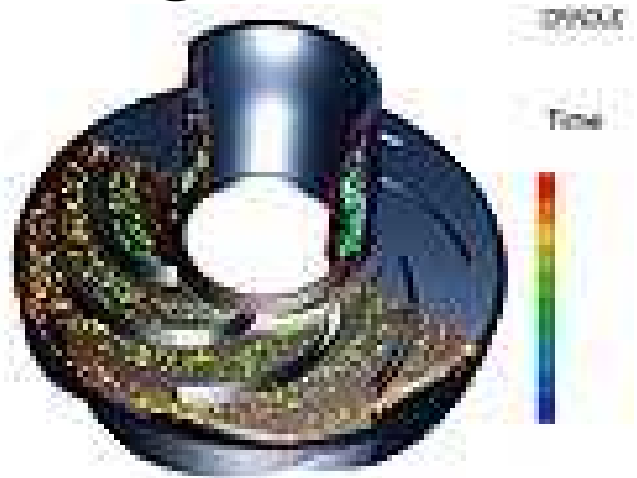


Spend A Little Now But Save a Bundle In The Long Run

If one of your goals is to reduce the learning curve for your new CFD software package so you can quickly start solving real engineering problems, what's the best way to make this happen? Here's what I recommend:

1. **Do your research and narrow your CFD software search down to a handful of potential products.** You'll have to gain a good understanding of what you're trying to model so you can explain it. You'll need to think about such things as: Do I want a specialized code or a general purpose code? Is some software more suited to solving my kind of problems than others? Where do I get my geometry data? I recommend getting opinions from others, either professionally and/or by using on-line CFD chat boards and forums.
2. **Invite the CFD software companies to demonstrate their software.**
3. **Narrow your search to the most promising software supplier.**
4. **Propose a consulting contract with your software supplier of choice where they use their software to solve one of your actual engineering problems.** The problem you should have them solve must be a real problem which is not overly simplified. The goal is to have the supplier define the steps required to model and simulate your problem. If they're successful, you'll have the steps you need to build your models defined and tested by the industry experts.

The idea of having the software supplier prove his software will work for you is called benchmarking. The traditional form of benchmarking is to tell the supplier to prove his software will work by demonstrating it for free. If the supplier proves his software works, you'll purchase a software license. This approach requires minimal involvement from



you. Basically you give the supplier the requirements and send him off to prove his software will work. Since the supplier is doing this for free (as part of the cost of getting you to buy a license), you'll likely receive work quality commensurate with the amount you're paying. This means it'll likely be very modest and not very detailed.

In contrast, by actually paying the supplier to benchmark his software, you'll get a different level of effort. This will require much more involvement in the process from you. But you'll also be able to demand more from the supplier (since you're paying them). The objective is to have the software supplier learn, test, and prove out everything required to build a real model that will solve one of your real engineering problems, then teach you everything he's learned. By doing this, the supplier will work through all the bugs and difficulties, and you won't have to. When he's done, he'll transfer this knowledge to you since you paid him to do this. This knowledge will save you substantial time (and money) once you're ready to start modeling. On the other hand, if the supplier isn't successful with the modeling you'll also know this before you commit to purchasing a software license. It's never easy to want to pay for this service, but this cost is a worthwhile investment in the long term compared to the amount of time you'll lose trying to get up on the learning curve by yourself.

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We did this when we first starting modeling the air flow in paint spray booths. We identified one CFD software package that was particularly attractive. Then we contracted the CFD supplier to actually build some of our first models. They accompanied us to the manufacturing plant and even used our measurement equipment to collect validation data. Then they built the models and validated them. They learned about

how to tailor the porous media filter model to get the desired results. They learned the fastest way to construct the models. All this experience and knowledge was transferred to us when we licensed the software. As a result, our learning curve was greatly shortened, and we were able to start using their software to model the rest of our facilities very quickly.