CAD Training – A Worthwhile Investment?

Computer Aided Design (CAD) is now the norm in this technologically advanced age. Gone are the blotchy Rotring ink pens and white melamine drawing boards, replaced by the monitor, keyboard, mouse and the ever-faster personal computer (PC) to become the CAD workstation.

When investing in a CAD system, there are four main focus areas to consider, in no particular order: -

- Hardware
- CAD software
- Training
- Support

These may seem fairly obvious considerations even to a newcomer to CAD, but it is seldom that training goes to the top of the list when cost becomes a governing criteria. In fact, training is normally removed from the list when money becomes the going concern. This article aims to ascertain what CAD training really is and to demonstrate why it should be the top priority when considering a financial investment in a CAD system. Also discussed will be the problems, which arise if training is considered to be a low priority or left out completely.

To benefit fully from CAD, training must be considered as the primary focus area when investing in any CAD system. If there is no budgetary allowance for CAD training, it is not worth making the investment in CAD. Not only will it waste time and money, but also the initial CAD strategy will be fundamentally flawed. The initial capital investment for a CAD system has fallen dramatically over the last couple of years, but it will still form a reasonably large capital outlay for most corporate organisations looking to use CAD. The majority of companies considering CAD are working within set budgetary constraints and only have a finite amount of funding. Hence, out of the four main areas of consideration (as previously mentioned), those areas that are seen as optional extras are also seen as a method of reducing capital outlay by being given the lowest priority or by being omitted from those areas.

Hardware and software are not optional; they are both necessary for an effective CAD system. They have to be purchased to provide an effective IT platform to run the CAD software. CAD support, including telephone and/or email support has a tendency to be "bundled" into the CAD software package and may have no associated capital cost for the first twelve, possibly even twenty-four, months after the date of purchase. This then leaves the only remaining area of consideration, **training**, the poor relation when it comes to CAD capital investment.

There is no doubt that CAD training is very expensive, costing anything between £200 per person per day up to, possibly, £400 per person per day. The higher costs relate to some of the more advanced courses available in the marketplace.

There is also the "downtime" to be taken in to consideration. Most basic/foundation CAD courses run for a minimum of three, maybe, four days. This means that the CAD trainee will be out of the office for that period, not in the office being productive, covering the overhead cost that they incur by being an employee of the organisation. To add insult to injury, the trainee will also claim their expenses for their particular
CAD course i.e. travelling costs, overnight accommodation, which, under normal circumstances, the investing organisation is duty bound to pay. It is no wonder that CAD training is viewed as a high overhead cost optional extra. The real cost of a day's CAD training per person could exceed £500 to £600 per day. Due to this cost, the powers-that-be may decide to transfer the original allocated training budget in to their capital budget, thus "maximising" their investment by purchasing bigger and faster computers instead. The typical comment from higher management controlling the purse strings would be, "Our staff are motivated, intelligent individuals, keen to develop good CAD skills to improve their working practices and enhance their career prospects. We have no doubt that they will embrace this opportunity to spend late evenings and weekends learning how to use our state-of-the-art CAD system." This is typical management jargon-speak. In other words, they were short-sighted enough to waste the training budget on slightly faster computers that regenerate a CAD drawing a couple of hundredths of a second faster than the computers originally specified in the capital budget. Due to this management oversight, staff are now expected to work at home and at weekends to learn how to use CAD.

How often do you stay late at the office or pop in to work at the weekend to learn how to use software? It never happens, does it?

Unfortunately, this situation is all too common in many of the organisations that invest in CAD. It then brings about the scenario where the office CAD workstations sit in a storeroom gathering dust or get reallocated to the secretarial staff as spare word processors. The cost implications of this are severe. The average cost of a CAD workstation (including hardware, software and support) can reach £4500. Compare this to the cost of three days training at £350 per person per day. The total cost of three days training is £1050, take this away from £4500 and you are left with £3450. Even if you include overheads and expenses, there is still a lot of money there to be left in a storeroom gathering dust, I hear you say. More to the point, do you now think that CAD training is a priority area of consideration?

Now that you are converted to the fact that training should be a priority but is extremely expensive, there is now a need to maximise on the investment in training and derive the maximum benefit from it.

Imagine this situation.

The brand new CAD workstation has just been delivered, installed and configured by your supplier. In an effort to get all staff productive and CAD-literate, it has been arranged for all of the relevant staff to receive appropriate basic CAD training during the two weeks after the installation.

The staff receive their CAD training and return to the office, eager and ready to go. This causes two problems.

Firstly, all of their current workload is still based on a drawing board or has yet to be converted to CAD and because of this, pardon the pun; they are back to the drawing board, quite literally.

Secondly, as there is only one CAD workstation available, there is always demand from all other CAD-trained staff to use the workstation. Weeks, possibly, months can pass before a CAD-trained individual can physically put in to practice what they have learnt. By this time, all of their CAD skills learnt in training have been forgotten or other constraints are put on their time and it is too late. The investment in training has been wasted.

Can anyone remember when he or she first learnt to ride a bicycle? Your parents put stabilisers on your bike to ensure that you learnt the basic riding principles first. You then progressed to two wheels, providing a golden moment for your parents, but also, only just beginning to learn the principles of riding safely, such as road discipline, steering, what the road signs mean etc. Bike riding skills take years of practice. The CAD training course is when you have your stabilisers on. The stabilisers come off when you are back in the office working on live CAD project work. To develop in to a rounded, CAD-literate individual takes years of practice and evolution working on CAD. It is, therefore, imperative to ensure that all training is co-ordinated allowing the trainee/trainees involved to experience CAD usage immediately upon their return to the office. This will not only maximise the effect of the training but also, maximise the financial investment made in training, by making the CAD-trained staff more productive.

There may be a large number of staff within the organisation and only a limited number of CAD workstations. Management often class this as a stumbling block, stating that there is a hardware and software licensing issue. It is not a problem. It just means that the length of time taken to train staff is just a little longer, that is all. There is no requirement for an emergency budget to be allocated for new hardware and software, which is often the perception taken by managers and directors. With a little resource planning, this problem can be resolved, by ensuring that new trainees get priority on the workstations immediately after attending their CAD training course. Not only is this a sensible course of action, but also removes the frustration factor involved.

By lengthening the training process within an organisation, there is also an added benefit. Rather than committing to training all staff at the same time and developing a staggered training strategy, the staff that receive their training first can then assist future trainees with their learning, thus enhancing the training process and maximising on the initial capital investment in training in the first instance.

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The majority of scheduled training courses are non-discipline specific i.e. they teach the trainee the basic CAD software skills but not how to apply them in their particular commercial environment. Therefore, it is always sensible to follow up on basic training with structured, discipline specific training. This type of training is normally provided by an industry or product specific consultant and needs to be budgeted for when the initial CAD investment plan is drawn up. To maximise on this type of training investment, the training needs to be aimed at staff that will benefit the most and have the necessary skills to pass on their techniques and expertise to other users. It is imperative that this type of training is provided and is not neglected. Any lack of discipline specific training leads to a stagnation of CAD skills within the organisation, with all staff achieving the level of skill of the most able person but not being able to progress to a higher level.

CAD training is never the easiest of internal processes to manage and can never be programmed accurately as it is a live, ongoing activity. It is closely linked with both project and office management. A reliable but flexible training strategy should be formulated for all organisations or departments who already use or are proposing to use CAD. This strategy can be developed in-house but this can lead to a situation whereby the departments or organisations involved have a biased view and endeavour to "massage" the strategy to ensure that their particular division or department achieves highest benefit. This can cause unnecessary disagreement within an organisation. It is far more beneficial to employ an external CAD consultant. Not only will the consultant provide completely impartial advice, they will also ensure that all parties involved gain maximum benefit from their individual investment in the CAD system. This not only gives the maximum return on investment achievable for the CAD system, but also provides a suitable training strategy that will benefit the whole organisation, not just a small part of it.

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