

A VIEW FROM THE BOARDROOM

An executive guide to outsourcing
electronics manufacturing



An ESCATEC Company



EXECUTIVE SUMMARY

**ELECTRONICS
MANUFACTURING IS A
COMPLEX PROCESS AND
AS SUCH ANY DECISION TO
TRANSFER THIS PRACTICE
TO AN EXTERNAL SUPPLIER
MUST BE TAKEN WITH
GREAT CARE.**



Whilst the benefits of outsourcing are well documented, there are, of course, risks and concerns. Successful outsourcing strategies demand a critical assessment of your current positioning and clarity of your future goals and objectives.

This eBook provides insight into the reasons why Original Equipment Manufacturers (OEMs) choose to outsource their electronics manufacturing. It also explores how such a decision could impact your business, from the people and plant, through to the relationships you hold with your existing customers and suppliers. And finally, it addresses some of the more common questions and concerns OEMs have, with suggestions on how these can be allayed when partnering with a good Electronics Manufacturing Services (EMS) provider.



ONE



INTRODUCTION

**THE ‘MAKE OR BUY’
DECISION IS ALMOST
AS OLD AS INDUSTRY
ITSELF. IN ELECTRONICS
MANUFACTURING THE
SURGE TO OUTSOURCE
BEGAN IN THE 1990S,
WHEN LARGE NUMBERS
OF OEMS CRITICALLY
REASSESSED THEIR
MANUFACTURING
STRATEGIES IN ORDER
TO TAKE ADVANTAGE OF
THE NEW OUTSOURCING
OPPORTUNITIES THAT
HAD EMERGED TO
IMPROVE THEIR OVERALL
PERFORMANCE AND
REDUCE ASSET AND
OPERATIONAL COSTS.**

However, the decision to outsource was often driven by a specific operational need rather than as part of a well thought out overall business strategy and, in a number of instances, resulted in somewhat ‘arm’s length’ arrangements with EMS companies on a product-by-product, contract-by-contract basis.

Outsourcing has evolved dramatically since those early days; OEMs discovered that with a more collaborative approach there were significant gains to be realised which could improve their planning accuracy, ability to respond more quickly to rapidly changing market conditions, and reduce their operational costs.

EMS companies also evolved during this period by extending their range of services beyond just contract assembly by taking control of both ‘upstream’ supply chain activities and additional assembly and logistics offerings - such as agile build/configure to order options, sophisticated product testing, direct order fulfilment, and managing returns and repairs processes. As a result, today’s outsourcing arrangements are typically based on close, collaborative working partnerships between the OEM and their EMS partner, leveraging the strengths of each with totally ‘synchronised’ supply chains to achieve the business objectives of the OEM.

TWO

WHY DO OEMs OUTSOURCE?

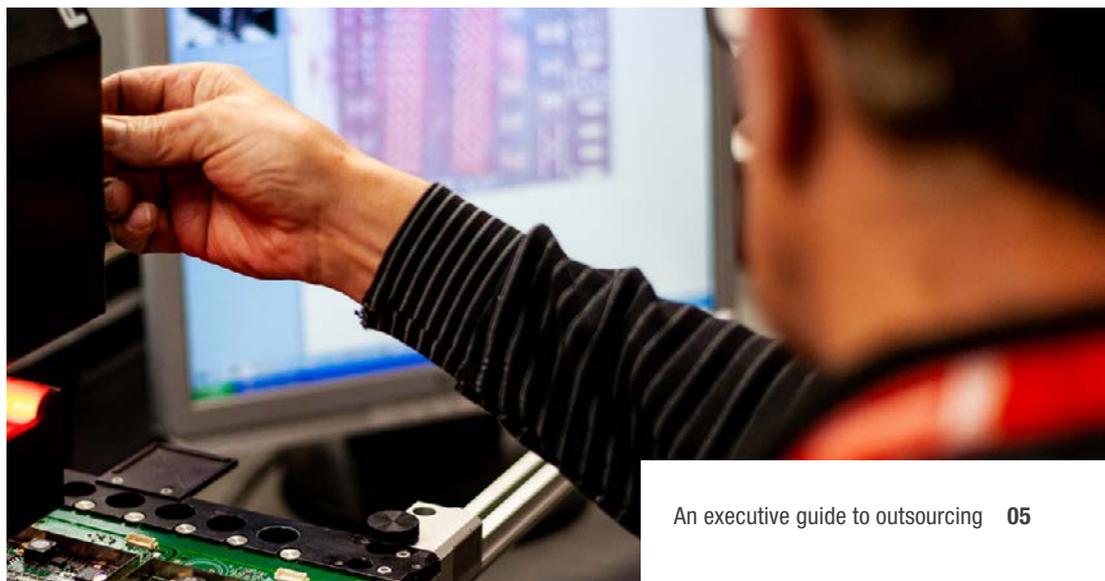
OUTSOURCING DECISIONS CAN BE AS A RESULT OF A SPECIFIC, SHORT-TERM, OPERATIONAL NEED OR AS PART OF A FORWARD LOOKING STRATEGY. THE THREE MAIN REASONS MOST OEMS CHOOSE TO OUTSOURCE ARE TO FOCUS ON CORE ACTIVITIES, TO OVERCOME CAPACITY CONSTRAINTS, AND TO IMPROVE COST CONTROL.

DO YOU OUTSOURCE TO FOCUS ON CORE ACTIVITIES?

All companies, to some extent, have scarce resources in the sense that they need to optimise the return on those resources. The realisation of this helped to create the need to outsource non-core activities. In the early days, companies outsourced peripheral activities such as cleaning, transport logistics and maintenance. The question OEMs are now asking themselves is ‘what really is core’? And many are realising that most manufacturing processes actually are not.

In order to start looking at what is a core task and what isn’t, let’s look at an example of a large German OEM we visited recently. In addition to manufacturing all the specialised components, cable looms and electronics for their products, they also had an onsite machine shop producing their own fasteners. Vertically integrated it may be, but unsurprisingly the lathes and milling machines that made these rather standard parts were idle much of the time, so is the model really that efficient?

OK, this example is somewhat extreme, but conceptually is it so different from placing surface mount technology (SMT) components on a printed circuit board (PCB)? The growth of outsourcing in electronics manufacturing and, indeed, the arrival of the term ‘contract electronics manufacturer’ (CEM) dates back to the first realisation that the PCBA was a very identifiable, specific, sub-assembly that OEMs could outsource. This outsourcing process was further accelerated with the subsequent introduction of SMT and the resulting increased sophistication and cost of the equipment required to produce such an assembly.





It's not unusual for a Finance Director to go rather pale at the thought of the required level of capital outlay for machines that would, in most instances, be underutilised, so this leads to the question: 'which activities are genuinely key to my business and what level of resource should I be deploying in those areas?'

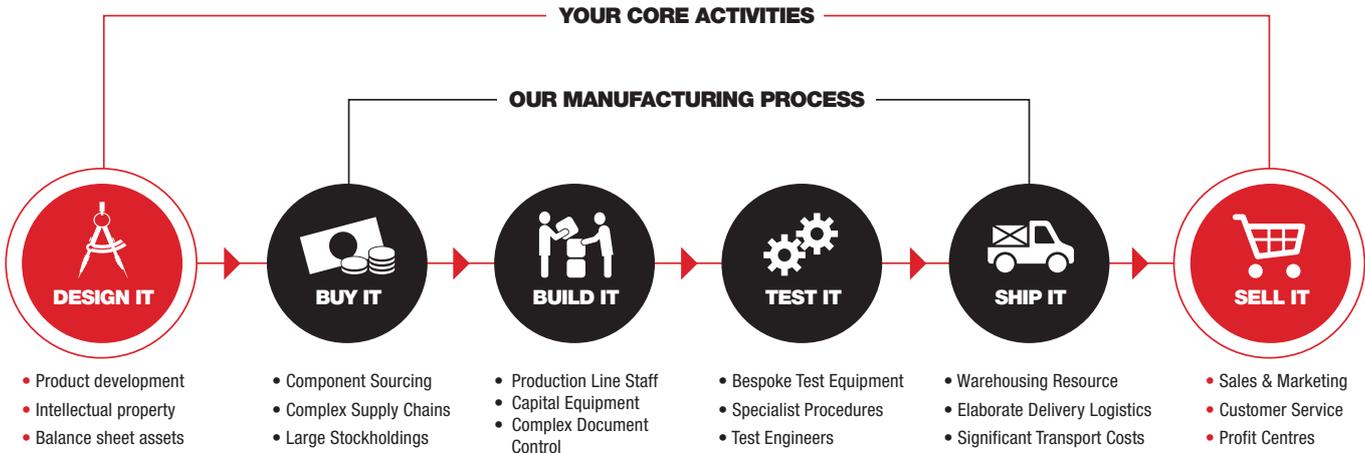
The future success of any business is determined by the strength of its business strategy (products and services delivered, markets and customers served, etc.), and an OEM's manufacturing strategy is, of course, a key enabler of this. It should therefore be focused on offering greater flexibility, improved cost effectiveness, reduced cycle time and time to market, whilst sustaining or improving product quality.

In short, this strategic decision relates to how effectively an OEM could redeploy resources being employed in the in-house manufacturing area, and how any chosen sub-contract partner might be able to deliver a service level that will enhance your business.

Apple is perhaps the most famous example of an OEM outsourcing its manufacturing in order to focus on its core competencies. Many years ago Steve Jobs and the Apple Board realised that its competitive advantage lay in product development and in marketing and sales. And so, in order to focus more resource in those areas, they partnered with an EMS company for assembly.

Harmen van Os of PA Consulting sums up the above points quite eloquently:

"The make or buy decision of manufacturing processes goes beyond the remit of procurement. It is a strategic decision with long-term implications for any business, and should be handled as such"



Is manufacturing where you should be focusing?
 Core activities are in designing and selling your products
 Manufacturing can be a distraction and a financial drain



CONSTRAINTS CAN BE PARTICULARLY PROBLEMATIC WHEN THERE ARE SPIKES IN DEMAND, ONE-OFF MAJOR PROJECTS FOR EXAMPLE OR SEASONAL PEAKS.

ARE CAPACITY CONSTRAINTS NOW HOLDING YOU BACK?

A common reason for outsourcing is to overcome capacity constraints which can occur for a variety of reasons. Constraints can arise when OEMs outgrow their premises, have difficulty in recruiting enough people with the correct skills, or need to invest in additional or upgraded equipment.

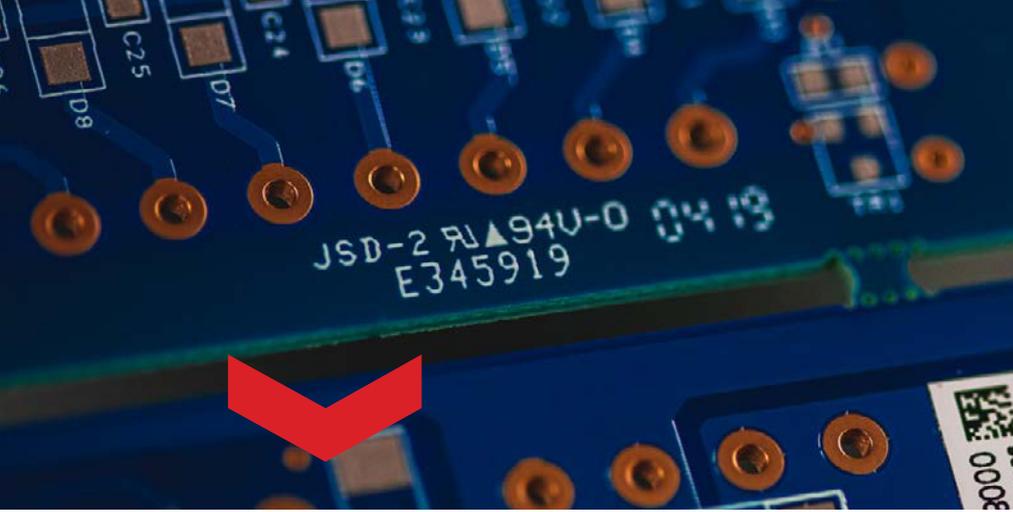
For example, your marketing campaigns may have gained real momentum and led to an increase in enquiries and orders for your sales team. Obviously this is excellent news, providing you have the resources and skills in place to manage these new customers and satisfy the orders within the timescales you committed to.

Or maybe you have the reverse problem? Perhaps you crave additional revenue but took a strategic decision to limit your sales and marketing activity in fear that any new business would deplete the resources you have. This could be a particular challenge for organisations with long sales cycles, whereby new activity takes months, if not years, to come to fruition. When do you take the decision to re-engage with the market and what resources will be required in order to satisfy new demand?

Such constraints can be particularly problematic when there are spikes in demand, one-off major projects for example or seasonal peaks. Carrying additional layers of overheads in order to react to unpredictable demand can be a challenging dilemma for many Financial Directors, however what would the alternative be? Run your organisation much leaner and then hope to recruit additional staff when the sales come flooding in? What if you struggle to find the right people, with the right skills, when you need them the most? Sometimes the comfort blanket these additional overheads provide is too hard to completely relinquish.

An OEM whose general level of demand is increasing but can't, or doesn't want to, increase its capacity must question its entire strategy and give serious consideration to outsourcing. In other words, "if I don't want to invest in increased internal capacity, do I really want to keep the capacity I currently have?"

Outsourcing allows you to reduce your time to market, which keeps you ahead of your competition and ensures that your customers get to enjoy products when they want them. The speed in which you can satisfy consumer demand makes the difference between a successful/growing company and one that gets left behind the competition.



HOW MUCH CONTROL DO YOU REALLY HAVE OVER YOUR COSTS?

A key benefit of outsourced manufacturing is the advantage of a genuinely fixed unit price for products. Capacity constraints can be a driver to outsource excess demand, but what is the effect of periods of lower than planned demand on your product cost? Arguably, it should be easy to calculate the cost of a product at a unit level. For assembly, it's a case of simply calculating the number of hours it takes to assemble it and multiply that by the hourly cost of the labour. Likewise with material, just look at the direct cost of the material that goes into the product.

If demand increases - whilst this may be a good problem to have - it could require additional capital expenditure. But what happens to the cost if demand falls?

On the face of it the cost stays the same, yet actually your unit cost is increasing rapidly as your production and procurement labour, along with associated resources such as space and capital equipment, becomes underutilised. In an outsource model this doesn't happen, whether you buy 10 products one week or 40 the next, the unit cost is still the same.

The obvious question here is: why is it any different for an EMS company? The answer is, of course, that they will have a mix of customers and supply models, will be operating in a variety of industries, and will have an organisational structure that allows them to flex the means of production across all of those.

Thus, if one OEM customer is down another will often be up; some products are built for stock, while others have agile processes in place where a 'demand pull' system operates under the terms of a flexible SLA (service level agreement). It's that agility that helps the EMS company minimise the cost impact of changing demand patterns and still deliver product on time. This is critical if you are to enjoy the same level of dexterity and responsiveness that you would expect from your own shop floor.

Therefore the decision to effectively 'give up having a shop floor' isn't just about cost. The true cost impact of not delivering to a customer can outweigh any savings. Whilst many OEMs still have a procurement-led approach to outsourcing, it really needs a 'boardroom' view with the FD's involvement often being critical.

Cost savings alone may not be enough to justify the risks and challenges of outsourcing. These should be analysed, viewed and weighted along with other key business metrics, including increased cash flow, greater financial flexibility, reduced lead times, improved on-time delivery, asset divestiture and the avoidance of future asset-related investments.

THREE

HOW OUTSOURCING CAN IMPACT YOUR BUSINESS

WHEN A COMPANY DECIDES TO OUTSOURCE ITS MANUFACTURING IT CAN SEND SHOCKWAVES THROUGH THE ORGANISATION. IF YOU ARE NOT PREPARED FOR THE INITIAL DISRUPTION, YOU COULD SOON RUN INTO DIFFICULTIES. BEFORE TALKING TO A SUBCONTRACTOR, YOU SHOULD CONSIDER THE IMPLICATIONS OUTSOURCING WILL HAVE ON YOUR PEOPLE, PLANT, EQUIPMENT, SUPPLIERS, CUSTOMERS, AND INTERNAL RESOURCES.

THE IMPACT ON YOUR PEOPLE

One of the most challenging elements to an outsourcing decision is the impact it can have on your existing staff. Any organisational change can cause uncertainty or concern, so it is vital that decisions are carefully considered and then clearly communicated throughout your business, when it's appropriate.

PROS

Free from technical or capacity restrictions, your design and engineering teams can really focus on product development – whether that's enhancing your existing range or working on crucial 'next generation' devices to satisfy the future market.

Likewise your sales and marketing department can aggressively target new revenue streams, confident that any increases in sales they generate from this focussed activity will be fulfilled, on-time and in full. You will also benefit from 'new ways of thinking' along with being able to access an increased knowledge pool.

The engineering and production teams within EMS companies will be used to solving intricate design and build related challenges on a daily basis. The vast experience they have gained over many years, often across a wide spectrum of products and industries, will be available to you on demand when it matters most - for example when looking to launch a new product or making a design change to your existing range.

CONS

Unless you have plans to redeploy your workforce elsewhere within the business, you may find yourself having to make a number of people redundant.

As such, it is advisable to get your Human Resources (HR) experts involved in the process early. Whilst this overhead reduction can often be the single largest cost-saving benefit of outsourcing, it goes without saying that careful consideration on the wider implications must be thought through.

Depending upon the proportion of work carried out by some staff, it is probably the case that you cannot simply let those people go; OEMs sometimes neglect to take this into account and run into difficulties further down the line. Whilst some EMS companies may have direct experience in this area, it remains vital that you seek professional advice yourself from the beginning.



WHAT WILL YOU DO WITH PLANT AND EQUIPMENT?

Significant financial rewards can be achieved in this area once a decision to outsource has been made. It is important however to determine which products you plan to outsource and when you intend to do so. The sequencing of certain products may have a direct link to some of your existing plant and equipment i.e. tooling/jigs etc. which needs to be accounted for.

PROS ✓

By devolving your manufacturing, there will be new opportunities to sell off your existing manufacturing equipment which will immediately impact your cashflow.

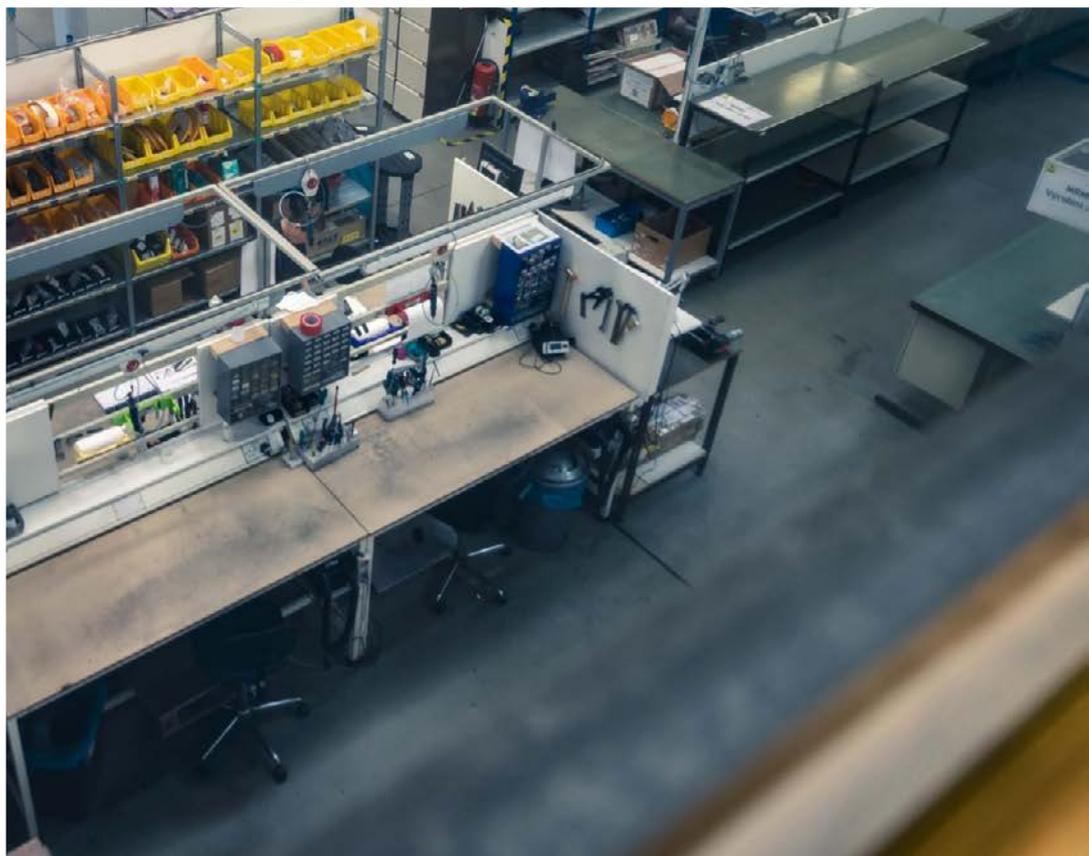
Longer term you'll also benefit from no longer needing to pay for annual maintenance contracts or costly call out charges when things go wrong.

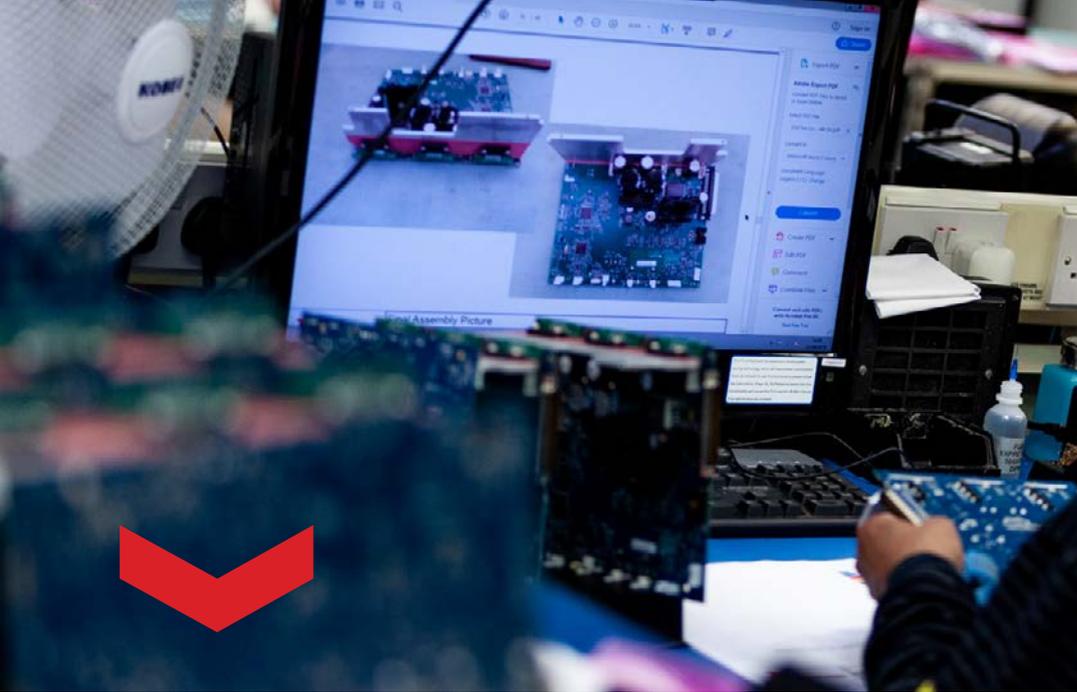
And finally, you will be able to design your products and services around your customer's needs - without equipment or technical capabilities restricting you as they may previously have done.

CONS X

There may however be certain items that you wish to retain, such as bespoke or niche pieces of equipment – like a test fixture.

Depending on your agreement with your outsourcing partner, you could be required to duplicate and maintain these at your own cost, if they are to be used in the production or test of other products in your range not yet transitioned across to an EMS provider.





CUSTOMER AND SUPPLIER RELATIONSHIPS CAN BE AFFECTED

These are critical to the future success of your business so it is recommended that you assess how changes to your existing manufacturing strategy could be interpreted by both parties. Your key customers and suppliers may need reassurance on how any changes would impact them individually and you will need to determine if there are any risks to these relationships associated with that change.

PROS ✓

A key benefit many OEMs seek when embarking on an outsourcing initiative is the opportunity to improve on the service they offer their customers – specifically, quality and delivery.

Perhaps you could add value to your customers by offering a greater level of technical after sales support, which until now has lacked any real focus or direction? Maybe you have service level agreements in place and the speed in which you are able to manage customer returns or repairs is critical in securing these on an annual basis?

Outsourcing enables you to focus more on adding value to your customers and less time worrying about in house inefficiencies or restrictions that stop you delivering quality products and services to them.

CONS X

You might have existing contractual arrangements with your suppliers that need to be addressed. Can they be cancelled or restructured?

At the very least, you will probably have long-standing relationships with some of your suppliers and, if it makes sense, those relationships could be transferred to the subcontractor. Don't be surprised, however, if you encounter some resistance internally at this point.

Some of your customers may also care passionately where your goods are produced, especially if you are manufacturing a niche product. They may feel that you are taking an undue risk with their business by transferring your manufacturing to an EMS provider.

To reassure your customers, you might want to involve them in part of the decision-making process, or even take them to meet your preferred subcontract partner.



THE IMPACT ON YOUR INTERNAL RESOURCES

It's important not to underestimate the time needed to plan a successful outsource strategy: putting a project team together; identifying and selecting a credible partner; working on a transition plan; whilst making sure your existing customers, suppliers and staff needs are attended to – all of which can be a challenge for some to balance. Whilst the long term benefits are worthy of the wait, there is no denying you'll need to invest time and resources now in order to achieve your goals.

PROS ✓

With your shop floor removed, you will immediately start to see a significant reduction in the amount of time you and the rest of the management team are required to spend resolving manufacturing related challenges.

Whilst you will have identified the cost benefits associated with the reduction in direct shop floor staff, you could find further savings come via secondary levels of staff, as a result of them also no longer needing to oversee the manufacturing operation to the same level as before.

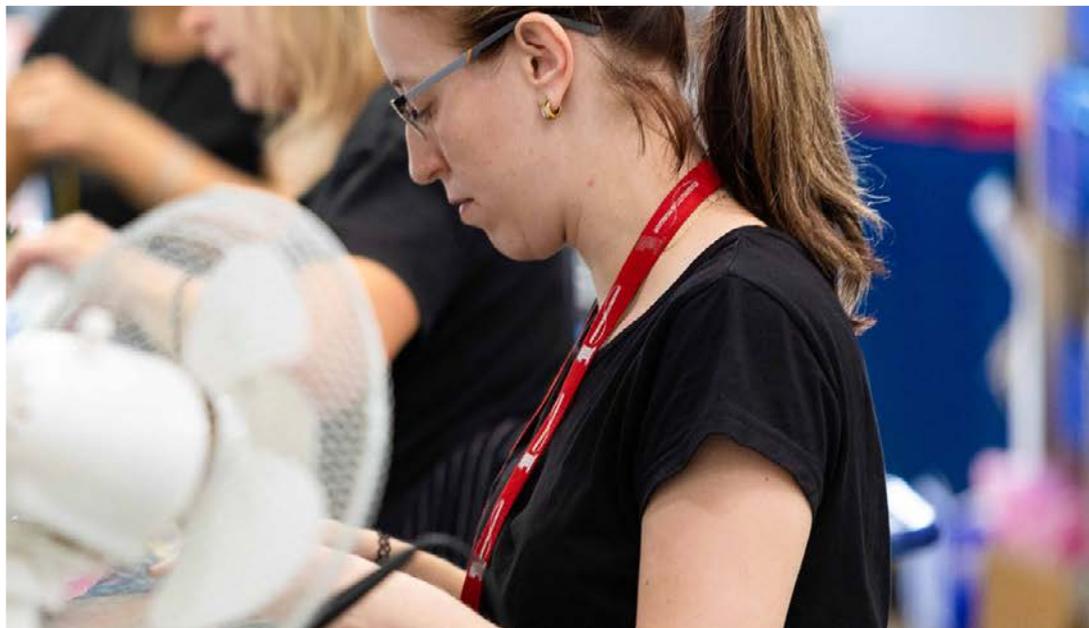
The full impact of this could take 6-9 months to realise, as it's not always appreciated from the outset just how many people interact with the function at any given time.

CONS X

Although outsourcing will allow you and your business to focus on the elements that matter the most, like sales, marketing and design, an outsourced strategy still requires close management.

A professional subcontractor will test you rigorously on your drawings, build packs, and procedures. Do you have the internal resources to handle these kinds of questions? A successful outsourcing strategy is one whereby a partnership is embarked upon, it simply won't work if you try and manage things at arm's length.

It can take up to three months for all the preparatory work to be completed when you initially start to transfer products across. Are you prepared to invest in the long term and wait for results?



FOUR



ALLEVIATING YOUR CONCERNS ABOUT OUTSOURCING

PUTTING YOUR TRUST INTO SOMEONE ELSE

Whilst the benefits of outsourcing can be difficult for organisations to ignore, there are a number of perceived risks associated with making the decision. These can understandably cause concern for some companies and throw up levels of uncertainty as to whether this direction is really the best one for them to take. Many of these risks can be mitigated by working closely with the right EMS provider; however there are considerations that only you and your organisation will be able to address, and some of these will truly test your commitment to an outsourced manufacturing strategy.

For example, you will need to put your trust in someone else. Unless you already have a working relationship with an Electronics Manufacturing Services provider you could be concerned that you will lose control over a significant proportion of your business. Relinquishing that control and trusting an external partner to deliver on your behalf can be a huge challenge for some organisations.

In addition, the shift from your current in-house manufacturing operation to an outsourced solution will also lead to a number of differences in day-to-day operating. It's unlikely, for instance, that you will be able to walk onto your shop floor and make a quick design change to your product before it ships out of the door, or immediately reschedule your build due to new demands.

As trust is not something that can be bought or sold, potential EMS providers you identify through your initial research must be able to demonstrate to you they have the capabilities, skills and agility to manage your business to a level that ensures you feel comfortable in entrusting them with control.

**A GOOD EMS PARTNER
MAY CHOOSE TO
REPLICATE THE
MANUFACTURING
LAYOUT THAT YOU
HAVE TODAY TO GIVE
YOU A SENSE OF
STABILITY.**



BUILDING UP PRODUCT KNOWLEDGE AFTER THE TRANSITION

By living and breathing your products on a daily basis, your production staff will have built up a comprehensive understanding of how your goods are assembled. They may have also been instrumental in helping you implement design or process improvements along the way, as a result of their experience, which may or may not have been documented. During an outsourcing transition, it can be common to discover a level of 'local knowledge' on shop floors, and unless your staff are redeployed elsewhere, some of this skill and learning - and the resulting 'tweaks' - could be lost.

Good EMS providers are well used to unearthing these 'undocumented processes' and if you make the decision to outsource, any further design changes and improvements will be documented by your partner. As a result you won't need to record these details and, instead, can rely on your EMS partner to do so. This enables you to retain a level of knowledge and understanding of how your products or machines are built within an outsourced strategy. By agreeing mechanisms in advance, you can request the EMS Company provides you with a complete change control and ongoing documentation service, so that you are still able to access the latest build information for your products whenever you need it.

RETAINING CONTROL OF THE SUPPLY CHAIN AFTER YOU HAVE LET GO

In order to maximise the full benefits of outsourcing, it's recommended that you will relinquish control of your existing supply chain, allowing your chosen EMS provider to utilise their preferred suppliers, wherever possible. By removing yourself from 2nd tier suppliers, it could become more difficult for you to identify material-related issues, such as obsolescence, or cost-saving opportunities.

If you are at all concerned with losing sight of where your materials are sourced from, you have the option to work closely with your EMS partner and, where appropriate, jointly manage 2nd tier supplier relationships. Whilst the bulk of the supply chain management task would be undertaken by the EMS Company, you may decide to stay involved in decisions on the specialist or more 'strategic' items, and retain an understanding of the key supply chain elements being used to support your products.



SHARING THE RISK TO WORK TOWARDS COMMON GOALS

The subject of risk management has, quite rightly, risen in profile over recent years. But it's not just a proper 'catastrophe' that can cause an OEM problems. One of the biggest potential costs to a business is not delivering to customers! Increased lead-times, failure to achieve on-time delivery and the impact of a forced 'no bid' due to a known inability to respond to a potential customers' requirements are all issues that need to be considered and addressed.

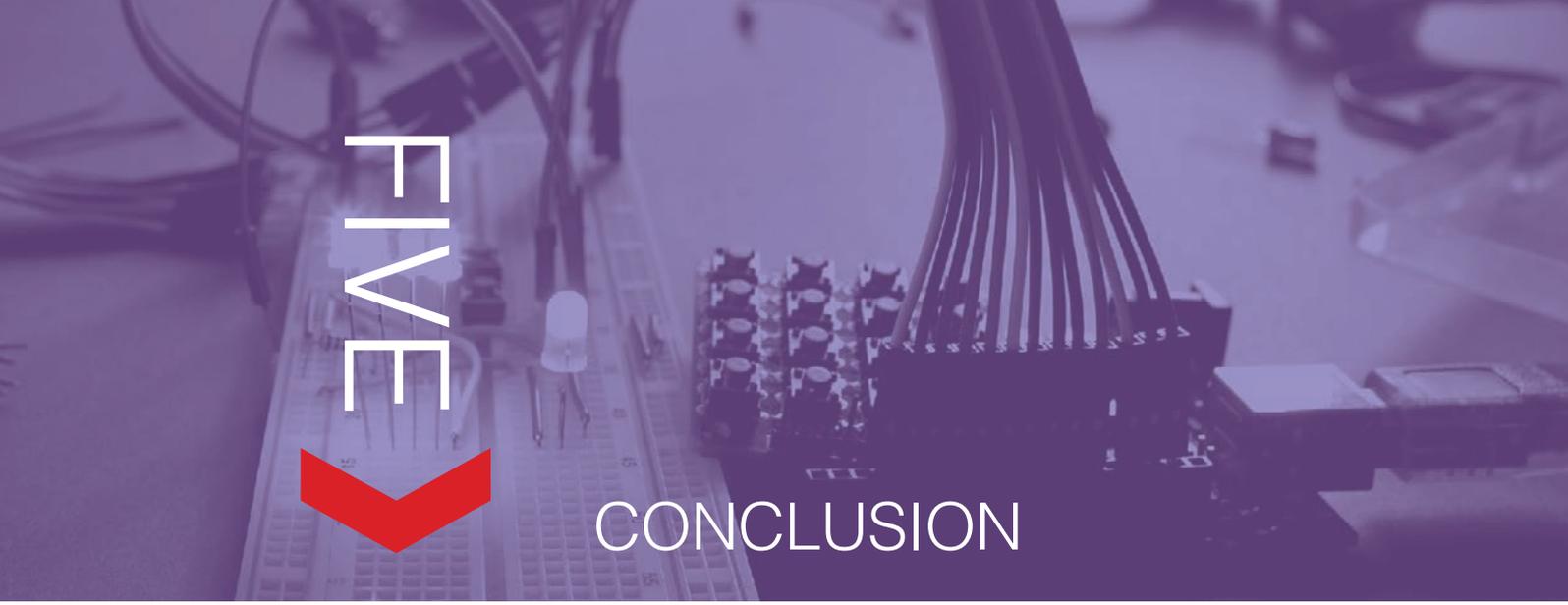
When trading these off against cost, an OEM's increased unit cost during periods of slower than average demand can adversely affect profits, but that cost can pale into insignificance compared to the damage to the business of not delivering the right product at the right time to a customer.

Early approaches to risk management used a sub-contractor as a second source of supply. This was often viewed as a kind of insurance policy against peaks in demand or even a disaster within their own production facility. Whilst this may have been a 'comfort blanket', it wouldn't always achieve the desired outcome if it was ever put to the test. Firstly, the sub-contractor would need to be capable of a significant increase in output to seamlessly meet demand, and secondly, they would need to have planned specifically in terms of supply chain pipeline in order for this to be a valid strategy.

Certainly, sub-contractors can be a powerful tool in an OEM's risk management strategy but, like the decision to sub-contract in the first place, the solution needs to be part of a wider and integrated strategy that also involves the 2nd tier suppliers.

Today's successful outsourcing arrangements differ greatly from the more traditional approaches. One major difference is shared strategic risk: OEMs and their EMS partners now must work together to achieve strategic outcomes. Another difference is measurement: performance is measured not just by cost savings, but also by revenue, earnings per share, and market share.





FIVE

CONCLUSION

A SUCCESSFUL OUTSOURCED STRATEGY IS ONE THAT WILL DEMAND TIME, RESOURCE AND COMMITMENT FROM YOU. AT TIMES, IT WILL CHALLENGE YOUR THOUGHT PROCESS AND COULD EVEN MAKE YOU QUESTION IF THE APPROACH IS, PERHAPS, ONE STEP TOO FAR. WHILST THERE ARE, OF COURSE, RISKS AND CONCERNS, THESE CAN BE ALLEVIATED BY PARTNERING WITH AN ELECTRONICS MANUFACTURING SERVICES PROVIDER WITH DEMONSTRABLE EXPERIENCE.

Outsourcing provides you with the freedom and flexibility to concentrate on those areas of your business that drive growth and profitability, and help you gain a competitive advantage within your marketplace. Indeed, some of the most successful companies in the world today have already taken this step; and by overcoming their initial concerns, and putting their trust into someone else, they remain at the forefront of their market.



ABOUT

PART OF THE ESCATEC GROUP OF COMPANIES, JJS MANUFACTURING IS AN ELECTRONICS MANUFACTURING SERVICES PARTNER, OFFERING LOW RISK, END-TO-END PROCUREMENT, MANUFACTURE AND SUPPLY CHAIN SOLUTIONS.

Call us on +44 (0)1455 55 55 00 to discuss any points raised in the eBook or to talk through your own outsourcing requirements. We would be delighted to hear from you.



RESOURCES



JJS MANUFACTURING HAS A COMPREHENSIVE RANGE OF EBOOKS TO HELP READERS GET A DEEPER UNDERSTANDING OF OUTSOURCING MANUFACTURING.

Topics covered include new product introduction, outsourcing strategy, supply chain management, test and logistics.



VISIT OUR DOWNLOADS SECTION FOR THE COMPLETE RANGE.

VIEW ALL EBOOKS