

# **How to Have Greater Success with Machine Vision Or, if you prefer, Beating the Odds**

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Most projects are challenging, and this is certainly true of machine vision projects. At the start, questions loom. As the project progresses, seemingly insurmountable problems arise. To an outside observer, it seems like the machine vision practitioner has to beat the odds to succeed.

Beating the odds, though, is for gamblers not business people whether they're in sales, accounting, engineering, or any other function. In business, and this includes the business of machine vision, we shouldn't try to beat the odds, we should manage our work to change the odds so they are in our favor.

This is not to suggest that we can take a project that is very likely to fail and turn it into a project that absolutely can't fail. It proposes that it is possible for us to take a project that has an unacceptable chance of success and turn it into a project that has an acceptably high probability of success.

How can we do this? There are three ingredients.

## **Talent**

First, we must have a pool of exceptional talent. When an ordinary person plays poker against a professional gambler, the odds favor the gambler – not because the cards change but because the gambler is a professional who knows far more about the subtleties of the game.

In a machine vision project, we must have a reservoir of professional talent in multiple disciplines available to the project. These include optics, electronics, mechanics, software, manufacturing process, training, servicing, and management. This pool of professional talent brings innovative solutions that simplify execution plus a wealth of knowledge to overcome difficulties.

## **Risk Management**

Second, we must manage risk. Should anyone consider that there is a possibility a project would fail is a judgment that there is risk. While there are sophisticated and elaborate risk management schemes that are appropriate for extremely complex projects like a moon landing, our techniques must be much more streamlined but still effective.

We start by identifying risks to the project. Risks have two parameters: probability and impact. Both parameters must be identified for each risk. The talent pool proves its worth in identifying risks.

After identifying the risk, we manage them. Any risk with a “show stopper” impact that dooms the project must be addressed either by eliminating it or altering the project so its probability is negligible. Other risks with very low probabilities or those with rather incidental impacts can be ignored. That leaves a pool of risks with some probability and adverse impacts that must be skillfully managed during the project execution.

## **Focus**

Third, we must maintain focus. Focus means not losing sight of the value proposition.

At the project inception, the customer identifies requirements that make the machine vision system valuable and the practitioner identifies a cost that is acceptable to the customer for the value received. In short, the parties have established a value proposition.

Changes to the scope of the project almost always add complexity. They always change the value proposition even if the agreed cost is adjusted. The customer for the vision system is often guilty of a series of small changes in scope as the potential of the machine vision system is more appreciated. This change is called expectation creep. However, the technical staff developing the vision application also has the potential to alter the scope by expanding the features of the vision system they implement because the expansion is technically appealing.

A change in perspective regarding quality can help maintain focus for the machine vision team. Some people evaluate quality by measuring how much a product exceeds expectations. A better business perspective is to define quality as the degree to which the results conform to the requirements. That is, extra features, whether initiated by the customer or the machine vision team, do not increase the quality of the end result. Quality is measured by meeting the agreed value proposition.

## **Summary**

Does this mean failure can be obliterated? In poker, drawing to an inside straight is always a poor strategy; the probability of success is very, very low. So, in the machine vision business, some projects cannot be turned from high risk to good business propositions no matter how well they are managed. A great team and an analysis of the risks will uncover those projects with unacceptable odds and possibly allow the odds to be changed to what is acceptable. Maintaining focus during execution insures the odds do not change and depreciate the value proposition.

Following these three steps above gives you the best chance to beat the odds.