



Outsource to thrive:

how strategic project management
can assist on the path to growth



Introduction – a triple challenge

The skills shortage

Though the first signs of global recovery provide good news for the world's economy, the fact remains that in the engineering sector, a skills shortage represents the greatest challenge to growth.

With too few graduates entering the industry, and at the other end of the spectrum, too many retiring and taking their valuable knowledge with them, engineering nous is fast becoming one of Europe's most valuable commodities.

Of course some EU states are already taking steps to tackle the shortage. The UK government for example, recently announced 100,000 new engineering apprenticeships to be available by 2018. Others, such as Norway, are offering attractive terms to skilled immigrants from within the EU.

But though both approaches are well intentioned and offer some hope in tackling the crisis at a domestic level, they are yet to prove themselves as the magic formula the broader industry is looking for. Apprenticeships for example, have been tested by Germany for a number of years. However, 33,000 of its apprentice places were left unfilled in 2013 which shows the model needs serious consideration if it is to work for the UK and others.

With immigration meanwhile, effectively cannibalising the engineering workforce of neighbouring states, the effect for Europe is simply a geographic shift in skills, and does nothing to resolve the fundamental issue of attraction to the industry.

With many countries looking to major new infrastructure projects over the next few years to give their economies a welcome boost, there's a genuine risk of a tug-of-war over skilled engineers, and a stuttering start to these projects if the gap remains.

Of course, these bigger, long-term issues are a challenge for governments and the large organisations who secure those major contracts. At a micro level; the smaller, more local end of the market, where delays to projects can mean the difference between business success and failure, it's vital that right now, precious engineering skills are retained and deployed in the most effective and efficient way.

Economic and regulatory pressure

The skills shortage aside, the recession has placed greater emphasis on value, efficiency and reducing project cost than ever before. We've become accustomed to a 'more for less' culture, and this mentality will remain, regardless of any economic easing.

In the process industry this means project costs, upgrade schedules and expected time to market for new products will continue to be squeezed. The result will be fewer staff and even less time to design, engineer and manufacture complex valve controls and systems.

With ever-increasing safety, quality and environmental legislation stretching process companies even further, it's easy to see why profitability, even during an upturn, will continue to elude much of the industry. So how can the situation be addressed?

What are the options?

1. Reduce spend on product:

Of course the temptation when under financial pressure is to look for opportunities to reduce spend. And in the case of process engineering, this often means scrutinising component costs. But in a precision industry, quality should always top price when it comes to product requirements. The adage 'buy cheap, buy twice' is never more pertinent than when it comes to the reliability of component parts.

The truth is that cheap, less well specified products can eventually cost more in time, labour and reputational damage than those of a slightly higher, but proven specification. And beware of the projected cost savings of the 'or equivalent' specification. If your experts have specified a good quality process engineering product, it's usually because that product is right for the job.

Cheaper substitutions in this instance really are a false economy.

2. Part outsource:

Sub-contracting elements of system design and development is certainly one way to relieve the pressure on internal resource. By using pre-assembled systems for specific applications it is possible to maintain the focus of skilled staff on project delivery and meeting those all-important deadlines.

With even the simplest valve or regulator solution, outsourcing to a product expert removes the administration involved in producing a bill of materials, purchasing bought-out components, the manufacture of panels and brackets, assembly and functionality and leak tests.

The solution is delivered pre-packaged, and the only in-house requirement is to install and connect on site. Yes, internal time is required to finalise assembly, but the time savings are significant and the quality of the installed system is assured.

Of course it follows that the more integrated the solution, the lower the assembly and installation costs. Combined with the cost savings outsourcing provides by flexing need around the peaks and troughs of typical projects, the argument to let external suppliers take the strain is already compelling.

3. Total outsourcing:

By outsourcing entire elements of your process design and build to experts, you can rely on the very best design expertise and highest standards of research and development, alongside the development of solutions bespoke to your specific needs.

When a design engineer cannot find a suitable match for specific requirements, a tailored, outsourced solution is often the most practical, and cost effective response.

Working alongside the internal customer team, an effective outsourcing partner will establish a product specification up front, working with the in-house design team to understand the application and compliance requirements, operating environment and required operational life, electrical and mechanical characteristics and the positions of inlets and outlets and dimensional details.

The resulting design will take into account commercial requirements, critical dates and target costs and be delivered to site ready to install.

The ASCO approach

ASCO works with its customers in a number of ways to relieve the pressure on internal resource. With its expert design and R&D teams, ASCO also offers fully pre-assembled, ready to install systems, specifically built and certified to customer specification.

Starting with a review of the product specification, ASCO researches and designs the most appropriate solution, sizing and selecting components for optimal performance, and mounting for maximum space efficiency.

From pre-assembled products, to backplate mounted assemblies and enclosure or cabinet-mounted assemblies, solutions are provided for different levels of integration, from simple actuators to boxes and multifunctional cabinets. With electrical and pneumatic connections at the bulk head, installation and connection on site is a quick and easy process, while certification is simplified as cabinets can be pre-certified ready for use.

Selecting the most suitable solution

The potential savings from outsourcing depend on the level of integration required.

1. Pre-prepared components:

Packaged together for faster installation, the reduction in procurement and processes typically provides savings of up to **20%**.

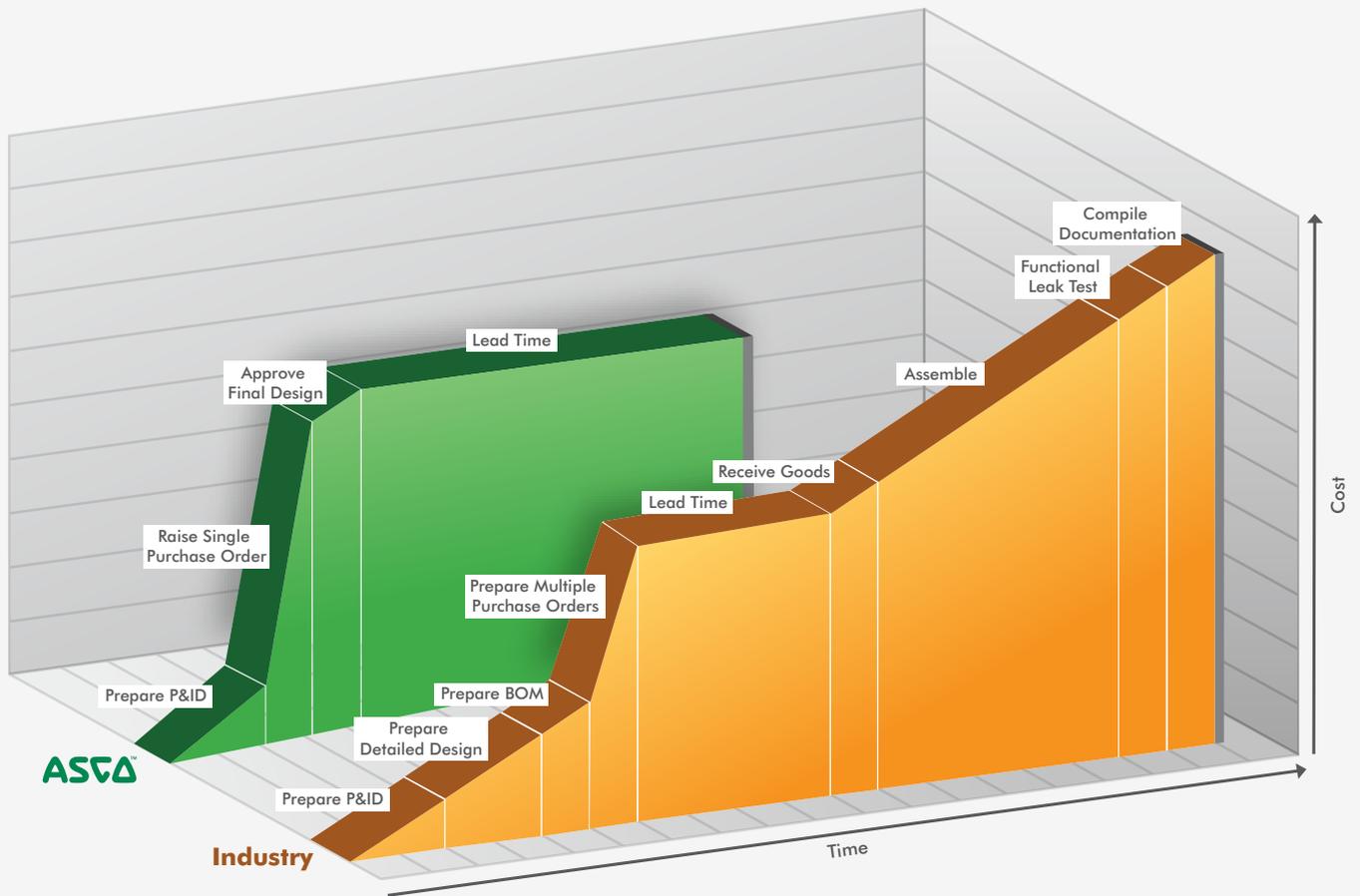
2. Assembled solutions:

Providing further opportunities for integration and savings, components are ready-mounted, removing the need for assembly on site and delivering savings of up to **30%**.

3. Turnkey solutions:

Where components need to be box, cabinet or chassis-mounted, ASCO will assemble, test and deliver turnkey solutions to specification. The reduction in assembly costs, together with R&D, design and procurement, translate into savings of up to **50%**.

The ASCO approach



Custom assemblies

ASCO's proprietary range of custom assemblies provides users with 'off the shelf' integrated process solutions.

1. Redundant Control System (RCS)

RCSs comprise a cabinet-mounted pilot valve, with a redundant, fault tolerant architecture, high diagnostic coverage and automated tested and keypad bypass. Ideal with applications that include boilers and furnaces, emergency isolation and venting, high integrity protection systems and flaring systems, the RCS is ideal for use in SIL 3 applications.

2. Actuator Control System (ACS)

ASCO's ACSs are a compact range of standard, explosion-proof components for the control of actuators on process valves. The high-reliability modular Actuator Control System is built on proven ASCO technologies and is manufactured in 316 stainless steel to resist aggressive environments. Available in numerous proven configurations, ASCO's ACSs can include filter regulators, single or redundant solenoids and a range of accessories including pressure relief valves, non-return valves and pressure gauges.

Also lighter, stronger and more compact than conventional panel mounted units, they feature a leak-tight coupling system and optimised flow path and are suitable for 'plug and play' actuator piloting in hazardous areas and critical applications.

3. ASCO Numatics G3 modular valve island

An electronics platform for fieldbus applications, the G3 features an integrated plain-language graphic display on every module, with accessible pushbuttons and intuitive menus for easy configuration, status checking and point-of-use diagnostics. Replacing rigid architectures with a broad range of flexible and cost-effective I/O distribution possibilities, the G3 supports a wide range of communication protocols and its simple clip-together modularity eliminates the need for wholesale dismantling for changes or replacements.

ASCO bespoke solutions

Commercial viability is the central core to ASCO's bespoke solutions. When product characteristics have been agreed, target price and the critical path to delivery set the parameters for the project.

ASCO's team of experienced design engineers develops new products using computer-based engineering software to create three dimensional models from traditional engineering drawings. The result is a highly detailed mock-up for inspection, which lowers the risk of design amends during the production phase.

A working model is produced to check fixings, endurance, clearances and accessibility, before being finalised for production. The entire process, from initial specification to the final product typically takes eight to ten weeks.

ASCO solutions in action

ASCO is working with clients across a variety of sectors to reduce project times and provide significant cost savings through its outsourced solutions.

Russian oil and gas giant, **Surgutneftegas**, has implemented an ASCO Actuator Control System (ACS) to control large actuators at its Kirishi refinery near St Petersburg.

Supplied pre-assembled, a total of eighty eight, 1/2" NPT Actuator Control Systems are being used to control valves regulating the flow of oil across the refinery. Each consists of a three-way solenoid (pilot) valve, a filter regulator and a pressure relief valve. SIL 3 and IECEx / ATEX approved, the ACS is certified to the Russian CUTR standard.

By outsourcing the development of the Actuator Control Systems to ASCO, Surgutneftegas was able to realise significant cost and time savings.

International System Est (ISE), a provider of control and instrumentation solutions to the oil and gas process and discrete manufacturing industries, needed control cabinets for a utilities upgrade project at SABIC's Petrokemya Arabian Petrochemical site in Al Jubail, Saudi Arabia.

From ASCO's regional headquarters in Dubai, Emerson designed and built four cabinets to automate valves on SABIC's demineralised water and water purification plants. With over 140 solenoid valves and a variety of other control equipment required within each cabinet, the Emerson team delivered them for Factory Acceptance Testing within ten weeks from drawing approval. They arrived on site fully certified and ready for ISE to install.

When **Sneyders Machineconstructie (SEAMCO)** in Belgium was asked to design, engineer and build an ink cartridge filling machine for a major manufacturer of industrial printing solutions, it turned to ASCO to engineer and supply custom valves for the filling modules.

The first challenge for ASCO's application engineers was to establish a product specification for the complicated brief and within just two days, they delivered working 3D drawings for a special ATEX-approved, self-draining aseptic diaphragm valve. The 3D design allowed Sneyders' own design team to quickly and efficiently check the valve's compatibility with its own compact design, with the end result delivery of the special valves within just six weeks from project brief.

Conclusion

These companies, and many more throughout Europe and beyond, are already seeing a return on their decision to outsource intelligently. By retaining their in-house engineering expertise to concentrate on the specialist niche skills that outsiders cannot support, the focus remains on project delivery. Indeed, outsourcing the supply of specialist systems can in fact reduce project costs, as the flexibility and efficiency of the approach, combined with the supply of ready-to-install, fully certified systems frees up time and resource.

