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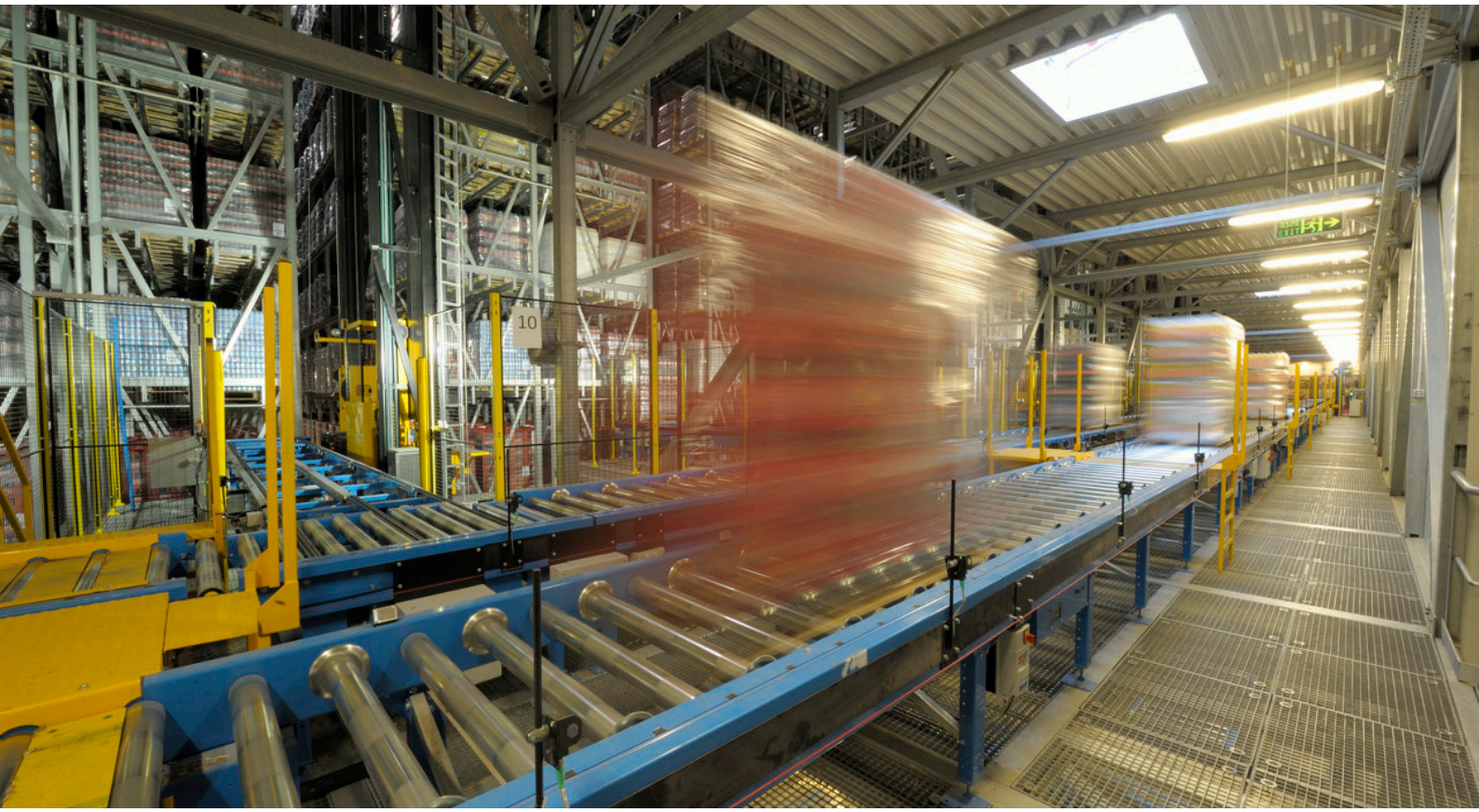

Engineering Maintenance: In-house or outsource?

White Paper by David Acton, General Manager - Engineering Support Services

Automation systems in the warehouse and distribution sectors are becoming commonplace as companies compete on service and cost. The need for speedy delivery times and the high complexity of handling a wide variety of product types means that to do it manually is becoming impossible. Automation delivers the benefits of being able to control, process, track and manage stock in real time. It reduces labour costs whilst increasing efficiency and accuracy.

Having invested in automation to realise these benefits, a company needs to protect that investment so that the system continues to deliver over many years with minimal disruption. This is the responsibility of engineering maintenance. Engineering maintenance is a critical part of any business where automation systems are used. It is often seen as a "necessary evil" and its importance to the success of the business is easily overlooked. In this white paper I examine the challenges faced by companies using automation and the pros and cons of an outsourced maintenance solution.

Challenges

The engineering maintenance of an automated system presents many challenges, it is multi-facetted; planned preventive maintenance, condition based maintenance, handling breakdowns when they occur and managing obsolescence are all easily recognisable aspects of engineering maintenance. However, in order to do these there is another set of aspects that form the backbone of how well they can be done. These include managing resource availability, the technical skills of the maintenance team, specialist expertise available, training and development, spares and stock, tooling and equipment and contingency planning etc. These are all challenges that are set against the ultimate challenge of managing the cost. A difficult balancing act it is.

Increasingly engineering maintenance managers are charged with keeping their systems going whilst not being given the money to do it. There lies the danger, what commonly can happen is that the maintenance investment costs are put off over time pushing back expenditure into the future that suddenly hits the company like a train. The day to day maintenance is run as a tight ship which is clearly desirable.

But this can be at the expense of those more hidden aspects of engineering maintenance such as the resource depth, the skills of the team and the backup when things do go wrong. However the risks to the company must be considered.

An automated system that isn't running costs dearly after a very short period of time. The costs escalate quickly, maybe you have to send staff home, transport slots are lost, and then once the system is returned to operation, you then have to recover the lost production. Use of overtime brings more cost and not to underestimate the damage to your reputation that may have occurred where you have let customers down.

Where engineering maintenance is carried out by an in-house team employed directly by the company it is usual that this is not the core competence of the company. This is possibly where the "necessary evil" label derives from. The outsourcing of the maintenance requirement often can make good sense for many reasons which this article goes on to explore. But the fundamental point about whether to outsource or go in-house is really about who is best equipped to maintain the system to the right standard to deliver the long term benefits that the system was originally purchased for. An outsource automation support provider is often better placed through economies of scale, resource depth, experience, skills and expertise and knowledge to support a system for both the short term and the long term.

Responsibility

Responsibility is often seen as a major factor when considering any project or service. After all if someone is buying in a service they expect that that service will be provided for the money that is paid. An in-house engineering maintenance team clearly have the responsibility for that maintenance but what does that mean. Well it means that they are responsible for the engineering maintenance. But what does that really mean? It is seldom that an in-house engineering team a have a clear "specification" of the service they are actually expected to provide. What are they expected to do and how are they expected to respond in terms of timescales etc. Internal service level agreements should be in place to set out the standards expected. They should cover aspects such as planned maintenance progress against schedule, error rates, availability, task duration times, parts usage including costs.

Responsibility also means who is charged with ensuring the work is carried to a satisfactory standard and meets with any legislative requirements. Where work involves several suppliers, then who is the one that coordinates the work and is responsible for resolving any issues that should arise.

When things do go wrong are there any consequences, in-house engineering maintenance teams are often treated more leniently by their own companies than a service provider, which is understandable. This can however mean that the standard expected of them may well slip.

A properly outsourced solution offers clear responsibility and accountability, and because of the nature of a contract being in place for the support being procured it offers that clarity about what is being provided and to be expected. Engineering support contracts make explicit the requirements of the service. They will include specific details of responsibilities as well as KPI measures for the works, built around the most important factors that support the customer's business. A good engineering support service provider will always concentrate on delivering the service to the contract terms and some more. The most important factor for them is to try and retain the contract for the long term and so their own performance really focusses their minds.

Resources

Resource in terms of engineering maintenance is mostly about having the men and equipment to do the job. Sadly, life is full of surprises and the demand on labour resources are anything but smooth. Life can be tough trying to maintain equipment in the face of unpredictability. Not only will the system suffer a breakdown when you least expect it or want it, but the availability of labour resources can make the day job of the scheduled tasks difficult enough.

With holidays – maybe 25 days per person year, bank holidays, sickness - especially long term, training courses, specific projects deadlines all getting in the way, the running a tight ship on the in-house engineering resource team level can make things extremely hard. Clearly to keep maintenance costs down it is sensible to only employ the resource you need. I recall a situation where a company with an engineering team of six engineers suddenly became faced with one on holiday, and two sick where he needed to provide cover for his 24/7 operation. It didn't go smoothly. In this example the company lost 50% of his available resource just like that. This shows that where a maintenance team is small in number the risks are higher and the impacts greater. If the maintenance team is just one or two people then clearly there are major challenges just to accommodate
holidays, never mind the sudden impact if sickness strikes.

The right engineering support service provider should offer the availability of additional resources beyond that based at the site. Supplementary resources should be made available such that in the event of a sudden resource shortage or a dramatic increase in resource demand, due to say a major breakdown or other project works, than the supplementary resource can be deployed to site quickly. When choosing a provider it is important to understand the depth of the supplementary resources available and how quickly they can be deployed to your site. These additional resources should be qualified in the works they are likely to need to do on your site and it is recommended that they have already been inducted, trained and familiarised so that they can hit the ground running when needed.

So from a resource point of view the availability of flexible supplementary resource from an outsource provider can prove very worthwhile and helps manage the risk. The outsource provider will no doubt include costs for this service within the provision of the contract. However, these could be based on a pay as you need or on a fixed cost charge.

The fixed cost charge passes the risks on to the provider and gives the customer the peace of mind in knowing that he doesn't have to face the problem.

Expertise

Automation systems can be very complex and having the expertise to deal with them is one of the key challenges that a company faces. An in-house team will over time gain in depth knowledge of much of the system. On-going training will no doubt be required to keep the team up to date with technology changes as time passes. However, what happens when the site team knowledge runs out? Where do they go and who can respond quickly if necessary to get things sorted?

A key aspect of engaging an engineering support provider is that they should be able to give the depth of expertise and backup resources including 24/7 response if needed. The company should consider the availability of things like 24/7 hotline, the availability of highly skilled technical specialists to respond to site when needed, maybe at the drop of a hat. These are important factors that can mean the difference to suffering long downtimes of production and not. Access to design expertise is also a useful competence that a provider can bring to the company. This gives the ability for on-going improvements and enhancements to the system from a trusted engaged provider who has a vested interest in delivering successful effective solutions.

Protecting the Investment

Maintenance is really about protecting the investment that the company has made in the system and ensuring that it performs to the best possible levels throughout its life. Whichever maintenance regime is used it is important that this is not forgotten. Automated systems need on-going investment at the right time to keep them performing reliably. It is always a challenge finding money to spend on upgrades and maintenance repairs especially in difficult times. But these can become critical and even more costly if put off for too long. It is the responsibility of the maintenance team to raise for investment any worn or obsolete equipment concerns they have. However, there have been many cases where maintenance spend has been restricted for several years only for the sudden onslaught of poor performance disrupting operations, poor reliability caused by increasing faults, overburdened engineers and the need for a significant investment being required. So it is better to set out a clear refurbishment and upgrade plan as early as possible in the life of the system. Planning to and spending money in smaller amounts is a much easier pill to swallow. A good outsource provider will always bring to the table their recommendations for protecting the investment. Likewise the in-house team need to do the same. An easy trap to fall into is that maintenance is about today and keeping things going. It isn't just that, it's about the future as well.

One of my customers is a shining example of how planning investment to keep their system performing at the top level in conjunction with upgrades and additions to the system have allowed the system to handle massively increased throughput whilst at the same time reducing operating costs. Their system is over now 20 years old and is still good for many years to come.

Facilities Management

In recent years we have seen companies that have outsourced their maintenance to us looking to go further to realise more benefits and lowering their costs. Companies are increasingly looking to us to take on more responsibilities, such as their site facilities management responsibility as well as the more hands on engineering tasks such as, electrical and mechanical services, dock levellers, car park systems, lighting and even the odd job man works like putting up notice boards or signs. The savings come through better utilisation of the site team and the reduction in needs of engaging visiting contractors for specific tasks. Work gets done quicker and with less fuss or the need to procure separately. This is fast becoming the norm where we as the engineering support provider are actually engaged as an engineering and facilities management provider. It is not all providers that will offer this service so it should be a question to ask.

Cost Versus Value

When a company that already has its own in-house maintenance team thinks about whether outsourcing is viable, the first thing that comes into mind is usually the cost, and in particular, that it will cost more. This is actually usually not the case when the true cost of the in-house team is considered.

The costs of running the in-house team spread beyond the obvious of the team salaries. There are many costs that are hidden such as: management costs, HR costs, payroll processing costs, sick cover, paying overtime for holiday cover or temporary labour costs, pension costs, training and development costs, maybe additional services are being engaged because the in-house team doesn't have the skills, the costs of processing the procurement and payment of spares. One hidden cost that is often overlooked is what it actually costs the company if production is lost. If we consider value rather than costs then the outsourced engineering support provider often delivers additional value that makes cost less relevant. It is wrong to think that by outsourcing the in-house maintenance team you are simply passing your team on to another company that will then want to make a profit on it. When you engage an outsource provider you are really engaging the support of their whole organisation. This gives you access to their more extensive capabilities and competences in the area of engineeringmaintenance, it gives you access to more resources and more skills. Because of their economies of scale and the flexibility that the provider has also means you get opportunities to do the work differently. A reorganisation of how the work is done and when it is done becomes possible. Savings can be released through this which might involve a combination of on-site and visiting engineering teams to minimise cost and deliver maximised service delivery at the time it is needed. You don't have to have a fixed level of resource on site all year round.

Another aspect of cost concern is often the spares that will be used. Again it is seen as another aspect that profit will be added. In reality it is more likely that the amount of money spent on spares

Additional Costs of an In-house Maintenance Team

- *HR Costs*
- *Payroll processing*
- *Sick Cover*
- *Holiday Cover*
- *Pension Costs*
- *Loss of production costs*
- *Purchasing and accounts*
- *Third party contracts*

does not suffer greatly. The better supplier discounts that the outsource provider has, because of the economies of scale of their wider business, usually means that the cost of spares can actually reduce overall.

Then of course there is the effect of competition. In-house maintenance teams seldom have any real competition and so it is difficult for a company to understand whether they are getting value for money or not. Where support is outsourced it will usually be done on a term basis of three or more years. This introduces the natural cost check at the anniversary as cost benchmarking can be done between suppliers.

Another approach to concerns over cost can be to let the contract on an Open Book basis. In this way the underlying costs are visible to the company and the agreed profit level is set with the engineering support provider up front. The major disadvantage of this is the cost risk is actually carried by the company not the provider. Open Book usually means transparency of costs therefore if the costs are incurred then the company is responsible for paying them. The provider is therefore really only responsible for the management of the service. So an Open Book contract usually means more risk for the company where by in a Closed Book contract the provider carries more risk.

The in-house team

Where an in-house team exists and a company is considering the outsourcing of that function. Then TUPE (Transfer of Undertakings (Protection of Employment) Regulations 2006) will most likely apply. This involves the transfer of the existing team to the new outsourced provider. This often causes a concern in the team to be transferred and may well be a concern for the transferring company because of the effects on morale of the team. However, experience shows that in general the team actually gain from the transfer to a reputable engineering support services provider. To quote a customer of mine "Suddenly the site team went from being engineers in a stationery distribution company to being engineers working in an engineering company". The team actually agreed with this statement as they felt the benefits of their new employers business.

The benefits were seen as: working for a likeminded company, having backup resources and skills now available to support them - this reduced the pressures on them in their job, investments in equipment and training were being made available and they were also able to see improvements in career prospects that they didn't have before.

The message is that outsourcing can work for both the company considering it as well as the existing employees of the team to be transferred. Both are set to gain.

Conclusion

There is a lot to be said about sticking to what you are good at. This paper has set out several areas that challenge a company that has its own in-house maintenance team looking after an automated system within the warehousing and distribution sector. It has also compared these to the way an engineering support service provider would deal with these.

Several aspects are at play that affects a company's ability to maintain their automated system themselves. These are: responsibility, resources, expertise, protecting the investment and the not least the cost.

Outsourcing offers valuable benefits to a company. The right outsource provider will be able to use their capabilities such as technical expertise, depth of resources, knowledge of automated systems, economies of scale, the ability to benchmark and use comparisons between its sites for continual improvement purposes, to deliver value to the company. These all serve to manage risk, control costs, and take responsibility for maintaining the productiveness of, and the investment that has been made in the automated system.

A well outsourced Engineering Support Service solution can create savings, improve the service delivery, reduces risk, make life easier – the company can then focus on its core business. They should be a highly service driven organisation that focuses on the delivery of the service they are contracted to and on the ever changing operational needs. When looking to take on an existing in house operation the outsource provider should be able to give a clear assessment as to where they see the improvements in service and costs coming from. This way the ROI can be evaluated so that switching to outsource does not present risks to the company, they can see exactly what they will get and what it will cost.

If you are dissatisfied with how your maintenance is currently being done then outsourcing should be considered seriously. The engineering support provider can take away the headaches involved in running it yourself. A major factor for many companies is that it just makes life easier.

For more information, advice or to have a chat with us about your site please contact us on 01536 480600 or at enquiries@logistex.com

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