

Tau Beta Pi Engineering Futures

Teamwork, Leadership, and Growth — Three Tales of Entrepreneurship

by **Ronald M. Hickling**, *California Epsilon '80*

AS I WAS WORKING LATE AT NIGHT trying to finish this article, I suddenly found myself in a pensive mood. This was originally going to be a “standard” publicity article explaining the purpose of the Engineering Futures Program, but my fingers had other ideas. I suddenly became obsessed with the interesting parallels between my current life as an entrepreneur and my all-too-brief but fun-filled career as a California Epsilon Chapter President at UCLA many years ago. What struck me as I contemplated my present circumstances was that the problems I have to solve today and the basics which determine success have not fundamentally changed since the days when I was trying to solve the same active-member problems that many chapter officers face today.

Five years ago in July, two partners and I founded a small technology company with a mission of developing advanced microchip technologies and products. We all had a pretty good idea what we wanted the company to be “when it grew up,” but none of us had any idea how to get started. We already had an investment deal fall through on us when our former employer, who was shutting down our facility as a result of a merger, unexpectedly decided to cease negotiating the sale of its manufacturing equipment to our investors. Despite this, we set up a small assembly facility — assuming that our early revenues would be derived from manufacturing contracts. There was only one problem; there were no customers, and our first six months of operations resulted in an impressive \$500 of revenue.

Worse yet, as two engineers and an assembly line manager, we did not possess an incredible breadth of experience. Among the three of us, we had perhaps a total of one week of accounting and marketing experience, and with no outside investors the aforementioned revenue was obviously insufficient to attract the talent that we needed. As is often the case in technology startups, our toughest problems were not technology problems at all. Circumstances required us to reinvent the company in order to survive; thus, a research and development company was born. Despite this fundamental change in our operating assumptions, we have been approaching our vision. In our second year of operation, all of our revenues were derived from governmental research and development projects. Since then, our rev-

enues have been growing steadily. Last year, more than half of our revenues came from commercial customers, and this percentage is growing.

The above is a highly abridged version of the company’s evolution. Inside this story are many subplots and stories of hard work and devotion (such as learning accounting and marketing in record time) by numerous employees and advisors — past and present, paid and unpaid. Over the last five years, the primary question for the firm has shifted from how we can survive to how we can grow and which types of individuals do we need to enter the next stage of evolution. In my daily activities, I have shifted from seeking out other entrepreneurs to speaking with potential investors and negotiating intellectual property rights with customers. Yet, the fundamentals of solving interpersonal problems have not changed.

Sixteen years ago, California Epsilon was faced with the types of problems that are all too familiar to chapters today. Even though we had as many as 60 initiates, it seemed that we could only maintain active participation from between 15 and 20 people, of whom nine were officers! In an informal brainstorming meeting, it was suggested that what the chapter needed was a *hallmark* project, something large enough to bring campus-wide attention to the chapter. The proposed vehicle was both technically and administratively challenging; we would design and present a laser light show at Mardi Gras, a campus carnival which raises money to support a camp for underprivileged youths. Three of us were initially involved with the project. None had any experience with either laser-light-show technology or with the paperwork that would eventually be required to receive the governmental and university approvals for such a project. As luck would have it, one of the candidates we met at our chapter’s introductory meeting did have some experience related to the technology.

Things seemed to come together as we received a commitment from a local aerospace company to provide all of the necessary lasers and scanners (motion-controlled mirrors used to deflect the beam) needed for the show. Unfortunately, the negotiations between the university and the firm took an unexpected turn, and we ended up not receiving the equipment that was promised to us. We had a dome-shaped building in the middle of the carnival with nothing to fill it.

The resourcefulness exhibited by the developmental team in the events that followed are to me nothing short of impressive. Using a small analog music synthesizer borrowed from the music department, a stereo amplifier as a driver, a pair of cheap scanners that a student had lying around, and a helium-neon laser, chapter members put together an optical bench using duct tape and a hot glue gun. California Epsilon did present a laser show, although it opened eight hours late and was all in one color (red). While the current technology is much more sophisticated than what was used for that opening day, the laser show tradition continues each year.

Nine years ago a band of District Directors descended upon Los Angeles in a 1969 Volkswagen Beetle to conduct the first experimental session of what would eventually become the Engineering Futures Program. The session had improvised materials, no formal syllabus, and was driven by the sheer will of the four instructors to impart to the attendees the benefit of their experience in leadership and motivation.* With facilitators now located throughout the United States, the program is well into its adolescence. In nine short years, Engineering Futures has evolved from an *ad hoc* spin-off of the District Program into a full-fledged operation within Tau Beta Pi with its own budget and management structure. Since its formal kickoff at the 1988 Iowa Convention, hundreds of sessions have taken place.

What do these seemingly unrelated stories have in common? They are all stories of entrepreneurship. As a chapter officer or member, you may not fancy yourself as an entrepreneur. Yet, every time your chapter proposes to host a National Convention, plans a never-before-executed project, or begins to re-ignite a previously dormant chapter, it is engaging in entrepreneurship. Management theory teaches us that although the highest risk of a new venture lies at its start, the greatest amount of resources must be invested during its transition from a prototype idea into a mature product. It is also during this transition that the greatest number of changes in the product and process design occurs. Many of your chapters are currently in this transitional phase; so also is the Engineering Futures Program.

* For the interested reader, a more complete history of the Engineering Futures Program can be found in an article entitled, "A Brief History of the Futures," by Stephen K. Kramer, *Utah Beta '81* [THE BENT, Fall 1991].

Last year, when I was appointed as Director of Engineering Futures, we began a process of self evaluation on how the program has been and should be used to further the goals of Tau Beta Pi. To that end, the Engineering Futures Program Committee identified several ideas which we believe will improve and grow the program. One of these is to use more chapter operations examples in our presentations to make the link between theory and practice even clearer. A second is to recognize chapters which have demonstrated exemplary efforts in organizing sessions. A third is to reach more students by increasing national attention to the achievements and activities of the program. In the months to come, we will be contributing regularly to THE BENT and profiling our facilitators and other interesting articles on leadership.

The purpose of the Engineering Futures Program as declared in 1988 has not changed: "In order to promote excellence in the engineering community, Tau Beta Pi seeks to provide exemplary leadership and training opportunities to inspire each member." Neither has the slogan: "Lead: Learn and Do." What is required is a focus on this *doing* aspect, which is the critical link between simply appreciating the material and reducing it to practice. I propose that you are currently in the midst of the ultimate experiment in entrepreneurship. The lessons learned in your chapter will prove invaluable later in your career. They were for me. Take advantage of them. ¶

Ronald M. Hickling, *California Epsilon '80*, was appointed Tau Beta Pi Director of Engineering Futures in July 1995 for a term ending June 30, 1999. He is president of TechnoConcepts, Inc., in Newbury Park, CA. An Engineering Futures Facilitator during 1989-95, Ron was District 15 Director in 1986-92 and Assistant Director in 1981-86 and received the Tau Beta Pi Distinguished Service Award in 1992.

He has served as parliamentarian to several Conventions and as chair of all Conventions since 1990. He has been active in the Southern California Alumnus Chapter and was president of his California Epsilon Chapter. After graduating from UCLA with a B.S.E.E. in 1980, he worked for Hughes Aircraft Company before joining GigaBit Logic/TriQuint Semiconductor as a project engineer in December 1983. Ron also earned his M.S. at UCLA in 1986. He is a member of the IEEE and the author of two patents on circuits.

