

Topic: MCAD

CAD/CAM System Sales - Reseller Views

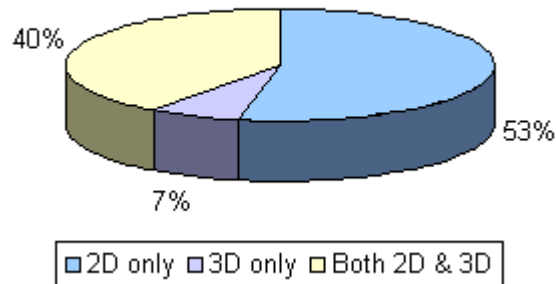
iCAD is produced by Business Advantage, a B2B research, business development and marketing consulting practice operating in the global IT, Digital and Telecommunications sectors.

The case for the benefits for moving to 3D design solutions appears to be won. The CAD vendors have their research results demonstrating the dramatic productivity gains to be made, and can produce a case study to cover every scenario. But what are the current attitudes to and level of experience of 3D design solutions among CAD/CAM users? Why are non-users of 3D CAD holding back? Has the 3D experience met the expectations of those who have adopted it? We interviewed 254 CAD/CAM using companies from a cross section of sectors to gain a snapshot of their views.

The 2D/3D big picture

Almost 40% of our sample indicated that they use both 2D and 3D depending on specific projects. Just over half use only 2D drafting tools, while only 7% of respondents use exclusively 3D solutions.

Usage of 2D and 3D CAD Software



The sample size is too small for firm assertions about the differences in levels of use of 3D solutions between industry sectors. **However, half of the 134 mechanical engineering companies we interviewed were using 3D solutions to varying degrees.** The indications are that the lowest levels of 3D use are in electrical/electronic engineering, and construction/civil engineering.

The survey showed that the proportion of companies using 3D solutions increases as company size increases. Less than 40% of small companies (i.e. those employing less than fifty people) reported using 3D CAD.



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Views from the 2D world

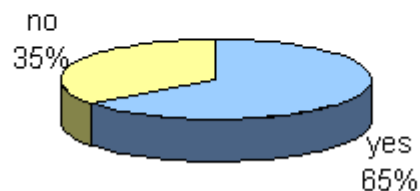
Three quarters of the companies not currently using 3D CAD software have no plans to move into 3D design in the future. 17% are planning to invest in 3D solutions, the majority within the next twelve months.



We asked those with no plans to move to 3D for their reasons behind this thinking. **Over half said that there was no need for them to use 3D, or that 2D already meets their needs.** One in ten stated that 3D was too expensive for their budgets.

The majority of those not using 3D CAD have actually looked into its potential for their business. Forty percent had come across 3D through demonstrations, while 16% had experienced it through trials. One in ten had attended a course. However, **over a third of the companies not using 3D CAD had no experience at all of such solutions.** While CAD vendors and industry observers may agree that the case for 3D solutions has been won, the implications are that a significant number of companies are unaware that this case even applies to them.

Have 2D users had any experience of 3D drafting/designing e.g. through trials/demonstrations etc. ?





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What lies behind the majority view of the non-3D CAD users that this approach is not relevant to them? Clearly there are going to be a proportion of these for whom 2D is genuinely the appropriate tool. However, the proportions offering this view were similar across business activity groups, including mechanical engineering. We asked Richard Shepherd, a Research Analyst from RSR who has studied 700 MCAD users over the last five years, why the take-up of 3D solutions is not quicker. *"It is fear of change by designers at the sharp end that is the sticking factor. It always comes back to being a people rather than a systems issue. Cost is less of an issue – sure 3D software is more expensive, but not enough to make a difference over a period of time."*

"Many companies don't present the 3D option in an encouraging enough way to designers. My research has proved an increase in productivity through moving to 3D. So companies should pay the designers more for becoming more productive."

In the UK it is the companies that reap all the benefit of the change, but in America drafters earn around twice as much as they do in the UK."

Views from the 3D world

We investigated the experiences of those companies that have adopted 3D solutions to find out whether the benefits, ease of use, cost etc had met their expectations. Almost one third of the companies using 3D solutions in our sample have been doing so for five years or longer. One in five started using it between three to five years ago, while a further 16% of the companies have used it for two to three years. The remaining third of this group have been using 3D CAD for less than two years.

The cost factor...

Companies were asked whether the overall cost of moving to 3D had been higher, lower or the same as expected. **Over half of them indicated the cost had been the same they expected**, while one in four companies argued that it had actually been higher. Only 7% mentioned the cost had been lower than expected.

The ease of use factor...

Almost half of our group of 3D users indicated that the overall ease of use of their chosen software had been the same as they expected. **A third of them stated it had been easier to use than expected** – but almost one in five found it harder than expected.

The impact factor...

The productivity benefits of adopting 3D design methods were perceived to have been greater than anticipated by over a third of the companies. Almost half indicated the impact on productivity had met their expectations, while only 8% felt the impact had been less than expected. However, 84% of companies indicated they are not measuring changes in productivity arising from the use of 3D CAD.



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Previous research has demonstrated the sort of increases in productivity that engineers should expect when moving to 3D. Richard Shepherd's analysis of MCAD users compared productivity changes over a two-year period between companies using upgraded 2D software, and those changing to a 3D solution.

Classification of main vocational design activity within the sample by work type.	Percentage of total sample surveyed %	Productivity change as a percentage within 24 months of upgrading software or changing design method.		
		Upgraded 2D drafting %	2D drafting to 3D solid modelling %	2D drafting to 3D surface modelling %
All users	100	+26	+38	+43
General mechanical	46	+26	+40	+42
Other engineering	31	+26	+32	+44
Sheet metal and fabrication	6	+27	+37.5	+45
Process and Plant	6	+24	+44	+42
Mould and die	3	+29	+57	+44
Tooling and press work	3	+26.5	+62	+42
Drive train and transmission	1	+17.5	*	*
Electrical/Electronic components	1	+26	*	*
Engine and power unit	0.5	+20	*	*

* Indicates that sample is too small for accurate analysis

Richard Shepherd feels that both CAD vendors and users need to be realistic about the time and commitment needed to reap the rewards of 3D design:

“To suggest that designers can be productive from day one using a 3D package with no previous training is nonsense – they can’t. It is a long hard learning curve. However, those who have made the effort to change to 3D have reaped the rewards and done very well. Often people think that the skills will be there instantly, but this is not true. It may be one or two years before the software can be used effectively. I looked into what happened if people received training before the software was installed. I found that the longer the training period before installation, the more productive the designer when it was installed. You can’t expect too much to happen in too short a time.”



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Solid services

Good quality support is going to be important to companies adopting 3D solutions – and the vast majority are satisfied with the support they have received from their software suppliers. Forty per cent of companies were “quite happy” with the support services they received. Almost a third indicated they were “very happy”, while 12% were “extremely happy”. However 12% of companies mentioned they were either “not very happy” or “not at all happy” with the quality of support.

Conclusion

Two out of five companies in our overall sample are using both 2D and 3D. Richard Shepherd feels vendors who can cater for this dual need in the most user friendly way will have the edge. *“There are companies which have elements of their work which would benefit from 3D but also have elements for which 2D would be sufficient. However, is there much point in having separate software for the two? This is why Mechanical Desktop is so popular – it allows designers to switch between 2D and 3D. 3D systems which don't have a 2D drafting facility don't tend to sell as many seats as those which have both.”*

When talking to 3D CAD vendors on why 2D drafters are reluctant to move to 3D, the same three or four factors keep cropping up – users feel it is too expensive, takes too long to become productive, it's too hard to use, and an overall fear of change. Our survey however shows that the first three of these are not necessarily major factors in the attitudes of companies reluctant to consider 3D. Richard Shepherd identifies fear of change as the sticking factor, and this probably lies behind the thinking of some of the 2D users who told us they have no need to move to use 3D. But our research also identifies a sizeable group of companies who feel that 3D is not relevant to them – they see themselves as doing fine with 2D with no need to change. However a third of pure 2D users not considering a change have had no exposure to 3D solutions. This implies that for some the decision to stick to 2D is not an informed one.

Of those that have adopted 3D solutions, nearly a quarter feel that the overall cost was higher than expected, and one in five feel it was/is harder to use than expected. There is an indication that some CAD suppliers may be glossing over the practical commitments required to use 3D successfully. In the long term it will be to everyone's benefit if suppliers focus on the actual needs of new 3D CAD users.

The strongest message from the research is a positive one. For those companies that have moved to 3D, the views on bottom-line benefits to their businesses are overwhelmingly favourable. Eight out of ten of these companies had their expectations either met or exceeded. CAD vendors now face the more difficult task of persuading the more reluctant adopters of new technologies that these benefits can apply to them too.



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Our thanks to Richard Shepherd, whose report on MCAD users will shortly be published as a book entitled '**Managing Design Process Productivity - A Guide for Engineering Designers**'. Enquiries to Rbshepherd@compuserve.com.

Please note that the views expressed by Richard Shepherd in the above article are not necessarily those of **iCAD**.

Do you need to know more about the attitudes to or experiences of adopting 3D solutions in different international markets? Business Advantage's multi-lingual research team can provide the solution. Visit our [market research services page](#) for more information, or call David Eaton on +44 (0)1689 873636.

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