The Use of DOE in Transactional Applications

A statement often heard from deployment leaders of Lean Six Sigma (LSS) and Design for Six Sigma (DFSS) goes something like this: “our people don’t need to know Design of Experiments (DOE) because almost everyone here is involved in transactional processes.” That is an unfortunate perspective, because such knowledge deprivation will be a limiting factor in the overall success a LSS or DFSS rollout will ultimately have. Such a statement also reflects on the knowledge that a deployment leader has about DOE. Almost any LSS or DFSS leader or champion will support the fact that data collection is an integral part of all LSS and DFSS initiatives and that data collection can be expensive. Then why would we not want the best data collection methods available for our people to use? DOE is a data collection strategy. In fact, it is one of the best data collection strategies available anywhere, because it provides more information per data point collected than almost any other method. It also allows the practitioner to evaluate the effects of factors independently. I am not sure that even established practitioners of DOE truly understand the power of being able to evaluate the effects of factors and their interactions independently from one another. This ability is the heart and soul of detecting true cause and effect relationships. We sometimes talk quite flippantly about finding cause and effect relationships, but finding true cause and effect relationships is tough business. It is typically difficult to do, but with DOE, it becomes fairly straightforward.

Our position is that transactional practitioners need DOE just as much as anyone else does and if they don’t get it, the entire rollout will be limited in scope. Furthermore, potential results that could positively affect the bottom line and the policy making within a company will be missed simply due to the artificial barrier of “not needing DOE.” We have done as many DOEs in transactional processes as we have in manufacturing processes. The areas of application span human resources, finance, information technology, software development, advertising, sales and marketing, and a host of service related industries. Perhaps the “not needing DOE” syndrome stems in part from the inability of instructors and trainers to provide transactional practitioners with an easy-to-use DOE methodology along with an abundance of transactional examples from which to learn. Woe is to those providers of LSS and DFSS tools and methodologies who possess this shortcoming, because they are short-changing their customers. Air Academy Associates has had a long standing (more than two decades old) goal of making the understanding and application of DOE easy and straightforward. The approach to DOE and the software used must be amenable to transactional practitioners or it won’t be used at all. What a shame if that were the case.

Many times transactional belts are faced with analyzing historical data, i.e., data that has been collected under anything but ideal experimental conditions. The properties of the orthogonal nature of DOEs are extremely important in these applications also, because the differences between the nature of the historical data and that of would be DOE-collected data must be quantified and understood. So knowledge about DOE is a critical ingredient for anyone who desires to analyze historical data. And transactional practitioners are often faced with this task. The final word to deployment leaders is this: don’t let your belts grow up without DOE. You will not only be doing them, but also your company, a disservice. It is your responsibility to know what DOE really is, how it can be presented, learned, and applied in a digestible and motivating fashion, and to break down any barriers that will prevent its use in your organization.