



Evaluation of the Engineering Technicians Programme Case studies

Part 2

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Castings Technology International

Introduction

“The volume of training need was very significant, and varied ” Steve Oxley

Castings Technology International (Cti) is a not-for-profit organisation, which undertakes research and development relevant to the manufacture and use of metal castings. Companies involved in the casting supply chain (be it directly, or as a supplier) can access a range of services including technical support, information, consultancy and training.

The Engineering Technicians network was led by Steve Oxley, and focused on the needs of one discipline, methods engineers (or technicians), and delivered a series of training courses to nearly 100 employees across 40 companies, by on-site, off-site and distance learning methods. This training was sub-sector specific, and bespoke to the company in question. Training was delivered to address real business problems, and provided skills and knowledge directly applicable to the workplace environment.

The castings sector is going through a time of significant change, and Cti is currently developing high tech manufacturing techniques that will help companies to develop and compete in more diverse markets.

Best practice issues:

- Sub sector specific training targeted at one occupation
- Training that addressed real business issues, based upon a previous training needs analysis
- A network forum in addition to training
- Flexible, tailored training designed and delivered by a company with an in-depth sector knowledge

Key lessons learned:

- Companies can still be persuaded to release staff if the training is of a sufficient quality and tailored to their business needs;
- Investing in technicians is a solid long-term strategy for the entire engineering sector;
- Accurate labour market information can inform training and cluster development;
- Distance learning does not have to be generic.

A Technician's Example



Alan Mason (pictured left) is employed as a CAD / CAM engineer at Cti. Previously he worked as a Methods Engineer in Durham, for two years, having joined the industry after leaving school as a pattern maker, and took part in the Methods Engineering course (on steel) using distance learning.

Alan says: ***“There are no recognised academic courses for methods engineers, then Cti approached my former company to get involved with the technicians project. It gives you proof that you can do the job, and the confidence that you can do the job properly. The distance learning***

modules take you through the process step by step, then there is an assignment where you have to carry out practical application of what you’ve learnt in the workplace to find answers to 10-15 questions. I now look at training in a different way than I used to. I’ve realised that the course will help me to get on in my career, and It’s not a boring way to learn as you’re tackling a problem from your own job. And you can always go back over the training again if you need to”.

Alan also recently finished an NVQ level 3 in Engineering Design assessed by Cti’s Casting Skills Centre.

Encouraging take-up of training

“Training focussed at specific disciplines delivering practical training is the only way to make this type of project work” Steve Oxley

The network delivered training to just one occupation group – Methods Engineers. Cti used very specific marketing materials, aimed at managers, as an entry point to the technicians. Cti also carried out a mapping exercise to establish what training was available in colleges and Universities related to Casting and Metallurgy. This has enabled a database of training delivery to be available to companies to meet a variety of needs.

Training requirements were identified by a training needs analysis. This identified a “significant list of needs”, says Steve. The in-depth consultation proved that “everyone wanted sub-sector focussed training”. Employers were sent a summary of their training needs, and the training Cti could offer. Anything beyond their remit was referred to other training providers. Employers were not always aware of how their training requirements could be met– but as a result of the network were often able to quantify what training they needed, and how it could be provided.

The resulting courses were able to involve technicians, despite a recession, which made it difficult for companies to spare staff, and a traditional reluctance in the sector to sending staff on external training courses. The network moved from its initial geographical set-up to a sub sector focus. The geographical network did not work because the range of needs identified was too diverse.

Concentrating on one sub sector made the training delivered more relevant and better linked to business issues. The bulk of companies involved (approximately 80%) were SMEs that were able to train on advanced equipment at one of Cti’s two training centres in Birmingham and Sheffield.

“To be credible, the training needs to be delivered by someone with practical experience of the industry – and outcome focused – with an emphasis on solving real problems in the workplace. Many companies have said their problems with other providers is that training is being provided by people who don’t know the industry,” says Steve Oxley.

Tailored technician training

“We targeted not just a sub-sector, but a job, which gave the training far more relevance”
Steve Oxley

In the castings sector, methods engineers have to be adept at a range of technical skills involving a high level of maths, to work out for example, the fluid flow through gating systems. Most technicians work their way up from craft apprentice level, and as a result have a firm understanding of the overall process, which makes them useful managers, and underlines the importance of relevant training to keep them up to speed with the on-going changes in the sector.

The training delivered targeted not only technicians, but also the type of material they worked with. Therefore courses were run in a number of subjects relating to iron, steel and aluminium. Each of the courses lasted one week, and involved learning new analytical techniques and solving a series of practical problems. Steve says: ***“The training was deliberately difficult, so technicians get used to working under pressure.”***

Existing learning materials were improved, and tailored for each course delivered. The training counted towards a technician’s CPD requirements, and counted as underpinning knowledge towards an NVQ Level 3 in Engineering Design. Delegates took away a comprehensive set of course notes and a workbook, to enable them to demonstrate their new skills in the workplace, to keep the learning fresh and to share with others in the company. Delegates from a range of ages were represented, most without many formal qualifications, and were shown the scientific basis of their jobs. Feedback from delegates measured the effectiveness of training. The modules were also adapted and offered to trainees on CD to access via distance learning. The cost involved in developing materials and offering on line learning is great, but Castings saw the long term potential to getting involved in clusters and networks that justified the initial outlay.

Business Benefits

“The training offered has shown the technicians a better way of producing castings. Better production methods will lead to improved yields and cost savings – resulting in more profit and improved throughput,” Steve Oxley

The training was practical and bespoke to the companies paying for the course. Delegates had the opportunity to step back from their workplaces, and refine and refocus their efforts. As a result, delegates could then return to their companies able to apply solutions to actual business problems, or improve the way the process worked. This was the hook that encouraged companies to send staff on training courses.

“We work in the real world and know about real world pressures. The courses were tailored as much as possible to meet the requirements of companies, by providing a flexible delivery mechanism reduce to the impact on production for participating companies,” says Steve.

An additional benefit of the training delivered was improved take-up of membership of the

industries professional body, Institute of Cast Metals Engineers and The Engineering Council – that emphasises training and qualifications.

Networking

A network forum was established to enable learners to communicate with one another if they wanted to. The forum was used mostly by distance learners, and will also feature in new projects to deliver additional industry based training, augmented with a forum for tutors and mentors.

Impact on the supply chain

The training involved many elements of the supply chain, designers, producers (foundries) and suppliers. It is therefore likely to have led to improved communication among supply chain companies.

Sustainability

Cti continues to deal with the companies involved in the network, (a ready made network primed for new initiatives...) and training courses are still being offered. Cti are considering offering a day release option to the 5-day course to further meet company needs. *Steve says: “**For the numbers trained the network has offered good value for money. It has given many people access to training, which would not have occurred at the volumes and level made possible by the network**”*

The experience of running this network was the catalyst for a potential new network to deliver higher-level qualifications in the West Midlands. Cti is also working with other potential funders to extend this network to other areas in the UK, with each network built around the key sectors in that economy.

Cti has also received LSC funding to conduct follow up work with metal casting companies in the Humberside area. *“**This is an example of our commitment to the sector, we’ve persevered in an area where it is has been difficult to find funding support and have been successful,**” says Steve Oxley.*

Somerset and Dorset Manufacturing Network (Yeovil Travel to Work Area)

Introduction

"The network offers something over and above FE provision" Fred Turner, Network Leader

The Network was established for the benefit of manufacturing companies in the Somerset and Dorset region 'in order to provide opportunities to resolve technological, management and skills issues affecting quality, cost and delivery performance.' Fred Turner



The lead contact, and mainstay of the network is Fred Turner, whose contacts and industry experience have proved very useful to network members. Fred is supported by administrator Sarah Law (pictured left).

Project Description

The network was established to offer a one-stop shop approach to training, development and networking for manufacturing and engineering companies in the Yeovil travel to work area (defined as anywhere within 30 minutes drive of Yeovil).

The network was able to source suitable training for SMEs, and also encourages the development of business clusters to ensure that training can be delivered in a cost-effective manner.

Best practice issues

- The mix of information seminars and brokered training has led to real outcomes
- The network has brokered training with a wide range of providers, including ostensibly competitors to the host College.
- SMEs need to be fully involved in deciding the format and content of training intelligence, i.e. demand led is an essential.
- A third party organising the seminars and training has greater credibility
- A regional, cross sector network can work well with a skilled facilitator in charge.

Key lessons learned

- With the offer of financial support, SMEs will invest in training and staff development
- Partnership working needs to be mindful of the separate agendas of said partners
- Seminars held on neutral territory, in the evening, and ideally mid month
- Networks can raise the awareness and aspirations of technician level staff.
- Conventional FE/HE provision has an important role within most established companies but responsive, short-term, demand-led provision is essential in order to enable companies to meet rapid technical and cultural change.
- Events providing the opportunity to focus on a current or emerging topic is very useful to industrialists, but so is the opportunity to network.
- Successful networking takes time to develop and is dependent on building confidence between participants.

Training Delivered

“Employers want training when they need it, and for the length of time they can afford.”
Fred Turner

Funding is a crucial factor in whether an SME invests in training or not. Location and the time factor are also important, as Fred affirms:

“Downtime is a big issue – have to go into the company and give them something that is short and sharp – e.g. Inventor training on CAD. Companies are often looking for an instant return on training in specific skills, which we have set up, but the network has also helped companies develop softer skills, that have a longer term benefit by supporting cultural change.”

One SME interviewed agreed that the funding provided had enabled more staff to be involved in training than would otherwise have been possible. As importantly, the company in question now has the contacts and know how to develop a distance learning version of the training received for new recruits.

Raising awareness of training

The companies interviewed as part of this case study all said that their awareness of the types of training had increased. Indeed, some had already developed training plans for their staff, and identified that staff were now more likely to request training. In general, due to a combination of culture and business pressures, many of the companies had not invested greatly in staff training in previous years: the network was an important factor in changing this attitude.

“SMEs are already ahead of FE and HE in some specialist technical and process areas”, says Fred. “The network has served to give added momentum to the change process by technology transfer between companies and has also provided feedback into the College’s development strategy”.

“Involvement by companies in the Network is very dependent on the views of the chief decision makers – many SMEs are family businesses run in ‘traditional’ ways by the original owner manager. Raising awareness of current key issues can often remove barriers such that ‘younger blood’ in the company can raise their own skill levels and raise awareness of the benefits of training throughout the company.”

The SDMN is currently co-ordinating a number of visits for Network companies to a host company for ‘warts ‘n’ all’ workshops on Six Sigma implementation.

Responding to demand

“All the training delivered was directly influenced by what employers wanted”, Fred Turner.

“To grow the business, you have to train”, Barry Luke, MD, Sleabridge Engineering.

The training brokered by the network was negotiated with employers. The network identified a provider of training, then assessed if the training was credible. Having established this, the network would then try to source funding on the company’s behalf. For example, for one particular course a 75% reduction was available through Somerset Skills Support Project funding. For another company a £500 grant was available towards the cost of a year long City and Guilds course.

SDMN attempted to use local training providers wherever possible but ensured that in all cases the most appropriate provider for the company was used. SDMN has helped to improve the College's links with local businesses. As a key partner in the Network, Yeovil College has been accepted onto the Learning Skills Councils' Centre of Vocational Excellence programme for Advanced Engineering. The successful bid used information gained through Network activity and was written by Fred Turner. ***"If we didn't have the Network, we would have to invent one just like it"*** says Neil Warren of the College.

How effective was the forum that brought training providers and SMEs together?

"The true value of the network was shown when we referred a consultant we had used to the network, who then passed on details to other companies". Barry Luke, MD Sleabridge Precision Engineering

The combination of training and information has arguably been very effective. The companies involved are typically bombarded with offers of training, so the impartiality offered by the network has been very appealing. Another plus is that there is little sales activity as such, so managers are able to assess and make considered, unpressured judgements.

"As a network we are very different from some of the others funded. Our emphasis has been on networking and signposting" Fred Turner

The three principal partners in the network were Yeovil College, The University of Exeter and the DTI. Other partners include Business Link, Manufacturing Advisory Service (South West), West of England Aerospace Forum (WEAF), South West Regional Development Agency and The Engineering Employers Federation (EEF). Companies are referred to these agencies as appropriate, or can meet their representatives on an informal basis at the organised events.

Fred Turner says of the network:

"There has been an emphasis on upskilling the workforce at whatever level is required. Therefore relationships have also been made with universities, colleges, other providers as well as Business Link, RDA, MAS etc. Evening seminars have enabled companies to network with these organisations and learn about something relevant and current."

One method used to gain access to companies was by working in conjunction with consultants on ISO 9001. Having supported the training content of an ISO 9001 implementation in one company, this led to a further 43 personnel from 16 companies undertaking some form of ISO 9001 training. This then led to other types of training within some of these companies. This means of marketing proved very effective, since cold calling proved *"extremely difficult"*.

SME example 1: Cronite Precision Castings

With 65 staff, this foundry, part of the supply chain for Westland Helicopters, has sent a number of staff at all levels on generic training course, sourced through the network, including Supervisor Training, IT and Management Training.



Sandra Isaacs, of Cronite (pictured left), says: ***“We were offered a good deal, and all in-house. The network has really looked at our individual needs. Many of our supervisors were technicians who needed help, but because of the course, they are now much more switched on and working closer together. We couldn’t have offered the training without the funds the network was able to secure for us.”***

Methods Technician Barry Hayne underwent a ‘Managing Your Workload’ course. ***“It fitted in perfectly with my needs, although I didn’t really know it when they asked me to go. I am more confident now, and I have encouraged others to use the same techniques. Where before I wasn’t positive about training, now I’m all for it”.***

Maintenance engineer Kingsley Davis now uses the IT skills acquired daily as he logs jobs onto the office PC. ***“Computerising the daily workload makes us more efficient and saves the company money. Using email will also improve communication in the factory. I wouldn’t go near the computer before, but now I am helping my apprentice with it.”***

Maintenance staff have now identified further training requirements including electrical courses, alloys and shelling. All staff now have a training plan.

Evening Seminars

“The evening seminars were informative and thought provoking”

The network has held a series of evening seminars, attended mainly by managers and senior staff, to find out more about pressing local or industry issues. Subjects covered so far have included ISO 9001 (2000), lean manufacturing, leadership, cultural change and communications / broadband technology. The seminars begin with a buffet and a chance to network, followed by a presentation, then more networking time.

As seminars have progressed attendees have become more at ease with one another and have requested less formal input and more time for discussion / networking. *“The middle of the month seems to work best,”* says Fred.

Involvement of larger companies

“Larger companies have many of the same needs as us,” Barry Luke, MD Sleabridge Precision Ltd.

The network is open to companies of all sizes, and ranges from micro businesses to two or three large local manufacturers employing more than 500 staff. Westlands is the largest employer in the area. The mix of companies involved means that there is always a range of issues to discuss.

Fred says: **“The network needs larger companies, since they are usually at the forefront of training because they can really put manpower into change. SMEs can interact with each other and also learn from the larger ones. This is especially important where supply**

chain relationships are evident. However, it is important not to let larger companies swamp the network.”

SME example 2: AA Williams (Tech) Ltd

The company offers a very specialist service built around installing and maintaining uninterruptible power supplies (UPS). Established in 1987, there are currently 13 staff. Due to the nature of the job, there is both a strong health and safety element and a high skill requirement.

“There was nothing that met our needs, so we worked with the consultant referred by SDMN to develop a course from scratch,” says Ian Price, Quality and Training Manager. The resulting training course was held over eight days, with a total of six modules. SDMN was able to arrange funding, which met part of the cost, and enabled more staff to be trained than would otherwise have been possible.

“Our staff are at varying stages of development, but everybody got something out of it,” says Ian. *“All of our staff are now more aware of training, and teamworking is much improved. We encourage them to improve their CV and that of the company’s”*



Technical Manager Chris Riley says of the training itself: *“It was very good, and very practical, everybody had to do something”*

AA Williams is now going for ISO 9001 accreditation, and exploring ways to achieve this with help from the SDMN.

Business benefits

“Communication is much improved, in fact the whole culture has changed. Our customers have noticed that we now always deliver on time and are customer focussed”, Sandra Isaacs, Cronite Precision Castings

Companies involved in the network have been able to learn about specific issues at the series of evening seminars (see separate section), but have also been able to source training courses specific to their needs. In total, 189 training instances across 38 subject areas, involving 152 employees from 44 companies have occurred to date – including Electro sensitive device handling, SMARTCAM (CNC), Hydraulics awareness training, Foresight Manufacturing, ISO 9001, Resin infusion techniques (composites). There have been 282 attendances on the 8 eight evening seminars undertaken to date.

Other SMEs have identified the grants received as being an important part of business growth – for example; one SME sent staff on CNC training; with the result that the company can now take the types of complex jobs that customers are requesting.

The network’s promotional material gives a range of examples of training on offer at a greatly subsidised rate. For example, AutoDesk Inventor training for three staff cost a company £530 whilst the true cost is over £2,000. On-site training on ISO 9000 / 14000/ 18000 is supported via the network at half price.

“I would definitely recommend the network, we have experienced a real sense of achievement from being involved.” Frieda Conway, Turnspeed Precision Engineering

Sustainability

The DTI funding met 38% of the project costs, and contributed to the cost of the project leader and administrator. Beyond that, to cover training and evening seminars the network has needed to work with partners to access funding.

Membership of the network is currently free, and according to the project leader, needs to remain so to encourage SMEs to get involved.

“Sustaining the Network is going to be difficult without someone to act as a catalyst and organiser,” says Fred, “but working with a range of partners helps to broaden the scope of the Network and the opportunity for its activities to continue.”

Network involvement in the bid for Yeovil College to become a Centre of Vocational Excellence (CoVE) in Advanced Engineering, which has funding until June 2003, means that in the short term, the network will be able to link its activities to that of the CoVE. Fred Turner is exploring other ways of ensuring sustainability by monitoring developments in Work Force Development projects by the Regional Development Agency (RDA), Learning and Skills Council (LSC) and, and exploring European Social Fund possibilities.