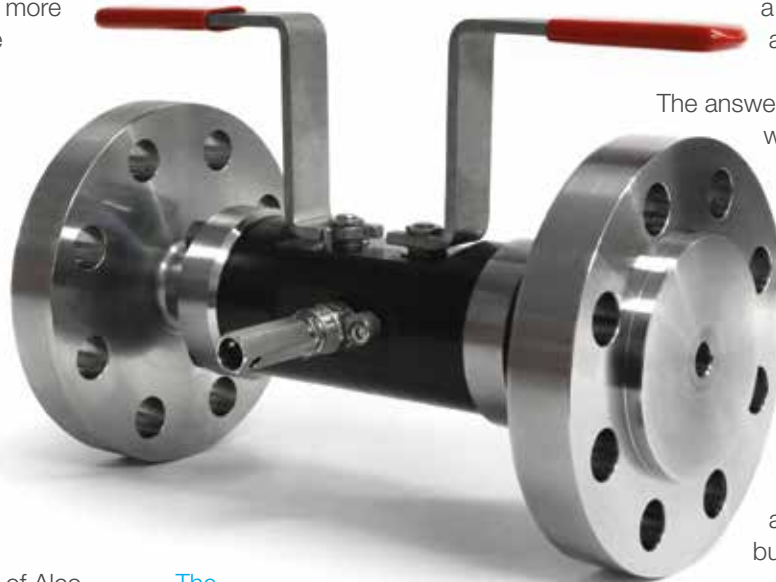
The challenge

A major byproduct of the crisis in the oil and gas market back in 2014 was delayed decision-making by customers. This posed challenges to suppliers when orders were received, as fast deliveries were suddenly needed.

Following the acquisition of Alco Valves by the US manufacturer Graco in the same year, this challenge became apparent. Alco had a manufacturing site in Manchester in addition to a small

facility in Brighouse. However, they were old, poorly laid out buildings, which did not provide the required flexibility and efficiency to cope with dynamic delivery times. If Alco were to remain competitive, adaptation to the new market landscape was essential.

first came in 2015, one year after the acquisition by Graco, when an R&D team was introduced with the aim of testing the boundaries of what Alco products could do in response to increasing customer demand for bespoke, engineered valves. This initiative, however, still did not tackle the requirement for a fast and competitive approach.



The answer came in 2016–17, when Graco decided to consolidate Alco's teams in a new site in Brighouse. A single location combining all of the company's capabilities afforded a more flexible layout, removed logistic requirements between sites and also boosted team-building.

The solution

Supported by its US-based parent company, Alco set about looking for improvement opportunities. The

Improvement of machining capability was also key. Alco invested £2m in new CNC machines, bringing much higher quality to the manufacturing process of double block and bleed and subsea valves. The new equipment allowed a 50% reduction in processing times and also brought quality improvements, reducing scraps and non-conformances. Investment in new equipment continued with the acquisition of Mazak machinery with an automated 3-inch bar feeder which further enhanced process times and better quality.

Additional changes were introduced, benefitting Alco in various ways. A



Alco needed to adapt to meet the market requirements of short deliveries. Our investment in the latest machining technology has enabled us to dramatically reduce our lead times and meet our customers' requirements.

Graham Ellis
Head of Commercial

6S programme was implemented, highlighting areas for shop floor improvement and potential hazard spots. A modern and open plan office was set up, encouraging cross-departmental working and cooperation. A test facility was also introduced for low and high-pressure valves, featuring remote viewing and testing capabilities.

These improvements quickly translated into business opportunities. Alco received a request from Remulti, an APAC distributor, for engineered double block and bleed valves with a six-week lead time (normal requests fall in the 10–12-week range). After looking at requirements, R&D, supply chain and manufacturing capability, Alco accepted the £80,000 order and delivered the valves on time, thanks to its new capabilities. Short lead time orders now make up of 25% of Alco's business.

Thanks to R&D efforts, a new

and simplified valve design – the XC range of double block and bleed valves featuring modular centres – was introduced, cutting delivery times from 10–12 weeks to just 4–6 weeks. In addition to the 50% shorter lead times, a major benefit of the new product is the commonality of its centre parts, which reduce the stock needed for O&M.

Alco Valves' substantial improvements – US\$10m were invested in the new building and machinery overall – have been a game-changer for the company. New business opportunities have opened up thanks to reduced lead times and the company's new valves generation, boosting competitiveness and margins.

About Alco Valves

A UK valves supplier with roots dating back to 1977, Alco Valves develops, designs and manufactures high-quality



double block and bleed and instrumentation valves and fittings for critical applications. The company has earned recognition from major global oil and gas providers, building an enviable reputation with customers. Thanks to the company's in-house machining capabilities, Alco Valves maintains a high level of control and consistency throughout all stages of the manufacturing process.

Headquartered in Brighthouse, Alco Valves also has offices in Europe, the far east, the Middle East and North America, in addition to a global network of distribution partners. In September 2014, Alco Valves joined the Graco group – a global specialist in fluid handling solutions, based in Minneapolis, US.

Story type:

#innovation
#optimisation

Benefits:

- 50% reduction in lead times
- Additional business opportunities (£3–4m, approximately)

Culture change:

- Younger employees can help to support culture change

Key findings:

For the industry:

- Engage all staff when seeking improvement ideas
- Upskill and multi-skill entire workforce
- Keep staff informed about markets, customers and contracts in order to improve engagement, quality and morale

For the government:

- Step up efforts to make it easier for suppliers to find out about the opportunities available in international markets

Government support?

The company has not received any government support.

Alco Valves at a glance

Key products and services: double block and bleed and instrumentation valves and fittings

Main industries served:

- Oil and gas (90%)
 - Upstream - 50%
 - Midstream - 30%
 - Downstream - 20%
- Industrial (10%)

Headquarters: Brighthouse, UK

Year established: 1977

Number of employees: 110

Revenue: US\$14m

Revenue from exports: 50–55%



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Innovative new crane solutions enabling O&G clients to access more economic construction options



How is ALE thriving?

The company, which had previously operated smaller OEM cranes, switched to designing and building its own specialist heavy lift cranes that were larger and offered more benefits than those in the market. This change not only reduced its number of competitors and increased margins, but also allowed ALE's clients to adapt their engineering and construction

plans due to the fact that heavier lift and jacking equipment was now proven and available to them.

The challenge

A major feature of the heavy-lifting market is the presence of commoditised assets. Most companies are using equipment kits provided by manufacturers, with little differentiation. Instead

of focusing on solutions to tackle customers' challenges, the market became price-driven, with a low value proposition.

The solution

As a response to this scenario, ALE saw an opportunity to differentiate by innovating. In 2006, the company made the decision to set up a dedicated R&D facility in the Netherlands to focus solely on developing new technologies and methods. Following close consultations with EPC contractors, fabricators and shipyards, ALE sensed there was an opportunity for new solutions in the lifting of heavier loads. This would lower costs, reduce construction schedules and improve safety.

In its first year, ALE's R&D team presented the first concepts for a new land-based heavy lift crane that could meet customers' demands for lifting



By continuing to innovate, and bring new concepts and methods, we bring value and efficiencies to our clients' projects by lowering costs and schedules.

Michael Birch,
Global Sales Director

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heavier loads on land. This concept would later become the world's largest capacity land-based crane – the AL.SK190, launched in 2008.

ALE did not envisage AL.SK190 to be simply a new crane, but the first of series of cranes. By developing a solution that enables the AL.SK series to rotate around its ballast, ALE engineers were able to provide higher capacity and improved outreach, allowing cost and time savings. This solution addressed the need for increased weight and helped to avoid disruption at project sites. In 2011, the company unveiled its second 4,300-tonne crane and in 2014 upgraded the capabilities of its first crane so that it could support loads of up to 5,000 tonnes. As clients catch up to the fact that there is equipment able to support heavier loads, new construction strategies are devised, allowing projects to become more cost-effective.

The innovation pursued by ALE has generated business opportunities

across the world. In 2014, the company conducted the world's heaviest jack-up operation in Korea. Using its Mega Jack system, the company jacked-up the 42,780-tonne topside of the Arkutun Dagi platform, breaking a world record. In 2017, the company was awarded a large contract by the EBR shipyard in Brazil for the lifting and installation of approximately sixteen modules weighing up to 3,000-tonne on Petrobras' P-74 FPSO. The AL.SK350 crane was selected by the client as it was the only crane capable of executing the contract.

The scale-up process, starting with the construction of ALE's first 4,300-tonne crane, led to a five-fold growth in 10 years, supported by the company's ability to design, build and rent the world's heaviest lift cranes and jacking systems. The process also allowed the company to pursue many other innovations: ALE now has the expertise and confidence to consider never-done-before projects, now commonplace for the company.



SMARTER. SAFER. STRONGER

About ALE

Combining exceptional project management with engineering intelligence, ALE delivers a highly tailored, end-to-end service covering every aspect of the handling, transportation and installation of heavy, indivisible loads, including lifting, transporting, installing, ballasting, jacking and weighing. The company was founded in 1983 and has expanded steadily through a balanced strategy of organic growth and the acquisition of key companies. ALE's main industry segments include renewables, oil and gas, power generation, ports and shipyards, civil, nuclear, mining and offshore. Headquartered in Stafford, ALE is present in over 40 locations worldwide.

ALE was featured in the first edition of the EIC Survive and Thrive Insight Report, released in May 2017.

Story type:

#innovation

Benefits:

- Five-fold revenue growth over 10 years
- Reduced competition
- Clients' projects more cost-efficient and safer

Key findings:

For the industry:

- Pursue bold goals
- Look to innovate and do things differently

- A scale-up process requires investment in people, in the medium and long-term
- When entering new markets, an understanding of the country's operating environment is essential

For the government:

- Provide funding support for companies starting their business or scaling-up, not just for export or R&D
- Allow tax breaks for new investments

Government support?

The company has not received any government support.

ALE at a glance

Key products and services: handling, transport and installation of heavy and indivisible loads.

Main industries served:

- Renewables (50%)
- Oil and gas (25%)
- Power (4%)
- Others (21%)

Headquarters: Stafford, UK

Year established: 1983

Number of employees: 2,200 (250 in the UK)

Revenue: €325m (€40m in UK)

Revenue from exports: 80%



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Blaze

Oil and gas expertise in hazard mitigation enabling diversification and export opportunities



How is Blaze thriving?

The company has successfully applied its oil and gas expertise in hazard mitigation to diversify into new sectors, while overcoming challenges to create new and lucrative business opportunities in international markets.

The challenge

In 2014–15 Blaze's business was

100% focused on the UK market. Oil and gas was its only stream of revenues and opportunities derived solely from the UK Continental Shelf (UKCS). This proved critical for the company when the industry downturn started, as all large-scale O&G capital projects were put on hold. Blaze's revenues were badly hit during the period, with revenues plummeting from £18.6m to £3.5m.

The solution

Blaze recognised that to survive, diversification would be required and so the company embarked on a strategy of research and innovation, in order to source new markets to take their solution to. This strategy took them into other sectors and markets where Blaze could take their innovative approaches to revolutionise fire safety. This led the company to explore projects in other sectors, including renewable energy and mining.

As part of this research into new markets, Blaze took an enquiry from DN Enterprises, a small family-owned business in Zambia, for work in the Democratic Republic of Congo (DRC).

The enquiry was related to a project at Mutanda, an open-pit copper mine operated by Glencore. Working with DN Enterprises, Blaze developed a bid to carry out a survey at the project site.

Applying hostile environment



By embracing research and development, innovation and diversification at a time when the industry around us was doing the opposite, we have been able to bring Blaze out the other side of a fairly horrific downturn.

Howard Johnson
Managing Director

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expertise from other industry sectors, Blaze carried out a two-week survey (extended to six weeks) on-site to provide a solution. The company's digital 3D survey proved to be a major differentiator, as it avoided the traditional, time-consuming and expensive scanning method. Challenges were abundant: getting visas was problematic and the remoteness of the mine made access difficult and dangerous. Communication, logistics, customs and even the Ebola virus posed additional concerns.

Blaze's ability to make decisions and take risk, allied to the company's determination and courage, were vital for success and earned it additional work on the project. The contract scope grew quickly, going beyond the foam for kerosene tanks to include additional phases targeting automation, detection and control, power stations and other areas. Phase 1 has just been completed and work is ongoing on additional phases.

The diversification that started with the DRC mining project allowed Blaze to bounce back from a £1m loss in 2015–16 and make a £0.5m profit in 2017–18. While previously entirely dedicated to the UKCS, exports are now responsible for 70% of Blaze's profits.

About Blaze

Aberdeenshire-based Blaze Manufacturing Solutions is a family business, established in 2006 to provide technical safety and loss prevention solutions predominantly to the brownfield oil and gas market. This involves all aspects from front-end definition of concepts, detailed design, supply, installation, commissioning and maintaining of active fire extinguishing systems and fire alarm systems.

In 2015, Blaze diversified and expanded into new markets to offer safety critical solutions that allowed for early intervention and mitigation



SAFETY CRITICAL SOLUTIONS

of a major accident hazard to high asset value sites where the result would be catastrophic for both personnel and plant. This took Blaze into offshore and onshore renewable energies, mining, commercial and industrial sectors. Fully-resourced in-house, Blaze provides a complete engineering, manufacturing, procurement, installation, commissioning and maintenance package from design through to build and supply, including the ongoing maintenance of systems.

In 2017, Blaze was named one of the top 1,000 UK companies to inspire by the London Stock Exchange Group and in January 2018 won the FSB Scotland Family Business of the Year award.

Story type:

#diversification #export #innovation

Benefits:

- Revenues from exports now correspond to 70%
- Fire safety system that satisfies demands by insurance companies
- O&G experience being applied to different sectors

Culture change:

- A skilled workforce requiring lower salaries can be found in various industry segments beyond oil and gas (e.g. the health sector)
- Employing more sales personnel and earlier yields benefits

Key findings:

For the industry:

- Take out loans when your financial position allows you to do so
- Maintain a sense of urgency – even when all seems OK
- Pay close attention to the type, quality and cost of resources
- Expert advice on currency and taxation is essential for exporting
- Risk assessment varies depending on industry sectors

For the government:

- Listen to businesses
- Develop export policy
- Motivate banks to support the industry, particularly SMEs

Government support?

Other than encouragement from

Scottish Enterprise to seek activities in new sectors, Blaze has not received any government support.

Blaze at a glance

Key products and services: safety-critical solutions for intervention and mitigation of major accident hazards for high value assets

Main industries served:

- Renewables (50%)
- Upstream O&G (15%)
- Defence (12.5%)
- NHS (12.5%)
- Midstream O&G (10%)

Headquarters: Laurencekirk, UK

Year established: 2006

Number of employees: 35 (+35 contractors)

Revenue: £5-6m (annual)

Revenue from exports: 70%



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Embracing digital tools to help customers achieve their goals



How is Bureau Veritas thriving?

Updating its business model, Bureau Veritas collaborated with clients to become a digital solutions provider, using tools to help customers work safely, profitably and in a sustainable way.

The challenge

Back in 2014, the impact of the downturn experienced by the energy industry was widespread. New investment dwindled, especially with greenfield projects. Confidence among industry players was at a low and the few projects left were experiencing severe price pressure – clients required the

same quality and standards to be maintained, but at much lower costs.

The situation for Bureau Veritas was even more challenging. As normal in a publicly listed company, it had to show shareholders that it was growing in a sustainable way and prove to the markets its resilience. The company needed to re-think its strategy to overcome these challenging market conditions.

The solution

In 2014, Bureau Veritas realised it had to revamp its 2015-20 oil and gas strategy in order to adapt to new market conditions.

A key account management structure was set up in each of the regions in which the company operates, in-line with a market segmentation strategy. Markets were carefully analysed, with a renewed focus on key clients. An experienced solutions provider, Bureau Veritas took a closer look at its customers' needs and adapted its services to meet their requirements, which led to the decision to embark on a digitalisation of existing processes. The Internet of Things was already a reality and Bureau Veritas quickly made a move to adapt to it.

An opportunity to apply these changes to the oil and gas sector came in 2015. Bureau Veritas had the opportunity to work with TechnipFMC on the US\$20bn Yamal gas project in Russia. The challenge was to deliver the same performing metrics for all quality assurance works to be performed in several yards in several countries. Bureau Veritas introduced an easy-to-use Siebel Product Core Model IT platform that was connected to the client's systems, enabling full control of all aspects of the project and a highly fluid flux of information and management of KPIs. A major benefit was that TechnipFMC's resources could be released from quality control to other roles and projects, thanks to the



Our solutions and services help our clients reduce risk, improve their performance and meet the challenges of quality, health and safety, environmental protection and social responsibility in a new digital era.

Rui Fernandes Teixeira
Sales and Marketing Director
South East Asia

comprehensive overview provided by the new digital platform.

Bureau Veritas successfully delivered on its contract, becoming not just a vendor but more a partner to TechnipFMC. The experience on the Yamal project led the company to earn more work with the contractor on additional projects and raised the company's profile among its clients.

By collaborating with key clients and embracing digital tools, Bureau Veritas reacted to the crisis and reinforced its role as a solutions provider. The company's digital offering now includes unique digital platforms to optimise resources, such as Quiktrak, one of the world's largest inspector marketplaces, and Veristar AIM 3D, a collaborative platform that provides a wealth of information about the state of an operator's assets.

Bureau Veritas has also recently launched Origin, the world's first

traceability label to give consumers a complete end-to-end proof of a product's journey. Origin, built on blockchain technology, offers a smart and practical way for consumers to access information on each stage of a product's journey.

About Bureau Veritas

Created in 1828, Bureau Veritas is a global leader in testing, inspection and certification, delivering high-quality services to help clients meet the growing challenges of quality, safety, environmental protection and social responsibility. The company is active in a range of markets, including infrastructure, oil and gas, marine, power, chemicals, commodities and automotive, among others.

The Bureau Veritas Group has around 75,000 employees located in more than 1,400 offices and laboratories around the globe.



Move Forward with Confidence

Story type:

#collaboration #digital #service/solutions

Benefits:

- Improved interface for reporting systems, allowing new KPIs
- Additional business opportunities with existing clients

Culture change:

- Behavioural change is challenging when dealing with multiple regions across the world
- Strong leadership is essential to enable culture change
- Communication with employees and customers is key

Key findings:

For the industry:

- Do not give up at the first obstacle – be patient

For the government:

- Provide assistance to companies adapting their service offering to digital platforms

Government support?

The company has not received any government support.

Bureau Veritas at a glance

Key products and services: testing, inspection and certification services

Main industries served:

- Oil and gas (7%)
- Power (6%)
- Other (87%)

Headquarters: Paris, France

Year established: 1828

Number of employees: 75,000

Revenue: €4.7bn (2017)

Revenue from exports: 35% (EU/UK)/65% (rest of the world)



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Capula

Reacting to the UK's changing energy mix through its advanced digital solution OPUS

How is Capula thriving?

Refocusing on its core strengths, Capula reacted to a changing market scenario by investing in a new operational intelligence product to complement its core range of offerings as a leading system integrator. OPUS broadened the company's reach across the energy sector and established Capula as a digital hub, bringing cost savings to clients and boosting profits.



The challenge

A company active in the market since 1969, Capula – then known as Instem – had a major role in UK infrastructure in previous decades. Thanks to the prevailing 'buy British' trend during the 1970s and 80s, the company was able to capture a large market share and its real-time computing products featured in critical infrastructure across the country. As major global technology suppliers established themselves in the UK market during

the late 80s and 90s, Instem realised it needed to diversify and took the decision to focus on becoming a dominant player in the DCS segment for UK power utilities.

Three changes of ownership took place during the 2000s, when Instem became Capula. Markets went into decline and the company had mixed success in diversifying into a very competitive water sector. In 2012-13, Capula's business prospects were not favourable: markets such

as T&D and nuclear were stagnant while conventional power generation continued to decline. Revenues and margins were reduced and Capula's results began to flounder

The solution

Relying on the company's main strengths and strong legacy position, Capula embarked on a restructuring program that led the company to refocus on three main sectors. The first two – nuclear and T&D – were Capula's main domains: it had an established track record in energy generation, distribution and control. The third sector – real-time data – was an area that has been very much part of Capula's DNA since 1969. This segment was attracting attention as markets were just starting to become aware of the Internet of Things; Capula decided to grasp the opportunity.

Dubbed Operational Intelligence, Capula's new division was to invest over £1m in a performance management solution that would allow operators to manage a range of operational functions and assets including power, water, HVAC and security systems in a single, integrated interface. Relatively small but significant orders followed,

“When markets change, look for opportunities that can take advantage of skills and solutions you already possess and then enhance them to help your customers thrive in that changing market. The changing energy environment and the rise of digitalisation are two key factors where we have been able to play to our strengths and provide genuine added value to our customers.

Mark Hardy,
Managing Director

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including contracts with SSE, Southern Water, South West Water and UK Power Networks.

Capability and business continued to grow, but Capula sensed it had opportunities for improvement. There was no standard process or product – the new solutions were mainly bespoke. In late 2016, the company decided to ‘productise’ and launched an in-house R&D project, culminating in the launch of OPUS in September 2017. OPUS connects dispersed assets and data sources, then collates, analyses and acts upon that data to provide true insight and value. The system has the added benefit of being fully configurable within shorter timeframes than would typically be expected in enterprise SCADA systems.

Capula was then faced with a challenge: could OPUS be oriented for a more distributed energy network? Imtech saw in OPUS an opportunity to connect 14 sites under its management into one system, and this system is set to deliver substantial

cost savings (in excess of £3m) to Imtech over a period of five years.

Another major opportunity came from EDF, who approached Capula with a view to making OPUS part of their Powershift solution. Powershift is an energy trading and control platform that allows remote management of energy assets such as standby generators, solar, PV, etc. OPUS became embedded in EDF’s platform, enabling it to run micro grids within clients’ organisations and optimise energy as part of a wider distributed power network.

OPUS is scaling up fast, and revenues are rising: orders in 2016 amounted to £400,000, while in 2018 they are expected to hit the £3m mark. Meanwhile, another exciting opportunity has opened up for Capula: following a taskforce launched by the Mayor of London to create zero-emission zones from 2020 onwards, OPUS is set to act as an integral component of the overall system that will determine when large fleets of electric vehicles



can charge their batteries.

About Capula

The company is a leading system integration specialist for control, automation and operational IT systems across all applications and industry sectors. Experts in industrial, control, instrumentation and automation, Capula develops, engineers and implements advanced technologies that enable clients to safely operate and control some of the most strategically important facilities in the UK. The company’s independent status allows the implementation of solutions to control asset performance for maximum efficiency and reliability, regardless of the underlying hardware.

Capula is part of Imtech, a large technical services provider with activities in the UK and Ireland, specialising in mechanical and electrical engineering and technical facilities management.

Story type:

#collaboration #digital
#diversification #innovation
#service/solutions #technology

Benefits:

- Double order book value over 3 years
- Staff attrition rate decreased by 200%
- Profitability improved by 300%

Key findings:

For the industry:

- Understand your core business strengths to be able to adapt to market changes quickly

- Encourage open, honest communication
- Have a deep understanding of your team’s strengths

For the government:

- Getting talent is a major issue. Initiatives for greater enrolment onto engineering courses would greatly benefit the supply chain

Culture change

- Lack of trust in previous management regimes is a significant obstacle for culture change
- Soft initiatives (e.g. shorter working week, increased pension contribution, CEO blog) support business changes

Government support?

The company has not received any government support.

CAPULA at a glance

Key products and services: systems integration

Main industries served:

- Oil and gas – 5.8%
- PNR – 82.4%
- Other – 11.8%

Headquarters: Stone, UK

Year established: 1969 (as Instem Ltd)

Number of employees: 280

Revenue: £36m (2018)

Revenue from exports: 1%



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Investing and collaborating to answer the UK's future energy questions

How is Costain thriving?

Focusing on differentiation and innovative selling practices, Costain is investing and collaborating to answer the UK's key future energy questions, offering smart engineered solutions and optimising clients' performance.

The challenge

Costain has faced various challenges over the last decade. In 2013, increasing competition and high risks led the company to depart from international markets. Following the downturn of the oil and gas sector in 2014-15, Costain saw business opportunities dwindle as industry players retrenched. Key oil and gas segments saw reduced activity in the UK, for example gas storage opportunities ended altogether.

The UK government's changing energy policy made long-term strategic planning difficult, most notably its cancelling of the carbon capture and storage competition, and recently the decision not to move ahead with the Swansea Bay Tidal Lagoon project which had



seemed likely to be approved.

To grow the business Costain decided it would be best to consolidate and focus on how to improve its services to clients, offering them the best possible value for their projects.

The solution

Costain's strategy, developed over the course of 18 months, involved a unique selling approach based on four key elements: the promotion

of its engineered solutions, differentiation, partnership with clients and the ability to anticipate the UK's future energy needs. Leveraging an undisputed process engineering expertise, Costain sought customers that valued this capability and offered opportunities that allowed the company to use this skillset.

Collaboration with customers plays a key role in Costain's strategy. Understanding their needs and challenges, the company optimises solutions that help clients unlock the full potential of their projects. In a contract with BP, Costain was able to change the whole vendor appraisal and selection process, helping the operator prioritise investment decisions and save time.

This business strategy is complemented by Costain's continuous drive for innovation. Foreseeing challenges ahead, the company is investing in R&D to be an expert in future energy scenarios. In October 2017, a Costain-led consortium of major industry players

“ Costain's success is driven through being uniquely customer focused, investing in shaping and developing future solutions and working collaboratively with customers to unlock value delivering tremendous outcomes.

Alex Vaughan
Managing Director – Natural Resource

and institutions was awarded funding from the UK government to develop a test environment for connected and autonomous vehicle technology.

Costain's unique strategy has already led to financial benefits, as revenues have increased by 20% following its implementation. Client loyalty has also been bolstered: Perenco has awarded Costain eight repeat orders, while BP and the National Grid have also provided the company with additional repeat order business opportunities.

About Costain

Founded in Liverpool in 1865, Costain today is one of the UK's leading smart 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 Aberdeen, Birmingham, London and Manchester, in addition to its headquarters in Maidenhead.

Costain was featured in the first edition of the EIC Survive and Thrive Insight Report, released in May 2017.



Story type:

#collaboration #innovation
#services/solutions

Benefits:

- 15% revenue increase (approximately £30m) following new selling approach
- Repeat orders with key clients
- Selection on solution value not unit cost

Culture change:

- Sometimes it takes longer to obtain results, which may generate doubt among employees – be clear on purpose and mission

Key findings:

For the industry:

- Spend time with customers and learn what they truly want to achieve

- When entering international markets, make sure you have a clear/differentiated value proposition
- Learn from the other sectors to drive performance improvements
- Get the most from the supply chain by asking them to achieve outcomes not inputs

For the government:

- Create opportunities to encourage companies to innovate and invest
- Avoid sudden changes in technology direction (e.g. CCS competition cancellation)
- A proactive policy is needed to improve the way oil companies collaborate in the UK
- Organise trade delegations to support business overseas
- Focus should be given to senior level introductions with key international players
- Raise awareness of UK Export Finance and how it supports UK companies

Government support?

The company has received funding from Innovate UK.

Costain at a glance

Key products and services: engineering services

Main industries served:

- Rail (40%)
- Highways (25%)
- Energy (18%)
- Water (17%)

Headquarters: Maidenhead, UK

Year established: 1865

Number of employees: 4,100 (1,300 in the Energy division)

Revenue: £1.7bn (£220m from energy)

Revenue from exports: none



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Cadent and DNV GL are enabling an affordable, low-carbon gas supply mix to UK homes and businesses by switching metering technology from volume to calorific value

How is DNV GL thriving?

Future Billing, an innovative project jointly run by Cadent (formerly National Grid Gas Distribution), and DNV-GL is anticipating the future of the UK gas network and its impact on homeowners and businesses. By analysing the introduction of alternative gas sources such as biogas, LNG and shale in the UK gas distribution system and studying how these sources are metered, Future Billing is contributing towards an affordable, secure and sustainable energy supply in the UK and, potentially, across the world.

The challenge

The energy market is changing rapidly. The use of fossil fuels, particularly in high-income economies, is consistently being phased out in favour of low-carbon sources. Natural gas plays a key



role in this transition process and alternatives such as LNG, shale gas, biogas and hydrogen, are assuming an increasingly prominent role.

One important challenge in this changing scenario is the preparedness of existing infrastructure. Natural gas fed into the UK gas pipeline network, for

example, is 100% originated from the UK Continental Shelf or imported via pipelines. As the country's gas mix becomes increasingly diverse with the introduction of new sources and entry points, new technology is necessary for an effective metering of natural gas used by the country's population and companies.

The solution

An independent company strongly guided by customer demand, DNV GL realised long ago that a primary focus on oil and gas was no longer a viable option. A strategic shift carried out between 2007 and 2013 – before the downturn in the O&G industry – led the company to acquire key assets in the renewables and natural gas segments, making DNV GL well-prepared to cope with challenges presented by the decarbonisation of the energy market.

In 2017, Cadent and DNV GL were awarded a £4.8m, three-year contract by the Office of Gas and Electricity Markets (OFGEM) to explore how the calorific value of natural gas – and not just its volume



Encouraging innovation and digitalisation, supported by a true understanding of our customers' needs is key to delivering our engineering solutions. We embrace our customers' challenges and work with them to achieve improvements in their business performance, therefore enabling them to be agile in an ever changing market.

Graham Bennett
Vice President, UK and West Africa,
Oil & Gas

– could be metered to allow a better calculation of gas bills. Dubbed ‘Future Billing Methodology’, this feasibility project is an idea that came originally from DNV GL, which has been in discussions with Cadent since 2014.

Future Billing’s goal is to enable the introduction of low-carbon gases to the grid while still complying with interchangeability requirements (also known as the Wobbe Index). Specifically, DNV GL and Cadent are collaborating on the analysis of how to design metering and sensing systems to correctly identify how much of other gases (e.g. propane or nitrogen) should be added at various entry points and the implications to the distribution network as a whole. An outcome of this project is expected in 2019 and DNV GL anticipates that a range of

savings are expected for each home and business.

By overcoming the challenges of introducing new gases to gas networks, DNV GL is not only contributing to a UK issue, but a global one. New technologies to be developed by UK companies targeting products such as valves, pipes, meters, sensors and other materials could potentially find lucrative markets around the world.

About DNV GL

An organisation present in more than 100 countries with experience dating back to the 19th century, DNV GL has grown to become one of the world’s leading quality assurance and risk management players. The company provides classification, technical assurance, software



and independent expert advisory services primarily to the maritime, oil and gas, power and renewables industries. Focus areas also include digitalisation, ocean space, cities and ports, and life sciences.

A company that invests 5% of its revenue in R&D, DNV GL is engaged in a number of joint industry projects (JIPs) in collaboration with customers with a view to develop solutions, standards and practices that help solve industry challenges. JIPs related to the role of natural gas in the energy transition process include the development of a risk evaluation tool for FSRU-to-power projects and the introduction of a quality assurance protocol for the use and transport of CO₂, among others.

Story type:

#collaboration #innovation #technology

Benefits:

- An initial analysis of the direct benefits of implementing a Future Billing Methodology arrangement indicate net present value cumulative savings to 2050 in the range of £170–300m, with 1–2MtCO₂e carbon savings from the removal/avoidance of propane enrichment of renewable gases*

Culture change:

- A transition to a greener business agenda is a key culture change factor
- The use of technology attracts a younger workforce
- The integration process that follows acquisitions is a major culture change driver
- Adaptation for a digital future is crucial

Key findings:

For the industry:

- Always be open to new ideas
- Work closely with customers on innovation through early collaboration
- Agility, a good understanding of the market and the development of networks and alliances is key when expanding internationally

For the government:

- Innovation is key: it provides a balance against cost-down pressures
- The OFGEM’s regulatory environment works well and no change should be made as it provides incentives to innovation
- Industry needs clearer policy decisions (e.g. carbon capture and storage)
- The government needs to step up efforts to promote British businesses internationally

Government support?

Although the Future Billing project is funded by OFGEM, the company has not received any government support directly.

DNV GL at a glance

Key products and services: technical advisory services primarily to the global oil and gas, maritime and renewables industries.

Main industries served:

- Maritime (36%)
- Oil and gas (24%)
- PNR (18%)
- Business assurance (16%)
- Software (4%)
- Other (2%)

Headquarters: Oslo, Norway

Year established: 1864

Number of employees: 1,200 in the UK (500 in O&G), 13,000 globally

Revenue: £1.8bn

Revenue from exports: 20% (DNV GL in the UK)

*Based on two of National Grid’s 2016 Future Energy Scenarios: Gone Green and Slow Progression.



IMI Precision Engineering

Innovative new hydraulic valve developed brought to market in record time



How is IMI Precision Engineering thriving?

Following the introduction of an enhanced new product development strategy, the company has been able to reduce time-to-market of its new products. IMI's

new ICO3 Hydraulic solenoid valve family, designed for use in critical applications and/or extreme environments, is an example of this and has already opened up new business opportunities and placed the company ahead of the competition.

The challenge

The energy market is important to IMI Precision Engineering. When the company announced its five-year strategy, it coincided with the collapse of the oil and gas market. Growing competition and a shrinking market meant that IMI had to react fast to the challenging conditions and find new opportunities.

The solution

Despite these challenges, IMI Precision Engineering enjoyed a good position in the market. In addition to the backing of the IMI Group, the company had strong brands, great customers and a network of partners and distributors who understood the market and had a good network of contacts.

Leveraging these strengths, in 2015-16 a decision was made



Investment in new products enables our customers to significantly improve their offering and win new projects against fierce competition. This edge is increasingly important as the industry moves from survive, to thrive, and major projects are awarded.

Andy Evripides
Global Sales & Marketing Director: Energy

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to create a dedicated energy market team. IMI's strategy for its energy vertical had three pillars: go-to-market, developing new products and optimising operations. Energy-focused operations were strengthened and production of key products was moved to local markets. Key account management teams focused on making sure products were well-understood by end users and keeping close to all opportunities.

Product development was a key element in IMI's strategy. Aiming to launch more new products, the company looked at the possibility of developing new product lines or enhancing existing ones. Identifying gaps in product ranges, and paying close attention to the customer, IMI decided to develop hydraulic valves based on the company's ICO3 solenoid valves. Dubbed ICO3 Hydraulic, IMI's new solution allows greater performance and reduced costs, thus reducing CAPEX and improving OPEX.

Improved time-to-market would be essential to enable IMI's new product to thrive. The company enhanced its already advanced product quality planning process as part of its new product development strategy, and the ICO3 Hydraulic solenoid valve was one of the first to follow this process. Its factory in Poole used Lean methodology and investment to make sure that the product could be produced in the most efficient and cost-effective way.

Product development and operational optimisation have been instrumental in IMI's success. The company obtained its first contract for the ICO3 Hydraulic valves range in April 2018 under a pilot order for a wellhead control application and the success has continued to grow.

About IMI Precision Engineering

A division of IMI plc, IMI Precision Engineering specialises in motion and fluid control technologies. The division, which has 26



Precision Engineering

manufacturing centres across the world, supplies actuators, pressure switches, valves and equipment for compressed air preparation and vacuum applications. Its products 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 actuator OEMs and valve automation companies. The company delegates O&M opportunities to its distributors around the world, which are responsible for selling replacement parts and service kits.

IMI Precision Engineering was featured in the first edition of the EIC Survive and Thrive Insight Report, released in May 2017.

Story type: #optimisation

Benefits:

- Time-to-market reduced
- Several new product platforms launched in 18 months

Culture change:

- The benefits of a change process are better understood through consultations rather than a simple mandate
- Net promoter scores help measure success of a culture change process

Key findings:

For the industry:

- Make sure you create a robust process and that everyone buys into it
- Before entering export markets, make sure you understand your home market first

For the government:

- Encourage companies to invest in new technology and take those products to market
- Ensure there is no negative outcome

Government support?

The company has not received any government support.

IMI Precision Engineering at a glance

Key products and services: solutions for pneumatic and hydraulic flow and motion control

Main industries served:

- Energy
- Industrial automation
- Commercial vehicles
- Life sciences

Headquarters: Birmingham, UK

Year established: 1972 (IMI PE)

Number of employees: 5,300 (500 in the UK)

Revenue: £791m (global)

Revenue from exports: 94%



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Intex Controls

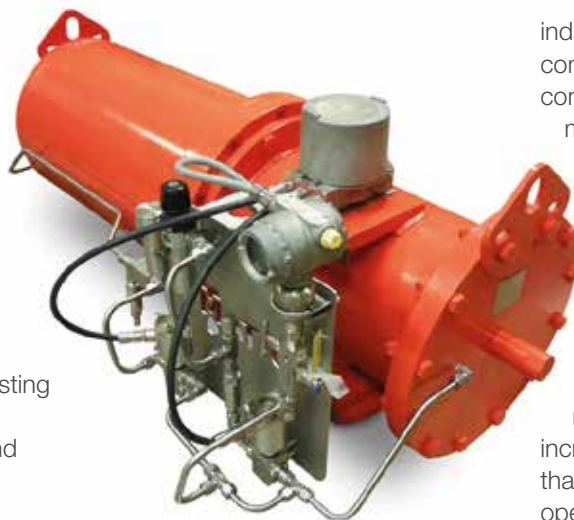
Applying proven technology to minimise risks and enhance safety and production

How is Intex Controls thriving?

Identifying a major industry issue, the company introduced TripGuard, a system applied to partial stroke testing (PST) that ensures that critical emergency shutdown valves (ESDVs) are not completely closed. This innovative solution, created by adapting products in Intex's existing portfolio, is helping operators minimise risk, increase safety and avoid multi-million production losses.

The challenge

As process-based industries continually seek to improve efficiency, reliability and safety, a variety of equipment testing and verification strategies have been introduced. One of them is the use of PST on ESDVs. The PST concept involves the operator allowing an ESDV to be moved over a small



range in order to demonstrate that the equipment is working normally. A major benefit is that testing does not require an operational shutdown, as the valve is only partially closed.

However, Intex Controls had observed a major flaw among

industry players. While many companies have the ability to conduct PST on their valves, many choose not to do so. This is mainly due to occasions when testing led to complete closures of critical valves, resulting in plant shutdowns and multi-million production losses.

As health and safety requirements become increasingly strict, requiring proof that ESDVs are fit-for-purpose, operators are faced with a difficult choice: plan a full plant stoppage to conduct testing or run a PST while production is ongoing, risking a plant shutdown?

The solution

In late 2015, Intex Controls realised that a solution for this dilemma would involve a PST system that enabled ESDV testing without the risk of an unplanned complete shutdown. Such a mechanism would allow operators to fulfil regulatory demands as well as production goals.

This solution was already present in the company's own portfolio: Intex's engineering team combined the features of its Camtorc actuator and VSD controller with a simple controls system, the result was TripGuard. This system ensures that the Camtorc actuator is never fully vented during testing, leaving residual pressure to prevent the valve from closing completely.

Working with a leading offshore operator, the first TripGuard installation took place in 2017

“ Unfortunately, many operators choose not to utilise partial stroke testing capabilities on critical shut down valves because of the associated risk of a spurious trip occurring, however, the introduction of the Camtorc TripGuard system eliminates this risk allowing operators to get the full benefit of partial stroke testing implementation.

Paul J Turner
Engineering Director



in collaboration with a specialist valve supplier to the oil and gas industries. The operator was looking for methods to gather data on shutdown valves in the wake of growing pressure from the Health and Safety Executive (HSE). However, ageing infrastructure meant that a comprehensive overhaul to meet HSE requirements was not possible or economically feasible. TripGuard proved to be a cost-effective and simple solution for the proposed challenge, allowing the operator to conduct testing and obtain data on critical valves without the need to modify existing plant infrastructure.

A solution that is driving a scale-up process at Imtex Controls, the company delivered three TripGuard

systems for UKCS infrastructure in 2017 and an additional eight to nine systems are planned to be delivered in 2018, helping the company achieve a 10-15% revenue growth during the year. By minimising the risk of problems during testing, TripGuard is bringing higher safety to clients and mitigating production risk.

About Imtex Controls

A privately-owned engineering design and manufacturing company, Imtex Controls is a leading independent producer of advanced, high-integrity valve actuation, communication and control systems for the oil and gas (onshore and offshore), power generation, chemical and marine industries.

The company was established in 1990 and is headquartered in Deeside, with additional locations in Eastbourne and Tonbridge.

Story type:

#innovation

Benefits:

- Increased safety
- Reduced plant shutdowns
- 10–15% additional growth in 2018

Culture change

- Establish KPIs to measure culture change efficiency
- In a growing family-owned business, leaders should consider focusing on the big picture rather than getting bogged down in day-to-day operations

Key findings:

For the industry:

- Innovation and growth are essential elements to stay in the game
- When trying to sell, it is vital to get decision-makers to understand an innovative product
- Focus is key when seeking new export markets – do not spread yourself too thinly
- Have a five-year strategy to guide your business strategy

For the government:

- Companies should receive government assistance to have access to finance, a skilled workforce and universities
- Government bodies should not be demanding in terms of project management and documentation when making assistance available
- Adopt a more business-savvy approach when helping companies

Government support?

The company has received a grant from the Welsh Government to relocate to Wales as well as a grant from Innovate UK for product development.

Imtex at a glance

Key products and services: design and manufacture of valve actuation and valve monitoring equipment

Main industries served:

- Oil and gas (70%)
 - Upstream – 60%
 - Downstream – 40%
- Other process industries (30%)

Headquarters: Deeside, UK

Year established: 1990

Number of employees: 25

Revenue: £2m (2017)

Revenue from exports: 45%



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James Fisher Subsea Excavation

Successful diversification during the downturn with Excavation Plus, a one-stop-shop approach saving clients millions of pounds by combining various services into one solution



How is James Fisher Subsea Excavation (JFSE) thriving?

Reacting to adverse market conditions, the company innovated by offering its Excavation Plus integrated service package. This one-stop-shop solution allowed

JFSE to diversify into new segments, reduce costs and increase revenues.

The challenge

JFSE was not immune to the downturn in the oil and gas sector. As subsea trenching is often the last

element of large oil and gas projects, it took two-three years for the company to be impacted by the crisis. Large projects were at best scaled back or delayed, and at worst cancelled, meaning business opportunities in this sector were significantly reduced for the industry's supply chain.

The solution

JFSE had the ideal tools for reacting to the crisis. The company had the financial backing of the James Fisher Group, which over the years had accumulated a diverse set of capabilities through the acquisition of various companies. In addition, the company benefitted from a global network of contacts, market knowledge, client access and excellent reputation.

Leveraging on these factors, JFSE made the decision to offer a wider service scope beyond its traditional trenching segment, targeting not only



The launch of our Excavation Plus package addresses, as we know from client feedback, a fundamental, industry-wide need to streamline processes. This offering harnesses our innovative mindset, management capabilities and operational expertise for the benefit of our clients.

Kenneth R Mackie
Managing Director at JFSE

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projects in the UK, but opportunities across the world. This wake-up moment led to the introduction of Excavation Plus – Integrated Services. Making the most of a transferable skillset that was already available in-house, this approach included the supply of vessels, divers, remotely operated underwater vehicles, deck crews and tooling services in addition to trenching.

JFSE already had the right people and the right contacts - the real challenge was to debut as a one-stop-shop player. The first contract under this model was awarded by SapuraKencana, which had a 43-inch, 40km pipeline project in Mexico. JFSE introduced a new single-pass trenching technique using its Twin Tool excavation equipment that allowed the company to lay 0.83 metre of pipe per minute, allowing the project to be completed in 66 days. Managing the whole project, JFSE was also responsible for supplying the vessel, subsea survey and back-

of-deck personnel, which required a local partner in Mexico.

Getting clients to trust the Excavation Plus approach was challenging at first, but the benefits became clearly visible. Sapura had just one contract and one point of contact, greatly improving its risk management. The use of the novel Twin Tool solution also allowed a faster trenching work, saving 30 days in manpower expenses - approximately £50,000 per day.

Excavation Plus has triggered a scale-up process at JFSE. Four projects have been carried out since 2016 and a fifth is already underway, further consolidating the company's track record and opening the way for additional opportunities in markets across the world.

[About James Fisher Subsea Excavation](#)

The company is a global expert in

James Fisher Subsea Excavation



subsea excavation services for the oil and gas and renewables sectors, with an extensive track record in construction, decommissioning and inspection, repair and maintenance (IRM) projects worldwide. Benefitting from a varied in-house portfolio of controlled flow excavation tools, its services include seabed preparation and clearance, de-burial for IRM activities, pipeline and cable lowering crossings and shore approaches, among others.

Established in 2014, JFSE originates from the combination of KDM Marine and the existing mass flow excavation business line of James Fisher and Sons. Headquartered in Aberdeen, the company also has offices in the US, Mexico, China, Singapore and the United Arab Emirates.

Story type:

#diversification #innovation
#service/solutions

Benefits:

- Twin Tool approach saved a client US\$2m on a single project
- Faster trenching work, saving a client 30 days in manpower expenses

Culture change:

- The introduction of a wider scope of activities can be taxing on employees
- All staff should be kept involved and informed of changes taking place at the company

Key findings:

For the industry:

- Talking to clients about their specific needs is a better approach than selling a single product or service
- Finding reputable partners is essential
- Support from trade associations is vital to build a network of international contacts
- Companies should be careful with fixed-cost contracts and be wary of harmful contractual conditions (e.g. weather risk)

For the government:

- Assistance to SMEs is key and should be maintained

Government support?

Other than support from Scottish Development International to join exhibitions, the company has not received any governmental assistance.

James Fisher at a glance

Key products and services: subsea excavation, inspection, repair and maintenance services

Main industries served:

- Oil and gas (75%)
- Renewables (22%)
- Civils (2-3%)

Headquarters: Oldmeldrum, UK

Year established: 2014 (merger between KDM Marine and James Fisher)

Number of employees: 20 (+40 contractors)

Revenue from exports: 80%



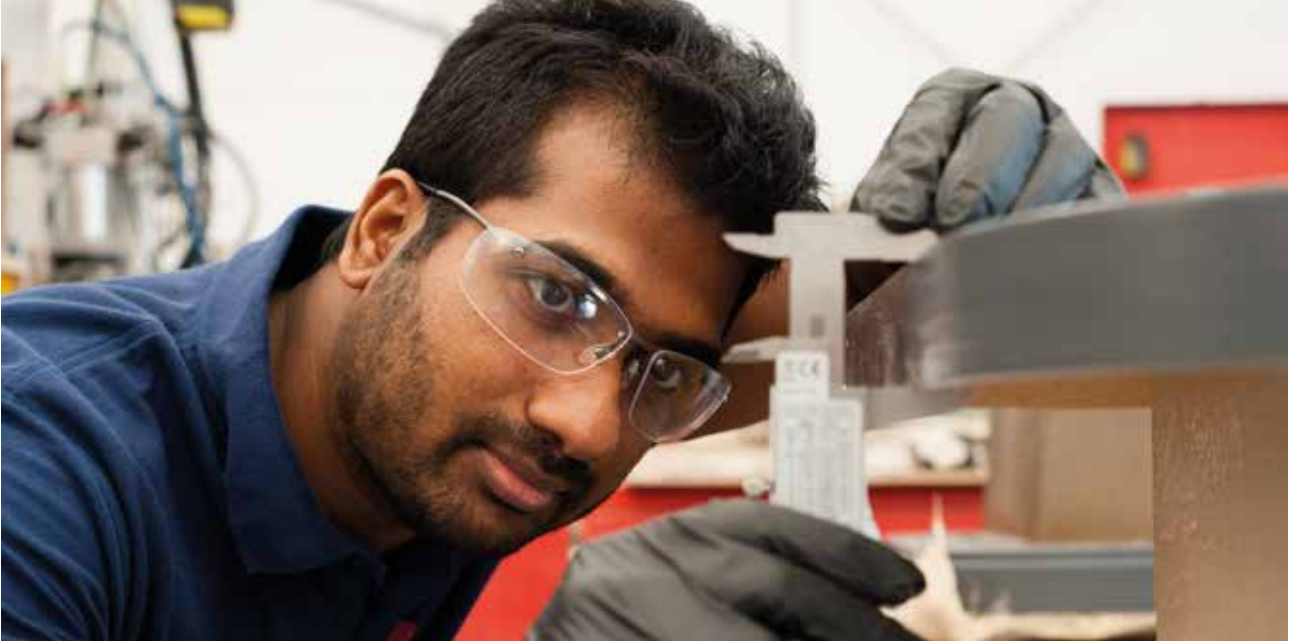
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Innovating beyond GRP to advanced composite cabinets



How is JoBird thriving?

Collaborating with the University of Bristol, JoBird has undergone a major transformation process carried out by challenging and enhancing products, processes and quality. The company's transition from GRP to advanced composite cabinets

boosted productivity, improved quality and enhanced its brand; JoBird is ready for the market upturn.

The challenge

JoBird had grown exponentially since its establishment but in 2011 the company was well aware that

the skills that had got it so far were not going to be enough for the future. Competition was on the rise, both in terms of price and quality.

This scenario was made more challenging by the oil and gas crisis in 2014, although its impact on JoBird's business was felt three years later as safety equipment is generally only required at the end of a project's installation phase. Seeing its revenues drop 35% between 2013 and 2017, the company decided to use the market crisis as an opportunity to invest in people, products and processes.

The solution

Pursuing a strategy to improve product quality, efficiency and design, in 2012 JoBird saw the need to take on board a new technology: the closed-molding method for the production of storage cabinets using advanced composite materials. This method enhanced quality, but also presented many manufacturing issues. JoBird soon realised that



The past few years have been challenging, however, we have taken this as an opportunity to invest for future growth. We have invested in transforming productivity, introducing new products and improving the skills and knowledge of our team, to be further ahead of our competition, when market conditions improve.

Guy Atkins
Managing Director

a skills base was as important as materials for its strategy to succeed.

In 2013, JoBird's Managing Director Guy Atkins joined a mentoring scheme at the National Composite Centre, in which the company was paired with a specialist from the University of Bristol. Realising that the company had a lot to learn – which had a good cash balance as the downturn started – it decided to sponsor a four-year engineering doctorate degree at the University of Bristol in 2015.

Guys' experience at Bristol was a success for the company. His new knowledge enabled the creation of a new production process based on closed-molding, which increased productivity from 5-6 units a day to an impressive 10-12. Gains were not limited to productivity as the new manufacturing process also improved weather sealing properties and eradicated non-316SS components, ensuring better quality consistency, longevity and lower life-time costs. JoBird won a Queen's Award for Enterprise in Innovation

for this product transformation.

In addition to manufacturing methods, JoBird is also investing in increased training and has recruited a new operations manager from the aerospace industry to bring factory efficiency and quality improvements. The company is also providing ongoing investment in CAD skills for its staff.

R&D work is now firmly part of JoBird's routine. The company is developing cabinets for different weather conditions (e.g. cyclones) and is looking to produce tailor-made cabinets for different wind speeds. In order to make this possible, JoBird has created data sets with composite fibre engineering properties, which were previously unavailable on the market.

JoBird's transformation from a design and manufacturer to an 'R&D, designer and manufacturer' was only possible by challenging everything, bringing about a re-evaluation of process, product and



quality. With a 100% productivity improvement, the company is well-prepared for the market upturn.

About JoBird

JoBird is an internationally recognised leader in the design and manufacture of life saving and fire safety equipment storage cabinets. Since its establishment as a manufacturing business in 1986, the company has developed its products to meet the demands of a range of industries and environments. JoBird's Firebird composite and Toughstore cabinets are used by major energy and marine clients globally. Headquartered in Bason Bridge, Somerset, JoBird has a network of international distributors present in the five continents.

Story type:

#collaboration #innovation
#optimisation

Benefits:

- 100% productivity improvement

Culture change:

- The transition from a traditional GRP company to an advanced composites player requires new skills, a process that will attract both resistance and openness to change

Key findings:

For the industry:

- Lack of skills hamper growth
- Always invest for the long-term
- Implement a culture of continuous learning and openness to new ideas

For the government:

- Training workshops are needed so that suppliers can overcome fear of exporting
- Additional funding is necessary for trade delegations across the world

Government support?

JoBird has had discussions with the Department for International Trade. The company won the Queen's Award for Innovation in 2018.

JoBird at a glance

Key products and services: R&D, design and manufacture of storage cabinets for fire safety and life saving equipment

Main industries served:

- Energy (80%)
 - Wind – 20%
 - O&G upstream – 80%
- Defence (10%)
- Marine (10%)

Headquarters: Bason Bridge, UK

Year established: 1970s (1986 as a manufacturing business)

Number of employees: 20

Revenue: £2.1m (2017)

Revenue from exports: 50%



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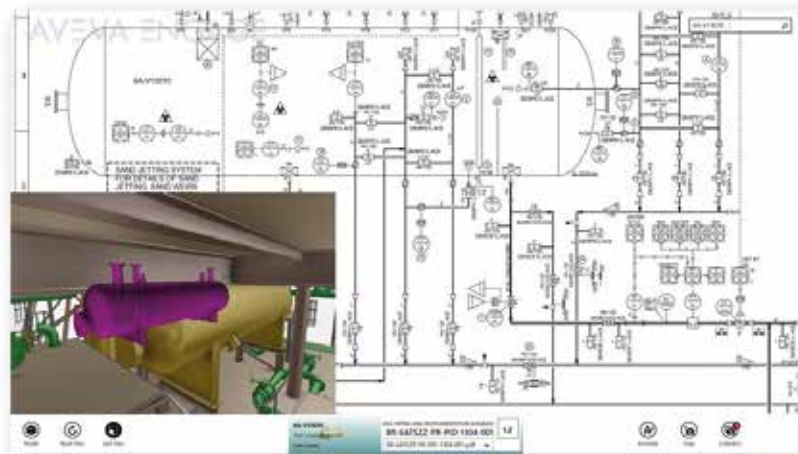
Digital twin technology enabling streamlined processes for design, construction and operation

How is KBR thriving?

Working in collaboration with Aveva, KBR has developed a digital twin solution which incorporates wireless communication and intelligent tagging. This technology is being applied to key KBR projects, with the potential to bring streamlined processes, improved communications and effective decision making.

The challenge

The oil and gas industry currently presents clients and contractors alike with significant cost challenges in a much more competitive market than previous years. There is a real need for solutions that cut costs yet result in the same design and operational deliverables, without compromising quality or safety. With the right leadership, potential in utilising current and future ecosystems (both internal and external) and



the adoption of the right emerging technologies, KBR can deliver the quality of service its customers have come to expect at the price they require.

The exponential rise in the sheer volume of data generated in the design phase has seen KBR develop 'The KBR Way', KBR's standardised approach to executing projects as an EPC contractor,

providing structure to our designs for our clients. This growth in volume and the availability of data has the potential to make it difficult to manage useful information and handover to clients. Without the right applications and most sophisticated technologies, it can lead to under-utilisation of data to its greatest potential across the life of the field. KBR is uniquely qualified to manage and distribute this data leading to vital commercial advantages for our clients.

The solution

Digital solutions are not new to KBR. The company's transition from document management to data management began over a decade ago, with the use of 'object engineering' to manage data rather than wait for the official issue of deliverables. Since then, KBR's strategy has steadily moved towards the development of digital replicas of physical assets, also known as digital twins. This drive towards digitalisation was made possible by 3D CAD modelling software designed by Aveva, a KBR partner for over 25 years.



KBR's digital business strategy is to optimise design and ensure delivery of projects providing a visual interface for construction, maintenance and operations. The introduction of the digital module, intelligent tagging and assurance in availability of design and operational data can reduce operational costs significantly.

Dave Cole
Project Solutions Manager

In early 2018, after winning a design contract from a key client, KBR began looking for ways to improve the project's procurement, material control and data management. Adopting Aveva's Engage tool enabled KBR to centralise and standardise data and documents which are directly linked to Aveva's interactive 3D CAD model. This gives the project and clients real-time access to live information to support the project through execution - all at the tap of a screen from anywhere in the world. To further optimise this function, KBR developed the use of wireless communications to access data for every equipment item via smart tags to allow traceability from the manufacturing process through to the warehouse and eventually onto the operator's facility.

As a next step to the traditional barcoding method, intelligent tagging provides various benefits. This innovative solution enables data visualisation via modern tablets, allowing equipment to be inspected in-situ. Intelligent tags fall into the same price range as conventional barcodes and QR systems but

are more resistant to tough environmental conditions. Security is improved, as non-descriptive tags prevent the misuse of equipment identification data. Overall, the dynamic use of data made possible by intelligent tags benefits the operator in all project phases, from design to predictive maintenance.

KBR is looking to extend this tool set into construction work pack visualisation and permit to work systems. With the Aveva Engage software system these tools are further complemented by use of virtual reality and augmented reality technology to give another perspective which is proving invaluable for training and handover activities.

KBR's digital twin solution with intelligent tagging has the ability to access data more efficiently and more reliably through access to accurate information from 80,000 engineering tags and 225,000 documents. Decision-making in the construction and operation phases is ultimately enhanced as processes become streamlined, unscheduled downtime is reduced and communication is improved.



About KBR

KBR is a global provider of differentiated professional services and technologies across the asset and programme lifecycle within the government services and hydrocarbons sectors. The latter includes onshore oil and gas, LNG (liquefaction and regasification), GTL, refining, petrochemicals, chemicals, fertilisers, differentiated EPC, maintenance services (through Brown & Root Industrial Services), offshore oil and gas (shallow and deepwaters, in addition to subsea), floating solutions (FPU, FPSO, FLNG and FSRU), management and consulting services.

Headquartered in Houston, KBR employs approximately 34,000 people worldwide (including joint ventures), with customers in more than 75 countries and operations in 40 countries.

Story type:

#collaboration #digital
#innovation #service/solutions

Benefits:

- Single source of truth for EPC and O&M phases
- Data analytics and machine Learning use for operations optimization and plant uptime
- Improved security
- Use in modern tablet devices

Culture change:

- The transition from a static design environment to a dynamic digital/predictive environment requires a significant culture change which is not always easy

Key findings:

For the industry:

- Know what is out there: otherwise your opportunities are limited to your experience and imagination
- Promote products and services in a way that clients believe in, but without giving away too much information to the competition

KBR at a glance

Key products and services:

consulting, engineering, procurement, construction, maintenance, government services and digital solutions

Main industries served:

- Hydrocarbons
- Government services
- Technology

Headquarters: Houston, US

Year established: 2006 (as KBR Inc.)

Number of employees:

Approx. 34,000

Revenue: US\$4.17bn



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Lionweld

Innovative and fully compliant ball-proof and utility gratings boosting productivity and lowering costs

How is Lionweld thriving?

After a complete product and process redesign, Lionweld collaborated with experts, industry and customers to launch fully compliant range of lower cost and higher-performance ball-proof and utility gratings, allowing a 15% productivity improvement within the first year and cementing the company's reputation as the UK's leading grating supplier.



The challenge

Back in 2013 Lionweld held a large proportion of the market share in the supply of standard and fabricated steel gratings. There was competition from China, Germany and the Middle East but Lionweld always appeared to be the UK supplier of choice.

More recently countries such as Germany began to focus heavily on the UK market and with their efficient manufacturing processes they were able to supply similar products at more competitive prices. The standard grating panel (supplied by all manufactures including Lionweld) was a 41mm x 100mm mesh panel. This was used in most

applications and at times it was regularly specified on drawings and purchased by UK fabricators. It was Lionweld Kennedy's best seller and represented 95% of all grating panel sales. However, a new range of gratings started to be requested by the customer, which would be used on high-level walkways, fire escapes and around machinery. Although these were produced at Lionweld they were not manufactured efficiently and were heavier and more robust than the competition's equivalent.

The solution

Lionweld sensed that the market was changing and that demand for compliance was growing. The

company started to draw up a plan that would have to consider its manufacturing process, a resistance from many customers to purchasing a new product range and severe competition from more efficient European manufactures, which all posed significant challenges. The company decided that it had a responsibility to comply with British standards and offer a competitive range of gratings

Lionweld set up a working group to define its strategy. A professor from the University of Newcastle and a consultant specialising in structural engineering were brought in to assist in the process of making Lionweld's products stronger, lighter and covering a longer span. Cost reduction was also a key aspect as well as the environmental impact of the product's galvanising process. A full redesign was conducted to create a range of competitive gratings to the latest specifications. A new £1.5m fully automated grating machine was installed, new manufacturing processes were introduced that improved efficiencies, lead times and costs. The drive to change to compliant products also meant that Lionweld could reduce the amount of grating variations from 90 to just 22, further boosting productivity output.



Lionweld has invested in new machinery resource and time and a culture that continually reviews improvements in all areas. We look forward to the next 100 years in operation.

Ian Kirkup
Business Development Director

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Engagement with the industry for the introduction of improved products was another key element of Lionweld's strategy. Rolling mills were engaged to supply optimum sizes and tolerances to reduce waste and costs. Third-party testing centres were used to prove things such as strength, slip resistance and that the development of new serrated products were in line with the requirements of the Health and Safety Executive and the relevant standards. All stakeholders were purposely involved and as it was felt that this would give confidence to companies who specify or purchase Lionweld products.

A marketing push was needed to make these changes successful. The compliance argument was key to convincing clients loyal to the 41mm x 100mm design that a switch was vital, not only for new build projects but also upgrades to existing structures. Lionweld's website was also redeveloped which has a product selector tool,

this ensures the correct compliant products are selected.

Lionweld's improved manufacturing processes enabled impressive productivity and financial gains. In 2017 it produced more panels than ever before showing a 15% increase on manufactured standard grating panels with an aspiration of achieving 50% gains by 2020. Although the market is still very slow gross margins have improved through the introduction of the improvements and the recognition in the marketplace has reinforced Lionweld's brand, reputation and its commitment to continually reviewing and improving its processes. The company is now represented on the British Standards Committee and is already targeting sales into the European market.

About Lionweld

An unrivalled UK player with a track record spanning more than 100 years,



Lionweld designs, manufactures and installs access products including gratings, handrail systems, secondary steelwork, platforms, stairs and stair treads made of steel and glass-reinforced plastic.

The company has a strong footprint in the construction segment, having supplied products to landmark projects such as the Millennium Dome. In the oil and gas segment, Lionweld was involved with the Cygnus Bravo project in the North Sea and the Chirag oil field in the Caspian Sea. A company with a strong health and safety focus, Lionweld has secured eight consecutive Gold Awards from the Royal Society for the Prevention of Accidents.

Lionweld, also known as Lionweld Kennedy Flooring, operates as part of the global PLC organisation Hill & Smith Holdings.

Story type:

#collaboration #innovation
#optimisation

Benefits:

- 15% increase in productivity (50% expected by 2020)
- Revenue and margin increases are targeted at 5–6%

Culture change:

- Training is required to make sales teams more persuasive and technically astute
- Engagement with unions help change 'us and them' mentality to a one-team, can-do attitude
- Team communication sessions and social events help improve morale

- Success stories should be circulated among employees

Key findings:

For the industry:

- Engage stakeholders – internal and external
- Challenge everything
- Have a robust marketing strategy
- Carry out risk assessments
- Create a sense of urgency with clients

For the government:

- National and local authorities should do more to raise awareness of support initiatives

Government support?

Lionweld has not received any government advice or support. The

company is looking at the possibility of obtaining a grant from the local authorities to fund a new building.

Lionweld at a glance

Key products and services: design, manufacture and installation of all access products

Main industries served:

- Construction (30%)
- Renewables/energy from waste (25%)
- Water (20%)
- Conventional power (10%)
- Oil and gas (10%)
- Nuclear (5%)

Headquarters: Middlesbrough, UK

Year established: 1910

Number of employees: 190

Revenue: £27m (2016)

Revenue from exports: 5%



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Malin Group

Malin Group's new in-house fabrication and heavy-lift quayside complements design and transport capability to create differentiated mini-EPCI, diversifying beyond O&G and shipbuilding to renewables and other sectors

How is Malin Group thriving?

By investing in new quay-side and fabrication facilities, the Malin Group has become a full-fledged EPCI player, successfully diversifying from its traditional oil and gas and shipbuilding markets to sectors such as renewables and aquaculture.

The challenge

The business climate between 2015–16 was not kind to the Malin Group. The company's main offering at the time was engineering solutions and heavy-lift transport for the oil and gas, shipbuilding and marine markets, sectors which were severely impacted by the industry downturn. The volume of cargo being transported fell drastically, greatly affecting the company. A contract with the Ministry of Defence for the relocation of components of Rosyth aircraft carriers ended in late 2016, at approximately the same time as when Malin's consultancy team in Aberdeen lost nearly all



of its business when its O&G-related order backlog petered out. Revenues were dwindling and the company had to find a way out.

The solution

One of the biggest aspirations of the Malin Group was to build structures in addition to its engineering, design and transport capabilities. The lack of a suitable fabrication yard meant that building work had to be sub-contracted, which not only

compromised its margins but also meant it was missing a key market differentiator.

In-house fabrication capability would turn the company into an EPCI player, potentially widening the work scope of existing clients and contract values. Risk would also be reduced, as the company would be in charge of the fabrication process. In addition, a yard would allow Malin to diversify beyond its traditional markets and reduce reliance on the oil and gas industry, reaching out to new business sectors such as renewables and aquaculture.

Malin enjoyed a good cash balance, so the company decided to grasp this opportunity. In 2015, a decision was made to lease yard facilities in the Glasgow area, as purchase options on the Clyde were scarce at the time. Located in Renfrew, the yard soon earned Malin its first success in the EPCI segment: Minesto AB, a Swedish developer, awarded the company a turnkey contract to supply a floating buoy for the 0.5MW Deep Green 500



We have always enjoyed a reputation with our clients for over-delivering and technical innovation. The ability now to take this same ethos to a mini EPC model for bespoke marine projects is a very exciting prospect for us going forward.

John MacSween
Managing Director

(DG500) tidal generation project off the coast of north Wales. Malin designed and manufactured the 200-tonne buoy and its mooring system, lifting and delivering the structure in May 2018.

As business picked up, the company realised that the Renfrew facility was too small for its ambitions. In late 2017 the company bought a 50-acre plot of land and an old jetty right next to River Clyde. A former Royal Navy refuelling station, the site provides ideal access to the river's deep channels. Malin is planning a 100 metre wide heavy-lift quayside and a new 60 metre long fabrication building, which has the potential to be extended to 200 metres. Operations will move to the new fabrication

site as soon as construction is complete.

In a bid to offset risk, Malin has innovated by introducing the idea of a Scottish marine technology park. The company is seeking partners in complementary industries to use its land and quayside. Ultimately, Malin hopes to create a hub of like-minded players active in segments such as research and marine services, among others.

About Malin Group

A Glasgow-based company with roots dating back to the 18th century, Malin Group has full capabilities in the design, construction and delivery of complex engineered products in marine environments.



The group is formed by six companies, each dedicated to specific segments including fabrication, marine transport, engineering consultancy, retrofit solutions and ballast water treatment. Malin Marine, one of the group's divisions, recently completed the construction of the MSD1655 multipurpose workboat, the first ship to be built in Renfrew since 1964.

Malin Group has recently relocated its offices to the iconic South Rotunda, a category B listed building in Glasgow.

Story type:

#diversification #innovation #service/solutions

Benefits:

- Access to new markets
- Wider work scopes thanks to new fabrication facilities
- Reduced risk, as fabrication is done in-house

Culture change:

- New mindset when shifting from engineering consultancy to EPCI
- Different offices – and different segments - within a company may have different leadership styles
- Opportunity for staff to cross-train across different functions and business units should be encouraged
- Bringing employees under a single office with common areas helps boost integration

Key findings:

For the industry:

- The challenge of managing a group of companies and bringing them together should not be underestimated
- Marketing is your friend – do not undervalue it
- Proper CRM systems are vital, but they are difficult to implement. Champions should be appointed in each business unit
- Financing is a major challenge during scale-up, due to long rate of return for initial investments in infrastructure
- While it is easy to be convinced not to take risks and pursue opportunities, one opportunity often leads to others along a path you cannot foresee at the outset

For the government:

- The government should work harder to make its support initiatives known to the supply chain

Government support?

The group has received very little government support. However, one of the group's seven companies – Ballast Water Containers – worked with Scottish Enterprise's High Growth Unit.

Malin Group at a glance

Key products and services: engineering design, fabrication, consultancy and project management

Main industries served:

- Shipbuilding (60%)
- Oil and gas (30%)
- Aquaculture (5%)
- Renewables and others (5%)

Headquarters: Glasgow

Year established: group formed in 2013, but earliest origins date back to 1898

Number of employees: 80

Revenue: £10-12m (2017-18)

Revenue from exports: 30%



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Micropack

Proven flame detection technology that saves oil and gas operators money by preventing false alarms while increasing safety through early flame detection

How is Micropack thriving?

Motivated by the need to stay ahead of the game, Micropack focused on promoting its highly advanced flame detectors and mapping products. This approach consolidated its leadership position in the market and is helping FPSO operators avoid millions of dollars in losses caused by unnecessary production stoppages.

The challenge

The impact of the downturn in the oil and gas market was particularly hard on suppliers of premium, differentiated products, and Micropack was no exception. The company's flame detectors rely heavily on greenfield investment and brownfield assets where existing detection technologies are not performing as expected. Another challenge was linked to its portfolio: Micropack only had one key product, while its competitors had

a wider portfolio. Key service and supply contracts were coming to an end and market conditions were challenging.



The solution

Benefitting from a favourable cash balance, Micropack's initial reaction was to open up new business lines with existing customers in a bid to counter the challenging market conditions. This involved the introduction of a licenced software for flame and gas detection mapping in addition to the development of accredited training programmes along with its US-based partner exida. Although this strategy created some opportunities, market uptake was not immediate.

A back to basics approach was needed. In 2016, the same year that Swedish safety systems player Consilium bought a majority shareholding in the company, Micropack decided to focus on its original and highly differentiated flame detection and fire and gas mapping service offering. Taking advantage of its innovative product, reputation and customer network, the company started working with a number of key contacts and customers to re-emphasise the value of false alarm immunity in their intelligent visual flame detection portfolio.

This approach quickly proved successful. Micropack worked with Bluewater on the Aoka Mizu FPSO, which resulted in a supply order and retrofit work, in addition to a



A renewed focus on our visual flame detection technology, a proven innovation in the oil and gas industry, has strengthened our business while delivering major savings to operators.

Graham Duncan
Business Development Manager

valuable contact within the FPSO specialist. In 2016–17, Bluewater contacted Micropack again for work on the Haewene Brim FPSO, which was experiencing multiple false alarm episodes which frequently led to very costly production stoppages (approximately US\$3m per day at a time when the oil price was ~US\$45/barrel). Following a number of meetings with Bluewater management, a decision was made to retrofit the FPSO with Micropack's flame detectors. The work was executed in an impressive 10 days.

Today Micropack still enjoys a positive cash flow and healthy margins, although revenues have yet to compare with pre-downturn levels. Following the acquisition by Consilium, Micropack invested over £1m in the development of a new multi spectrum flame detector, the FDS303, which was released in June 2018.

About Micropack

Active in the oil and gas business for over three decades, Micropack is a specialist in the development of fire and gas hazard detection technologies. The company manufactures and supplies flame detection systems for the upstream, midstream and downstream segments, having worked on major projects such as Chevron's Ninian field. Micropack's fire research work and study of the effects of offshore environmental conditions on optical detection methods has made the company a market leader in fire and gas mapping tools. In addition, Micropack provides consultancy work on technical safety as well as training services.

Micropack's core product, the FDS301 intelligent visual flame detector, employs a dual-camera system: one camera provides

MICROPACK

FIRE AND GAS

a live colour video feed to the operator while the second relies on near infrared technology to detect flames visually. The onboard flame detection algorithm has been developed over 22 years, providing unrivalled false alarm immunity in the most challenging of applications. This flame detection technique is reliable, fast and stable and differentiates Micropack from competitors.

Micropack's headquarters are located in Portlethen, south of Aberdeen, at the Grampian Fire Brigade's Fire Training Centre. The company also has offices in London, Houston, Colorado and Azerbaijan. Approximately 40% of Micropack's revenues derive from export sales.

Story type:

#innovation #optimisation
#technology

Benefits:

- Reversed Bluewater's US\$3m daily loss at Haewene Brim FPSO in just 10 days

Key findings:

For the industry:

- Stick to your knitting – companies should focus on their strengths and core business
- Selectivity is key – the creation of too many business lines may not be profitable

- Companies seeking to export should find good partners (e.g. distributors) and tailor their offering to each market and industry sector
- Scaling-up is facilitated by a low fixed cost base and positive cash flow

For the government:

- Focus on health and safety. A recent Health and Safety Executive report warns about 'perilously close to disaster' scenario following various hydrocarbon releases on the UKCS
- Safety standards and mandates need revisiting

Government support?

The company has just started working with Scottish Enterprise and Scottish Development International. No other support has been received from the government.

Micropack at a glance

Key products and services: flame detection systems, consultancy and training, among others

Main industries served:

- Upstream (70%)
- Downstream (20%)
- Midstream (10%)

Headquarters: Portlethen, Scotland

Year established: 1996

Number of employees: 21 (UK and global)

Revenue: £7m

Revenue from exports: 40% (estimated)



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px's people, processes and IT platforms have enabled it to win big O&M contracts at high hazard UK energy facilities

How is px thriving?

The px group's proven capacity to operate and maintain some of the UK's strategic infrastructure, combined with key collaborations in the energy sector, have led to major O&M contract awards. The business' technical expertise and financial strength has also allowed px to become an asset owner.

The challenge

In contrast to most of the EIC Survive and Thrive case studies, the crisis in the energy sector was not harmful to px: revenues remained steady thanks to the group's focus on the O&M segment. In fact, the industry downturn helped px as large players adversely impacted by the crisis looked to refocus their asset portfolio and sell non-core facilities, creating growth opportunities for equity companies. px's expertise and track record made it an ideal strategic O&M partner for those investors.

The solution

One such investor was North Sea Midstream Partners (NSMP),



a business with whom px had a successful relationship as an operating partner. In 2015 Total's St Fergus gas terminal located north of Aberdeen and associated subsea supply pipelines were put up for sale presenting an opportunity for companies like NSMP. While looking to sell the assets in their entirety Total would still be interested in the operation of the facilities as around 70% of their UK gas output would still be flowing through it. Working with px as their proven O&M partner NSMP was able to put together a successful bid, deemed as the most attractive for Total combining an acceptable price (£583m) with proven reliable

operational and technical expertise.

As a result px was awarded a long-term O&M contract by NSMP to be the duty holder, operating and maintaining the St Fergus facility and almost 600km of subsea pipelines. After two years, px has achieved multi-million-pound year on year savings to O&M costs while improving operational performance. The terminal has a world class availability and reliability performance of >99.9% and the team achieves 100% successful daily gas flow nomination.

The contract included the transfer of a circa 120-strong workforce from Total to px. The movement of so many employees with radically different work culture was a challenge. Most of the transferring population had worked for Total for many years and were used to the company's policies and structures which were designed for a global multinational oil company. Many of these were unnecessary in the px operational model; much of the global bureaucracy was stripped away, the teams were empowered to make informed decisions based upon appropriate risk assessments and this process encouraged cross team communication. The operational

“ px has always nurtured ambition and foresight to embrace the challenges created by new opportunities, the St Fergus and Saltend opportunities are testament to the commitment and dedication of our staff to achieve great performance in turbulent times.

Mark Kenrick, CEO

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teams have relished this fresh approach to take back control and ownership of the asset, make sensible decisions and celebrate the success achieved.

The collaboration with NSMP made px an attractive partner for private equity players. Blue Water Energy acquired a controlling stake in the px group in March 2016, giving the px management team greater appetite - and financial strength - to grow.

It did not take long for a chance to expand to come about. In July 2016, BP was in the process of selling its Saltend Chemical Park in Hull, a 370-acre complex that houses a cluster of facilities operated by BP and a range of industrial clients such as Air Products, INEOS, Vivergo Fuels, Perenco and Yara. px submitted commercial and technical bids and, once again, its credibility with risk

management and technical expertise resulted in a successful bid.

Unlike the St Fergus acquisition, px was not restricted to the role of O&M partner: the Saltend deal marked a diversification for px from being an outsourced O&M partner to a fully-fledged asset owner. The BP acquisition was completed in March 2018 and led to the transfer of 52 BP employment roles to px, in addition to around 200 contractors working at the site. Annual revenue growth for px is estimated at £75m, thanks to the Saltend deal.

About the px group

Established as an independent entity in 2002 but with an operational track record going back to the early 90s, the px group is a fully integrated infrastructure solutions business providing services in the O&M,

engineering consultancy and energy trading segments. Its

main markets are gas and power assets, but px is also active in areas such as fuel storage and chemicals. In addition to the St Fergus gas terminal, px operates Teesside gas processing plant and the Fellside CHP plant, among other facilities. The px group, which employs around 400 UK-based staff, is headquartered in Stockton-on-Tees (Teesside), with an O&G-focused office in Aberdeen.

px has received a number of industry awards, including the Royal Society for the Prevention of Accidents Sector Award in the oil and gas category, the Rolls Royce World Wide Health and Safety Award and the Innovation Award from the Society of British Gas Industries.



Story type:

#collaboration #diversification
#service/solutions

Benefits:

- O&M costs at St Fergus plant reduced by 10%
- St Fergus plant availability and reliability maintained at > 99.9%
- Significant reduction in maintenance backlogs and reduction of priority 1 backlogs to zero

Culture change:

- Companies should consider the effects of absorbing staff from another business on existing teams

Key findings:

For the industry:

- Collaborating with equity players enables the biggest potential for

change and growth

- OPEX presents large growth opportunities at high margins and is through cycle
- IT challenges must not be underestimated
- Companies must be prepared for the new reality presented by enhanced cyber security practices

For the government:

- Government regulation has a considerable impact on investment. Constant regulatory changes create uncertainty among investors
- Focus on apprenticeships: the UK lags behind in terms of quality and quantity of apprentices when compared to some countries (e.g. Germany). The apprenticeship levy is regarded by the business community as a cost, not a benefit
- Long-term industrial policy must align with investors' long-term decision-making

- The opening of the UK energy market to small players brings risks to energy trading

Government support?

Other than R&D tax credits, the company has not received any type of government support.

px at a glance

Key products and services: O&M, engineering consultancy and energy trading

Main industries served:

- Midstream (80%)
- Power (10%)
- Others – fuel storage, chemicals, energy trading fees (10%)

Headquarters: Stockton-on-Tees
Year established: 2002

Number of employees: 400, all in the UK

Revenue: £125m (2017–18)

Revenue from exports: none



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Servelec Controls

Servelec Control's solutions are helping operators on the UK Continental Shelf by analysing trends and predicting failures, saving millions by preventing downtime

How is Servelec Controls thriving?

Responding to the needs of oil and gas players grappling with high operating costs, Servelec Controls has worked closely with operators to introduce game-changing plant information solutions that extract data from existing OEM systems and compile them into a single platform. The company's real-time information systems are boosting efficiency at production units by providing trend data and predicting failure modes, helping operators save millions in downtime losses.



The challenge

A major challenge faced by operators on the UK Continental Shelf is operating costs. This issue was particularly evident a few years ago, when OPEX was escalating fast until reaching a peak in 2014. Even though costs have reduced steadily since then, the age of production assets and the high costs associated with their upkeep remain an issue for the industry.

A specific topic related to this problem is the lack of effective monitoring systems able to detect issues in aging high-speed rotating equipment. This technology is present in new turbines and components available on the market, but the cost and time associated with the replacement of existing equipment make this proposition unfeasible for many operators. A low cost and easy solution for monitoring equipment and predicting failures was essential.

The solution

Back in 2012–13, Servelec Controls was looking after the plant information infrastructure used by Repsol Sinopec (then Talisman Sinopec), which accessed an array of equipment signals at one-minute intervals. The operator launched an ambitious Rotating Equipment Excellence Programme, which entailed the introduction of a solution which would provide early warnings about potential equipment failures and allow for historical data to be collected and future operational trends to be predicted.

Monitoring systems were not new to Servelec Controls: its experience in this area dates to the 1990s, when similar solutions were applied by the company in the nuclear segment. The company then began to look at simple tools to exploit data that was already being collected by existing systems used for process control and equipment monitoring.

Working in close collaboration with Repsol Sinopec's rotating



Working collaboratively, Servelec's industry-wide expertise in building real-time information systems has been combined with the client engineers' specific experience to create a solution that delivers real value to Repsol Sinopec.

Ronald Holden
Divisional Director

equipment specialists, Servelec Controls combined the operator's detailed knowledge of the equipment at the site with its own data science expertise. Repsol Sinopec carried out an extensive analysis to identify the 'bad actors' – equipment with the most severe downtime and associated risks and costs - some of which had been operating for 25 years or more, with monitoring systems that were only providing basic information. Servelec Controls worked with Repsol Sinopec to ensure that relevant data already being collected from such equipment was collected in the centralised plant information system, so they could analyse the data in real-time. Finding commonality between diverse systems was challenging at first, but Repsol Sinopec's specialists identified the key characteristics that were important to them, enabling Servelec Controls to assemble models that provided visualisation through 2D graphics of Repsol Sinopec's turbine packages.

This collaboration resulted in a solution that finally made possible the visualisation of trends related

to vibration, temperature and other vital data. Alarms would trigger emails that were sent off to relevant personnel at Repsol Sinopec's headquarters. Prohibitive upgrade costs were avoided, as existing sensors were used and no control system upgrades were needed. Servelec Controls' solution helped prevent 24 days of downtime, as Repsol Sinopec's turbine packages were part of critical applications with no redundancy. This solution saved the operator US\$9m at a cost of only US\$1m.

Servelec Controls' Real-time Information Systems have been a game-changer for the company, with this 'industrial IT' solution becoming a more significant part of Servelec Control's core business as it carries out similar work with other players in the oil and gas market.

About Servelec Controls

Originally formed to provide control systems for the Sheffield steel industry, Servelec Controls is one of the leading system integration players in the UK. The company has 40 years of experience in the design, manufacture and installation



of mission-critical control and automation systems for the oil and gas, power, nuclear, infrastructure and defence sectors. In addition to integrated control and safety systems, Servelec Controls brings solutions for real-time plant information, SCADA systems and remote operations. The company also provides FEED studies, consultancy work and service solutions ranging from start-up assistance to proactive monitoring and maintenance.

Servelec Controls is part of the Servelec Group, which provides services and systems to the oil and gas, healthcare, power and utilities sectors worldwide. Headquartered in Sheffield, the company also has offices in Aberdeen, Warrington and Glasgow.

Servelec Controls was featured in the first edition of the EIC Survive and Thrive Insight Report, with a case study on the company's innovative remote O&M solution that is helping operators enhance production and save costs.

Story type:

#collaboration #digital #service/solutions

Benefits:

- 24 days of lost production prevented, averting US\$9m in losses for Repsol Sinopec at a cost of only US\$1m

Key findings:

For the industry:

- Identify a productised service to 'hang your hat on' instead of just providing general service
- Be less generic – specialise in solving a specific problem
- Higher production efficiency is directly linked to the reduction of operating costs

For the government:

- R&D investment should be prioritised

Government support?

The company has received R&D grants.

Servelec Controls at a glance

Key products and services: control and automation systems

Main industries served:

- Oil and gas (66%)
- Power (33%)

Headquarters: Sheffield, UK

Year established: 1977

Number of employees: 100

Revenue: £12–13m

Revenue from exports: 5%



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Severn Glocon

An inspiring strategy to diversify into OPEX in export markets with clever and repeatable risk management, growing traditional contract scope beyond control valves to full O&M solutions

How is Severn Glocon thriving?

Facing an industry downturn and Brexit's effects on its financial situation, the company successfully diversified from CAPEX to OPEX, while expanding its activities from the UKCS to international markets. This diversification, helped by a new O&M service model and a deep cultural awareness, helped Severn Glocon obtain a five-year contract with BP in Iraq. It has since replicated this model for success in other new markets.

The challenge

Severn Glocon was not immune to the downturn of the oil and gas industry: large projects dwindled, and the company saw itself living off its 18-month order backlog. The O&M segment was stable for a while, but it also contracted when operators and contractors started to consolidate their business. Customers were no longer basing their decisions on technical aspects, but on cost. Profits and margins were reduced, and Severn saw its turnover reduce.

The Brexit vote in 2016 made matters worse. One of its earliest negative impacts was the effect on exchange



rates. Forward buying US dollars and Euro as normal, the market shift left Severn Glocon exposed to significant value swing and cash demand. A strong balance sheet helped but a strategic change was needed.

The solution

Severn Glocon took a cautious approach to the issue. As a private company, it did not have to panic. The company stopped hiring but maintained its existing workforce to protect its in-house engineering

expertise. Severn made the decision to reduce costs and stay ahead of the game by sending more orders to its low-cost manufacturing facility in India. The company also looked at ways to diversify away from oil and gas, but this proved a step too far consuming time and capital.

Back in 2013 the company started to realise that it could no longer rely mainly on CAPEX and worked to achieve a balance with OPEX. Severn expanded its service scope beyond traditional control valve repairs into full valve management and O&M with long-term contracts and even into wider equipment scope, e.g. pumps, when asked by customers.

Expansion into international markets was another key move: Severn Glocon follows its clients, a strategy which landed the company a contract with BP in Iraq in 2013. The IOC had taken full technical control of the Rumala field and was seeking a solution for an inoperable plant at the site. Severn Glocon moved to Iraq even before a contract was awarded – risking US\$2m to position itself. When BP issued a tender for the field, Severn visited their offices in the UK and listened carefully to their needs. The preliminary work and risk involved paid off and a five-year contract was awarded. Budget cuts impacted Severn's contract in the second year, but the company's loyalty to the country and BP paid dividends as Severn obtained extra work once the operator started spending again, having outlasted other vendors who had left during the spending cuts.

Severn Glocon's work with BP



The impact of the oil and gas market change drove a strategic shift for Severn Glocon where the O&M sector now represents 60% of group turnover.

Colin Findlay
Divisional Managing Director

allowed the operator to increase its safety valve compliance from 20% at the start of the contract to 97%. BP's goal was to upscale output at the Rumaila field from 1.5m to 4m barrels per day during the contract duration, with the valve scope one of the top five improvement objectives necessary to achieve this.

A key factor in Severn Glocon's success in Iraq was its cultural understanding. The company created an app called Cultural Assist which helps staff acclimatise to different cultures and shares lessons learnt by employees.

Indeed, cultural awareness has become a major competitive advantage for Severn Glocon, which pursues opportunities to be an early-mover in countries usually perceived as 'difficult'. Following the contract with BP, this model

was successfully replicated with a six-year contract with North Caspian Oil Company in Kazakhstan in 2017, and now a new centre in Ghana acting as the company's West African regional hub.

Severn Glocon's strategy to diversify into OPEX and international markets has paid off: today, business with end-users represent 60% of Severn Glocon's annual turnover compared to 35% in 2013. Exports make up over 80% of the company's annual revenue, from approximately 60% in 2013. As of 2018 its service contracts have a forward value of £70m over the next five years.

About Severn Glocon

Established in 1957, Severn Glocon is a privately-owned designer and manufacturer of control valves and related products and a provider



specialist support services to the up, mid and downstream segments in addition to power. Its product portfolio includes severe service control, choke and general service valves, as well as associated actuators and peripheral equipment.

The company has two factories in Gloucester dedicated to project orders, a facility in Brighouse geared towards the O&M segment and a manufacturing facility in India. Severn Glocon also owns LB Bentley, focused on the subsea sector. A company involved with international markets since the 1980s, Severn Glocon was awarded the Queen's Award for Enterprise: International Trade in 2011 and 2014.

Story type:

#digital #diversification #export
#service/solutions

Benefits:

- Increased safety valve compliance at BP project in Iraq by 77%
- Supporting field output growth from 1.5m to 4m barrels per day

Culture change:

- Diversification from CAPEX to OPEX requires existing teams to adapt
- Cost pressures (e.g. outsourcing orders to low-cost bases) have an impact on employees

Key findings:

For the industry:

- Follow your customers to obtain business from existing clients in

different countries and market segments

- 'Stick to your knitting': over diversification can be costly, time consuming and distracting. It is better to diversify closer to your area of expertise
- Cultural awareness is a competitive advantage when expanding into new, 'difficult' countries

For the government:

- The Department for International Trade should be more business aware and time effective
- Baroness Nicholson's work in Iraq with Iraq Britain Business Council should serve as an example to UK trade envoys around the world

Government support?

- No assistance received from the Department for International Trade

- Attempted to obtain support from UK Export Finance but found it too difficult
- Received grant aid from regional growth fund for Brighouse factory in 2013
- Iraq Britain Business Council was instrumental to success with the country's NOCs

Severn Glocon at a glance

Key products and services:
manufacturer of control valves and provider of valve management services

Main industries served:

- O&G (85%)
- Power (10%)

Headquarters: Gloucester, UK

Year established: 1957

Number of employees: 960 (380 in the UK)

Revenue: £120m (2017)

Revenue from exports: 85%



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TPG Engineering

Diversifying beyond oil and gas into nuclear with high-performing teams and advanced manufacturing technology



How is TPG Engineering thriving?

In response to the oil and gas downturn, the company developed a growth plan based on diversification into the nuclear segment and process optimisation. This involved a £2.5m investment in advanced technology machining and led to the creation of a high-performance culture and teams.

The challenge

The industry downturn caused by the dramatic fall in oil prices in 2014 affected the whole supply chain and TPG Engineering was no exception.

The company saw orders dwindle and, in an attempt to fight for the remaining opportunities available, margins were reduced. Despite previous attempts to grow the business and diversify, the absence of leadership and a clear recovery strategy were telling. Survival was now key for the company.

The solution

The first strategy adopted was to diversify. Backed up with financial support from its parent company TP Group, TPG Engineering bid for a nuclear defence contract offered by Baker Hughes, a GE company

(BHGE). TPG Engineering had limited experience in the defence segment before and convincing BHGE of its ability was an obstacle, but TPG earned credibility due to the track record of TPG Maritime and TPG Services, sister companies active in the submarines and surface vessels segments.

Following a very competitive tender process, in 2016 TPG Engineering won a £1.5m order for a build-to-print programme. The contract required higher standards in addition to better quality processes and infrastructure, so TPG decided to invest £2.5m in a state-of-the-art advanced machining cell. Collaboration was also key: TPG formed a partnership with a local company Welman Group for fixtures and tooling, helping deliver the BHGE contract.

TPG's second strategy involved optimisation. In July 2017 the company brought in James Pickles with the aim of conducting a thorough change in operational leadership and re-engagement with the workforce. James registered in a pilot leadership programme at the University of Bath called Productivity



Through the catalyst of strategic leadership, TPG Engineering is enabling employee engagement to underpin its journey of growth and diversification to build UK productivity and thrive within industry.

James Pickles
Head of TPG Engineering

through People. An initiative backed by large corporations, the programme's goal was to engage SMEs with the supply chain of major players, helping them to win work and grow their businesses.

James, soon promoted to head of site, started an ambitious three-year recovery plan, targeting not only financial recovery but also diversification, people and processes. The company aimed to increase orders by 40%, revenues by 35% and profits from loss to 12% of the company's EBITDA. TPG also looked at problems across the value chain in other industry sectors and proposed solutions to them: better order and account management would replace unstructured order winning processes, while improved focus on key customers would repel any order fulfilment issues. Changes were introduced, bringing in a cleaner organisational structure, clearer accountabilities and reduced lead times for new orders.

TPG's strategies are paying off: already nine months into the three-year plan, the company expects to reach break-even in 2018 after multiple years of poor performance. Orders are stable and the site has a strong future. The BHGE contract is due for completion in 2019 and today TPG is fully prepared to take on additional nuclear-related contracts.

About TPG Engineering

TPG Engineering is part of the TP Group, a specialist services and advanced engineering company providing high-integrity solutions and through-life support for critical applications in the defence, industrial and government sectors. Operating as a Tier 2 system integrator, TP Group designs, manufactures and delivers mission-critical systems to the most demanding standards.

The group's engineering capacity, under the remit of TPG Engineering,



provides critical solutions using high-precision machining, fabrication, assembly, welding and testing capabilities. TPG manufactures one-off or low-volume equipment aimed at long-term deployment for use in demanding or dangerous environments.

TP Group has its headquarters in Farnborough, with additional facilities in Portsmouth, Wincanton and Dukinfield, in the Greater Manchester area, where TPG Engineering's capabilities are located.

TP Group provides a range of through-life engineering and project management services. This includes systems engineering, software and hardware support, system design as well as independent procurement support.

Story type:

#collaboration #diversification
#optimisation

Benefits:

- £1.5m order in the nuclear segment
- Access to larger pool of business opportunities
- Productivity enhancement

Culture change:

- Leadership is essential for a successful culture change process
- A clear purpose is key to employees adopting cultural change

Key findings:

For the industry:

- Large corporations should take on the responsibility for their current and future supply chain

For the government:

- Platforms should be created to allow large companies to share their experiences (through programmes like Be the Business and Productivity through People) and SMEs should be guided to these initiatives

Government support?

The company has received a Regional Growth Fund grant. Beyond the government sphere, TPG's diversification and optimisation strategies benefited

from Fit For Nuclear and the Productivity through People leadership programme, respectively.

TPG Engineering at a glance

Key products and services: design, manufacture and repair of heat exchangers and pressure vessels

Main industries served:

- Upstream O&G (75%)
- Petrochemicals (15%)
- Nuclear/defence (10%)

Headquarters: Dukinfield, UK

Year established: 1943

Number of employees: 51

Revenue: £7m

Revenue from exports: <5%



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Improving industry performance and enhancing peoples' lives



How is TTE thriving?

A specialist technical training company committed to high quality and growth, TTE reacted to the downturn by boosting its presence in overseas markets, supporting the international drive for the development of a local skilled workforce and providing high-quality training both in the UK and abroad.

The challenge

TTE was significantly impacted by the oil and gas downturn in 2014. Customers' training budgets were either cancelled or postponed as operators – and the entire O&G supply chain – looked to reduce costs. The company had been running a BP technical training centre in Azerbaijan for 13 years, but the dramatic reduction in oil

prices eventually led to its closure. A weak market environment combined with increased competition made it increasingly hard for TTE to secure new business. Faced with a 20% reduction in revenues, the company had to react fast.

The solution

Training young talent is the main reason TTE exists. Working with approximately 550 young people every year through apprenticeships and study programmes, the company would not let the crisis affect its business. Following a major strategic review, TTE decided it would not reduce the quantity of people it trained. Rather than retrench, the company was committed to growth.

TTE's growth strategy was multi-faceted. The company invested in additional sales and business development capacity while also bringing in sales consultancy for support. A more rigorous and



We reacted to the downturn confidently with a strategic commitment to growth while maintaining quality. We focused on our key strength – technical skills training to support international localisation targets.

Steve Grant
Group Managing Director

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structured approach to sales methodology was introduced, making teams more focused and organised (e.g. a CRM system was set up). Product development was targeted as well as diversification: the company looked to enter new market segments and regions, going beyond the oil and gas market to other international opportunities in manufacturing, mining, petrochemicals and renewables.

A key element of TTE's strategy was to accelerate its international growth strategy. Following negotiations with the Saudi Council of Engineering in 2015, TTE scooped an opportunity to receive 30 Saudi graduates in the UK for a six-month training programme. Although the students had excellent academic backgrounds, they lacked practical experience. This contract, which represented a substantial revenue boost for TTE and opened up opportunities in Saudi Arabia, was clearly successful: none of the graduates had jobs before and since attending training in the UK all of them have secured employment.

Another TTE success story in the global market is Nigeria, where the company signed its first overseas contract 18 years ago. Back then, TTE obtained a contract with Nigeria LNG (NLNG) to train 30 employees in the UK. This business opportunity has been repeated every year and currently there are 40 NLNG technicians being trained in the UK.

International markets, from West Africa to the far east, are driving TTE's growth: 65% of the company's training business today is generated from overseas opportunities. By supporting the drive for nationalisation, the company has been a key driver for the development of a skilled local workforce in the countries it operates in, fulfilling its mission to improve performance among industry players and enhance peoples' lives across the world.

About TTE

The company is the UK's leading provider of technical training to the oil and gas, process, manufacturing and engineering sectors. TTE



specialises in the design, build, operation and management of new training centres around the world, consultancy services, development of apprenticeship and technical study programmes in addition to the delivery of bespoke and scheduled accredited courses.

TTE's training is delivered at the company's world-class facilities in the UK or on location at clients' premises around the world. Training programmes range from foundation to advanced level, including delivery of practical skills training, formal technical qualifications and assessment and verification of vocational qualifications across the operations, maintenance, management as well as health and safety segments.

Headquartered in Middlesbrough, TTE is active in countries across the globe, including Equatorial Guinea, Ghana, Indonesia, Iraq, Nigeria and Oman, among others.

Story type:

#export

Benefits:

- International business grew by 28% between 2014–18

Key findings:

For the industry:

- Research and advice are vital when entering export markets
- Network with companies already operating in target countries
- Know when to ask for external advice

- Face the export challenge with confidence

For the government:

- The Department for International Trade should step up efforts to help companies identify tenders in international markets, linking opportunities with UK suppliers
- Brexit has proved to be a huge distraction – government attention should also be targeted at international issues and opportunities

Government support?

A 20% share of TTE's business is funded by the government through a direct contract with the Education and Skills Funding Agency and Levy Funding.

TTE at a glance

Key products and services: provision of technical training

Main industries served:

- Oil and gas (60%)
- Others (40%)

Headquarters: Middlesbrough, UK

Year established: 1990

Number of employees: 110

Revenue: £9m

Revenue from exports: 80%



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Surviving O&G collapse through 100% diversification to offshore wind

How is Wilton thriving?

Wilton overcame the collapse of the UK oil and gas industry through a successful diversification to renewables. This strategy was made possible by a winning combination of vision and supply chain collaboration, which has resulted in offshore wind accounting for 100% of the company's business.

The challenge

Wilton anticipated a crisis scenario in the UK oil and gas market even before the 2014 downturn in oil prices. The company sensed a negative mood from operators, which at the time were already demanding lower costs but without incorporating leaner business strategies.

Back in 2013, a nine-month backlog was Wilton's lifeline. The company concluded that a strategy was needed to overcome the impending oil crisis.

The solution

Anticipating a 'make it or break it' scenario in 2013, Wilton quickly



entered survival mode. After getting senior managers to accept the sense of urgency, the company went through a major redundancy programme which carried a major negative cash impact, however, this was crucial to effect a positive solution with the mid to long-term view of being able to bring the workforce back. Sales and estimating teams were maintained, as the company needed to keep talking to customers and to respond quickly to any enquiries.

Wilton needed to grow, so the

company started to look for new markets where it could leverage its key differentiator: building large complicated structures. Nuclear was initially a target, but long-term market entry timescales were not ideal. The company looked at decommissioning as well, but there were not enough projects moving into the implementation stage.

Wilton concluded that offshore wind was its best alternative. The sector was thriving, and the company realised that the UK lacked large multidiscipline fabricators able to meet project demands. Optimal logistical advantages provided by Wilton's yard next to the River Tees made the company an ideal contractor for UK projects.

Competition with contractors from mainland Europe was an issue, and Wilton soon began lobbying the government for UK content requirements. As local content policies are not allowed under EU regulations, an alternative option was identified within contracts for difference (CfDs), which could ask for subcontract and procurement plans to detail UK companies involved – a means of encouraging the use of UK content.



Wilton had already started to reduce its overheads in anticipation of a severe downturn in the O&G market. It proved to be a mature decision, allowing the business to fulfil a strategy to complete the work in progress, stabilise, retrain, diversify into offshore wind and revert back to profit.

Bill Scott
CEO

Wilton's efforts soon materialised in business opportunities. The company's first offshore wind-related contract came in 2014, when the company was requested to fabricate 26 structural platforms for Bifab. A departure from Wilton's usually bespoke 'one off' projects business approach to utilising serial production manufacturing this order also represented an opportunity for culture change as it required higher efficiency compared to previous O&G contracts.

Collaboration also played a key role in Wilton's success. In 2014, the company met the German fabricator Steelwind, which focuses on monopiles and transition pieces. By utilising the strengths of both companies a strong offering could be put forward to the market through forging a partnership with Wilton. After agreeing a way forward, in 2016 the two companies worked together on a contract

which saw Steelwind supplying the primary rolling of transition pieces (circular cans with flanges) while Wilton was responsible for procuring and manufacturing everything over and above the can, including internal and external platforms, boat landing and installation work.

Wilton's survival strategy was successfully delivered and put the company on the path to revenue growth. Wilton proactively downsized and diversified 100% of its activities from oil and gas to offshore wind, establishing a long-term and sustainable business model.

About Wilton

Wilton Engineering Services is one of the UK's leading multi-discipline topside fabricators. Established in 1994, the company has achieved unparalleled success specialising in the design, manufacture,



coating and load out of large complicated structures for the offshore oil and gas, subsea, marine, decommissioning and offshore wind segments.

Wilton's capabilities in offshore wind include the fabrication of a range of structures, including transition pieces, offshore transmission modules, platforms and boat landings, among others.

Located adjacent to the River Tees on a 54-acre site, Wilton's Port Clarence offshore base allows direct access to the North Sea, being ideally suited to support and execute projects in various industry sectors.

Story type:

#collaboration #diversification

Benefits:

- Return to revenue growth

Culture change:

- A major culture change challenge is convincing all staff to commit to continuous improvement as one team
- Workforce engagement is key. Avoid an 'us and them' culture
- Training is essential to make staff understand the need to be quicker, smarter and better

Key findings:

For the industry:

- Ensure there is capital available for times of crisis (i.e. not tied up to large projects)
- There are always simple things – low-hanging fruits – that can be done to improve business efficiency
- Obtain specialised assistance (e.g. Department for International Trade, UK Export Finance, chambers of commerce) when seeking international markets – do not jump in straight away

For the government:

- Employ tangible actions to prevent companies from collapsing during downturns
- Looks for industry trends and act on them
- Share turnaround stories to inspire other companies

Government support?

The company has received assistance from the Department for International Trade and UK Export Finance. The Tees Valley Combined Authority has also provided support to the company. In 2018, Wilton produced a document containing industry proposals that was circulated by MP Michael Fallon.

Wilton at a glance

Key products and services:

manufacture of large complicated structures for offshore energy sectors

Main industry served:

- Offshore wind (100%)

Headquarters: Middlesbrough, UK

Year established: 1994

Number of employees: 300

Revenue: £20m

Revenue from exports: 100%



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Laser-like customer focus, innovative partnerships and unique technical excellence are delivering major export growth

How is Wood's nuclear business thriving?

Through a combination of improved customer service, focus on international markets and industry collaboration, Wood's nuclear division overcame a downturn in the UK power sector. The company obtained a key contract for work at the international ITER nuclear fusion project, putting it at the forefront of one of the world's largest energy construction projects.

The challenge

Wood, then known as Amec Foster Wheeler, was doing well in the nuclear sector back in 2014 with annual growth – organic and acquisitive – averaging 10%. Things changed a couple of years later, when falling wholesale electricity prices deterred new investment in generation, while austerity measures impacted government-funded nuclear decommissioning programmes. Uncertainty over new build projects affected not only the UK, but overseas markets as well.

Revenues in Amec Foster Wheeler's



nuclear business fell by 20% over just two years. Resources were being cut, teams were reduced and salaries were frozen. A quick solution was needed.

The solution

A major element of the recovery

strategy was a laser-like focus on customers. The company put its employees in its clients' shoes, making sure they would pay attention not only to business opportunities, but also to customers' real needs and preferred outcomes. Although internal pressures could have forced the business to focus on short-term savings and decision-making, it never stopped considering long-term relationships, submitting value propositions and unsolicited proposals to clients to help them improve. As a result, satisfaction scores remained high and the company's reputation for delivery was bolstered.

This change of behaviour also applied to the company's own employees. Reduced revenues led to cuts in team numbers, so it was fundamental to keep its workforce



We have come through a downturn and thrived by focusing on the needs of our customers and motivating our people to find new ways to meet those needs by applying and developing our technical excellence.

Clive White
President (Nuclear)

motivated. The key to success was transparency: performance data was shared with all, helping build trust and enabling essential change.

Another key strategy was expansion into France, one of the world's biggest markets for the nuclear supply chain. The teams produced a convincing business case and two offices were opened in France in 2014. There were modest revenues during the first couple of years, but focus remained on building strong partnerships in country and bringing a different offering to the market. Strong organic growth has followed.

A major strategic opportunity came to fruition in the following year. In June 2016, the business led the Momentum joint venture, including Assystem and KEPCO, in a successful bid for a €74m, 10-year construction management-as-agent contract with ITER, a game-changing €0bn international project to build an experimental fusion reactor in France.

The Momentum joint venture was an

example of strategic collaboration to win business and provide a better solution to clients. This recipe for success was repeated in 2017, when the business partnered with Interserve to win a £160m contract for work at the Sellafield nuclear site in Cumbria.

Since Wood acquired Amec Foster Wheeler in October 2017, the business has remained faithful to its nuclear sector strategy. As markets slowly started to recover, nuclear customers turned to Wood first, providing evidence that trust is one of a company's most valuable assets. Wood's technical excellence has made it an attractive partner for complicated projects in complex environments, especially with first-of-a-kind initiatives such as ITER.

About Wood

Wood is a global leader in engineering, project and technical services, operating in more than 60 countries, employing around 55,000 people and with revenues of over US\$10bn. It combines the

wood.

experience and expertise of Amec Foster Wheeler and Wood Group into a full-scope service company supporting industrial assets for customers worldwide.

The business has been at the forefront of nuclear energy for over 60 years. It is passionate about nuclear energy and its role in the world today and in the future. Wood's reputation is founded on the very best technical expertise and the reach to deliver this knowledge locally to projects across the world.

Wood has the ability to solve the world's most complex nuclear problems safely and cost effectively thanks to a powerful combination of research and development, expert knowledge of nuclear regulatory and licensing frameworks, design, engineering and project and programme management.

Story type:

#collaboration #export
#service/solutions

Benefits:

- New export markets
- Reputational boost

Culture change:

- Build employee trust with full transparency
- Giving value to employee output boosts motivation

Key findings:

For the industry:

- Have a clear strategy and plan
- Leadership teams must be fully committed to new strategies
- Encourage all departments to collectively debate and act

For the government:

- Support from the Department for International Trade is essential

Government support?

Wood has received support from the Department for International Trade, the Foreign & Commonwealth Office as well as the Department for Business, Energy & Industrial Strategy.

Wood (nuclear) at a glance

Key products and services: engineering consultancy, project and programme management, research and development

Main industries served (within nuclear segment):

- Civil (70%)
- Defence (30%)

Headquarters: Knutsford, UK

Year established: 1960s

Number of employees: Over 2,000 (nuclear)

Revenue: Currently ~£200m

Revenue from exports: 15%



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Reacting to the crisis by investing in software, training and expertise to become a full-service marine crew manager



How is WRS thriving?

In a bid to overcome the downturn in the oil and gas sector, WRS invested in software, staff training and expertise and, building on its trusted reputation, successfully diversified from a maritime crew agent to a fully-fledged maritime crew manager.

The challenge

The company was badly hit by the

downturn in the energy market. Oil and gas revenues plummeted by 70% while contractor headcount fell by 50%. WRS knew it had to streamline as much as possible, but there was another question facing the company: how to add value to customers and stay competitive?

The solution

Market challenges led WRS to take a longer-term view of how it could

support the industry. The company realised it had skills that could be translated to other sectors, allowing an improved service offering for existing customers and markets. The pre-requisites for successful diversification were already established: WRS had a strong client relationship as well as solid crew agency experience and access to expert advice.

This change of mindset led to the decision to offer a wider array of services, including full crew management for maritime companies. Competitor analysis demonstrated that crew management was a trend during downturns and it would be an opportunity for WRS to take on this new role, as the in-house expertise was already in place. This new service included recruitment, visas, mobilisation and offboarding, allowing WRS to tap into a wider range of clients and market sectors. This would be an evolution for the



A lean and agile operation will enable a timely reaction to a rapidly changing market. Retain expertise in-house and externally to support recovery of the industries in which you operate.

Mark Brown
CEO

company, allowing it to differentiate and diversify amid unfavourable market conditions.

In 2014 an opportunity to launch this new service came with the Sea Trucks Group (STG). A client that provides a significant percentage of WRS' maritime business, STG was looking to outsource its crew management activities. Following a comprehensive tender process that featured a technical, commercial and safety review of WRS, the company came out as a winner, with an initial 12-month probationary contract.

WRS invested in the creation of a bespoke crew management software, which gave STG the ability to access all crew details (e.g. schedule, spend, forecasting, etc.) remotely. TUPE-like processes were implemented and WRS became the employer of the existing crew, becoming accountable for all crew management contracts.

WRS' success in this diversification

process can be measured by its revenues, with an uplift of 62% in maritime revenue since the launch of the crew management service in 2015. The contract with STG, now Telford offshore, is still active and today WRS is managing 14 vessels for seven clients in four countries.

The next steps for WRS include the introduction of a full technical ship management service, encompassing scopes such as procurement, dry-docking, maintenance, refuelling and voyage management. Overall, WRS is much better-positioned as an organisation, with the technology, breadth, financial capacity and agility to compete in the market.

About WRS

Launched in 2008, WRS is a global workforce solutions provider, with activities in the oil and gas, marine, mining and infrastructure sectors. The company provides bespoke solutions to clients in a range of areas, including permanent



and contract recruitment, global mobility and managed services, in addition to project management and consultancy work.

An award-winning company, WRS has attracted recognition from various institutions. In 2015, the company was selected as one of the Queen's finest businesses for Enterprise in International Trade, while in 2016 and 2017 WRS was listed among the London Stock Exchange's 1,000 companies to inspire Britain. WRS is certified as an ISO 9001:2015 Quality Management Standard compliant organisation.

In addition to its UK head office in Altrincham, WRS is present in Iraq, Malaysia, South Africa, Singapore, the United Arab Emirates and the United States.

Story type:

#diversification #service/solutions

Benefits:

- Additional revenues of £5-6m per annum following the introduction of a crew management model

Culture change:

- Staff retention and employee satisfaction are good indicators of a successful culture change process

Key findings:

For the industry:

- Work as lean as you can

- Plans always need revisiting
- Invest in staff training
- It is essential to embrace technology in a rapidly changing world

- Know your client at the core level
- People, processes and systems are key factors for success when scaling-up

For the government:

- Government is too insular – authorities should listen to the supply chain

Government support?

WRS has joined trade delegations organised by the Department for International Trade and has received a training grant provided by the

European Union. The company unsuccessfully attempted to obtain financing from UK Export Finance.

WRS at a glance

Key products and services: global recruitment solutions and managed services

Main industries served:

- Energy (25%)
- Maritime (25%)
- Mining (25%)
- Infrastructure (25%)

Headquarters: Altrincham, UK

Year established: 2008

Number of employees: 70

Revenue: £25m

Revenue from exports: 85%



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YPS Valves

YPS protected and strengthened its valves business by diversifying beyond oil and gas, boosting exports and investing in engineered products and manufacturing processes



How is YPS Valves thriving?

The company successfully reacted to the oil price downturn by diversifying its products and sectors served. Diversification of product also enabled sustainability and increased sales opportunity and revenue within sectors it already supplied. The company moved beyond downstream into the petrochemicals, mining and power sectors, in particular in China. YPS also optimised product quality and

internal processes that enabled the company to diversify into materials such as Titanium and Zirconium and offer valves with a higher degree of engineering, quality and efficiency of manufacture providing reduced lead times

The challenge

YPS Valves was not spared by the oil and gas downturn, however, this was not the only challenge faced by the company back in 2014-15.

Results from sales in China initially provided some respite from dwindling opportunities in the UKCS market, but when one of YPS' distributors lost a major contract, the company found itself having to replace lost sales with new ones. The overall effect of the recession and lost MRO supply saw revenues fall by 40% and a solution beyond the company's traditional markets and standard product offering was essential to fill this gap.

The solution

YPS Valves realised that a focus on the UKCS market was no longer a big priority, so it decided to take advantage of its growing Langley specialist product valve acceptance and approvals together with its existing presence in the Chinese market to tap into opportunities in different sectors there. Following the crash in the oil and gas market, the company became more open to opportunities in the areas of mining, power as well as the opportunity to supply Langley and other products in the petrochemicals sector.

In a bid to differentiate itself from Asian players producing commodity



In order to sustain and look forward in these tough trading years, investment was needed to provide diversity of product for penetrating new markets while ensuring we maintained and improved our efficiency of core products, services, values and importantly, our people.

Jonathan Wormald
Commercial and Operations Director

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valves at prices and speed rivalling YPS' offering, the company decided it would invest £750,000 in the upgrade of its manufacturing facilities at its Pudsey headquarters. This investment, which was recouped in three years, allowed the company to supply bespoke Langley valves with a higher level of customisation and control, incorporating more sophisticated designs and materials such as titanium and zirconium. Improved quality assurance was essential when increasing export sales.

This strategy proved key to YPS' recovery. Reliance on the oil and gas sector has been reduced from 50% to 30% as revenues from the petrochemicals and power sectors increased. Sales to China, which previously accounted for 45% of the company's total Langley manufactured exports, is now responsible for 75% of international revenues. In addition,

YPS saw an increased share of overall revenues from its own manufactured valves instead of equipment in stock: in 2013 its Langley Valves contributed 20% of the company's revenues, whereas in 2017 this share had increased to 50%.

On the verge of a scale-up process, YPS Valves continues to protect its core competence by investing in its product offering, making sure the Langley brand remains a leading valve solution for various industry sectors in the UK, China and elsewhere in the world.

About YPS Valves

With over 40 years of experience, YPS Valves is a leading designer and manufacturer of gate, globe and check, ball, bellows sealed and cryogenic valves made of stainless steel, nickel alloy and specialist material. Traded under the Langley



brand name, valves produced by YPS are designed for mission critical and general purpose applications in the oil and gas, petrochemicals and power segments worldwide. YPS also goes beyond its standard portfolio by supplying bespoke valves designed to meet clients' most specific requirements.

YPS Valves is an approved stockist of various international valve brands manufactured in Europe and China. The company is also active in the modification of existing valves, including adaptations for cryogenic and high temperature environments. In addition, an in-house testing facility acquired from Leeds University complements YPS Valves' offering by enabling a range of sophisticated testing services.

Story type:

#diversification #export #optimisation

Benefits:

- Langley manufactured product sales to China grew from 45% to 75% of total exports
- Reduced reliance on O&G from 50% to 30% of total revenues

Culture change:

- Sales teams require training to obtain greater understanding of a product's technical aspects
- Regular reviews and meetings are needed to manage risk and accountability

Key findings:

For the industry:

- Focus is needed to grasp business opportunities

- Decisions are made with the right team and information
- Do not cut and run: re-investing profits is preferable to being over-reliant on external financing
- When entering international markets, know your customer base, have a quality product and choose the right agents

For the government:

- Decentralisation would enable the government to have a better understanding of local business needs
- SMEs need greater support to target international markets
- There are concerns over the future of customer regulations in the wake of Brexit

Government support?

YPS Valves has received little government support. In the legislative sphere, the company

welcomed the initiative of a local MP to raise the issue of export licences at the House of Commons.

YPS Valves at a glance

Key products and services: design, manufacture and stock of standard and specialist application gate, globe check valves, ball, bellows sealed and cryogenic valves, in addition to modification and testing services

Main industries served:

- Oil and gas (28%)
- Petrochemicals (45%)
- Mining (12%)
- Power (10%)
- Nuclear (5%)

Headquarters: Pudsey, UK

Year established: 1978

Number of employees: 43 (40 in Pudsey, 3 in China)

Revenue: £5m

Revenue from exports: 65%



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About the EIC

Established in 1943, the EIC is the leading trade association for 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 almost 8,500 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.

EICAssetMap

The only operations and maintenance database to map all major UK and Norwegian energy assets across all sectors, EICAssetMap puts the details of over 2,800 facilities at your fingertips. Fully interactive, it allows you to search by location, sector and operator, as well as find out who you need to do business with at each site.

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