

FEEL LUCKY?

Then Go Ahead & Cut Prototyping in an Uncertain Economy

Measure Twice, Cut Once

By Scott Crump

In these uncertain economic times, I remind myself to “measure twice; cut once,” a lesson my father taught me as a boy. It’s advice that is obvious and wise but so easy to ignore, especially when resources are tight.

In tough times, you might be tempted to skip those second measurements to save a few minutes and a few dollars. If “the cut” is correct, there are savings. But if the cut is wrong, the gain you had hoped for pales in comparison to the effort and expense of making it right. Though the risk is much greater than the reward; it’s nevertheless tempting to take that risk when time or money is tight.

In the R&D arena, “measure twice” translates to “prototype early and often.” As with measuring twice, prototyping offers the confidence that there will be only one tool cut and no rework. Unfortunately, the similarity doesn’t end there. For very little financial gain, companies take a big risk by ignoring the wisdom of prototyping early and often.

HARD LESSONS

When the economy dips and sales decline, the number of prototypes plummets. I witnessed this cycle in the last recession, and I am experiencing it now.

As a veteran of the rapid prototyping industry, I have seen companies of all sizes retrench and

cut back in economic downturns. An early casualty for many companies is the number of prototypes that are built. Faced with budget cuts, prototyping is incorrectly viewed as an optional expense.

No one is immune to the struggle to cut costs and increase productivity. And even though our company manufactures prototyping systems, we too feel the temptation to cut back on prototyping to save a few dollars and a little time.

I have seen companies slash prototyping budgets, and I have seen many suffer the consequences. Over the years, on more than a few occasions, we have suffered the same fate when we assumed the design was perfected, and another prototype wasn’t needed. These lessons remind us of the value of a prototype and reinforce our decision to iterate often.

INSURANCE POLICY

A tough economy tends to blind design professionals and business managers to the stark reality that a small prototyping investment is protection against big problems and huge losses. Designers, engineers and managers somehow forget the value of prototyping. They fail to recall the risk they take when electing to skip an iteration.

In part, this happens because there is no direct correlation, no cause-and-effect relationship,

between the prototype and the success of the product. Building prototypes does not guarantee problem-free designs, market demand or profitable sales. On the other hand, eliminating a prototype does not mean that there will be rework and manufacturing problems. The only sure-thing is that the prototype will cost you some time and money.

So, the prototyping decision is a gamble. As with any insurance policy, you are betting on the outcome. If a prototype is eliminated and you don't run into any problems, the gamble pays off. But if a design flaw is discovered when tooling is being cut, a \$1,000 prototype savings can turn into a \$10,000 tooling mistake that derails production schedules. I guess the question comes down to "Do you feel lucky?"

Before answering this question, reflect on your past design projects. How many prototypes have you made that didn't reveal the need for any revisions...10 percent, 5 percent, 1 percent? For most, it is rare that a prototype doesn't lead to at least one discovery. The truth is that the odds of having a flawless design are against you. In this light, prototyping isn't an option; it is a necessity.

WORKING SMARTER

While a recession demands change in the way we do business, we have to be smart about the alterations we make. If budgets must be cut, it must be done wisely. This means being frugal, not cheap. It means cutting back, not cutting corners. It means being conservative, not timid. And it means being progressive, not stagnant.

To be frugal, conservative and progressive — all at the same time — we have to work smarter. We have to use the tools that are available to make the most of our time and money. From my experience, prototyping is one of those tools.

In my mind, prototypes are absolutely essential. Yet, being a realist, I know that the economic climate will have an impact on when and how often they are used. I know that some sacrifices have to be made. But I am convinced that the only reason not to prototype is when there is no R&D activity, which is another gamble with very poor odds.

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