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Chemical Engineering for Entrepreneurs

Entrepreneurial Engineering

Entrepreneurial Engineering is all about attitude. Innovation is messy. The normal way of doing things must be challenged. Entrepreneurs must find possibilities. Most times without having all the information. They must pivot quickly on new information, and respond to changing needs. An engineer in an entrepreneurial situation must be able to release the clutch on his or her work modifying it and letting it evolve with the emerging business opportunity.

Both models are right, depending upon the situation. Innovation fuels entrepreneurial efforts. Traditional rigor insures safety. Both approaches must coexist. In start-ups, entrepreneurial, and traditional efforts a root cause of stress on both sides is the mismatch of the type of people who are placed in these roles. A traditional engineering project of building a bridge or a power plant requires methodical and traditional methods. The driving to market of a new game changing process or product requires entrepreneurial judgment and attitude.

Entrepreneurial engineering is driven by a different set of rules. Both have to be technically strong, able to communicate and work tirelessly on teams, but an entrepreneurial engineer is driven by saving the world, righting a wrong or saving something good. Passion fuels the application of experience. Risk is part of the equation. Doing something new underlies the comfort of repeating what has been done before.

We will find a way is the mantra. Problems must be approached from what can we do versus the traditional here are all the things that you have to think about to get this to work attitude. Both approaches have to have technical basis and the engineering rigor to properly present a design. The entrepreneurial difference is in the attitude by which the problem is approached. Entrepreneurs do not believe in the no win situation. Like Captain Kirk, gut feel and intuition drive the decision. However, the traditional logic of the situation must be considered. Without Mr Spock, Captain Kirk is just reckless and egotistical, just like many of the most successful entrepreneurs. Harvesting this balance leads to success.

An important aspect of an entrepreneurial project is evaluating where to focus precious resources. Engineers most times overanalyze and lose focus on the prize. The get me more data is a classic way to avoid a decision or taking a risk. Entrepreneurial engineers must make a decision even if wrong. The no decision avoidance of traditionalists kills entrepreneurial efforts. Many times options are evaluated without full access to all the needed information. Decisions must be made using experiential judgment and plans must quickly be put into place to validate the direction in parallel with other efforts. Parallel path experience is brought to the

game to reduce the entrepreneur's risk by eliminating dead ends and quickly turning around proof of principal experimentation to keep the effort on the best path forward.

Real time situational analytical information is critical to an entrepreneurial environment. Many decisions have to be made using the data available. Information that is built from the data to make decisions must be valid and relevant. Too much analysis will inhibit decisions. The trick is knowing how to get the relevant data and how to apply it. For example, two or three indicative measures of a systems performance fits with a focused entrepreneurial effort to insure that the development of the program is on track.

Communication and team camaraderie are critical entrepreneurial efforts. In many engineering efforts the attitude by which the problems presented are approached drives the success of delivering the solution. Open acceptance of ideas with a "we will find a way" attitude is critical to the chaos of entrepreneurial efforts. Many traditional engineering relationships may have embedded in them a sound and successful history, this knowledge must be harvested and applied to the chaotic game changing efforts that may need more of an open and collaborative approach. Many time traditional sequence of engineering events needs to be replaced with multi-directional thinking whereas all members of the team focus on meeting each other at some defined point as opposed to a sequenced approval, certified, discipline comments and review. Parallel thinking is needed versus the traditional series sequence. Efforts are stressed when the game is played one way with the intent another. Like poker, you must play the tone of the table.