

# 'Don't neglect the humanities'

## 'Chief' Morris involved in more than technology

If you think chief engineers spend all their time pondering technical data and inventing technological applications, Morris Engelson will prove you wrong.

As chief engineer and GM of Frequency Domain Instruments Division (FDI), Morris has a lot to think about. And as a person, his thoughts go far beyond the immediate realm of his Tek job.

Morris's career decision grew from an interest in science and a family composed of several electrical engineers. "I can't say I had a calling for it," he says. "It seemed like the right thing to do and it just all came together."

Early in his career, he was design engineer and group leader for RFI receivers at Polarad. He co-founded Pentrix Corp., an innovator in plug-in spectrum analyzers, where he served as chief engineer and vice president. Tek acquired Pentrix in 1964, and Morris came along.

Since then he has held various design engineering positions, including circuit and system design. As engineering manager, he was responsible for the technical aspects of project design. As chief engineer, he was responsible for the absorption, abstraction and prediction of technology.

Morris is a co-inventor of three patents relating to spectrum analyzers and still contributes technical ideas for use in products.

Today he calls himself a "non-chief chief," because "I'm not devoting a significant amount of time to technical areas, and if you don't do that you grow pretty stale." (Chief engineer is not a job but a title. When a chief engineer moves to another job, the title goes with him.)

But Morris is a chief engineer with broader skills than most. He has financial and functional responsibility for FDI's engineering, marketing, sales, administration, finance and manufacturing. "I think I am more valuable to Tek today because I had a stint as a chief engineer," he says. "It carries over into other activities, and gives me a better perspective.

"It's also been valuable in my work with technical customers. General managers and scientists have non-technical assumptions about managers, but when they see my background, they realize that they can talk technical stuff too."

Morris's strengths, however, reach beyond his immediate work. He has acquired strong beliefs about the relationship of science and society, the importance of education, and the skill of

managing.

"Technology in general has a greater underlying impact on society and behaviors—the things people don't recognize as technological in nature—than most people believe," he says.

"And it's unfortunate that people not involved in science don't have a better appreciation of what it's all about. We should not blame scientists, or expect them to have the desire, wisdom, ability or understanding to make global decisions."

His pet peeve about science education is our educational system, "where we educate people to be scientists...but don't give them enough of a real understanding of the methodology or a capability to make intelligent decisions about science. And that causes a lot of grief to all of us."

Morris is an adjunct associate professor at Oregon State University, and works closely with the University of Idaho and Washington State University. He encourages members of his division to take advantage of Tek's educational program.

"If there's a real relationship to the job, I think it's a good investment for the division and Tek," he says, "because there's a payoff in broadening the skills, interests and abilities of the individuals to make decisions. Decisions made in an environment of knowledge rather than an environment of orders create better results and a more enjoyable lifestyle."

Morris says he would advise students to understand three key elements of a good engineer: First, a rigorous understanding of the basics. "You have to learn new things all the time and understand their implications," he says. "Without knowledge of the basics, you're lost when the next wave of technology comes in.

"Second, you have to understand the relationship of technology and society, especially if you are going to work for a company like Tek. If the technical innovations do not stand the test in the marketplace, then they are a failure. Doing good basic design is not enough. It has to work for customers."

People interaction is the third element. "Some people are individual contributors of such high caliber that they can afford to be totally eccentric, doing things their own way," he says. "You can hide them away someplace and let them out every weekend. But most of us with average abilities and output cannot encompass all the work that needs to be done. The only way to do top work and be creative is to interact with people in groups. So I would tell young engineers not to neglect the humanities, because that's the glue that keeps everybody together in a group. Not everyone is going to be interested in your super, super-specialty."

A good manager, Morris says, has to have a solid knowledge base and a solid personal behavior base. "One thing absolutely critical," he says, "is a set of personal convictions of what needs to be done, what the goals are, and what it all means. There is such a thing as improper means for proper goals. Integrity is vital, and that means following through and setting guidelines so people know what they're getting into.

"And once you have those straight, you need to understand the business you're in. In our business, it's extremely difficult to have any chance of success without having an in-depth understanding of the business, including technologies, applications and customer uses.

"You need to have either an appreciation for or an education in technical matters, whether in technical marketing, education or product design, and have some time in grade in those areas to internalize it.

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***"A manager is the result of the organization. The people in the organization are the key to success."***

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"There's a big difference between cognitive understanding and gut belief. If push comes to shove, most people act with their feelings in spite of everything they know in their heads. So those two have to be congruent, and you have to have a history of acquiring convictions and feelings that you can act upon.

"If you do those things, then you have a chance of succeeding provided you have good people. And without good people, you're dead. Just as an engineer is not a lone wolf, a manager is the result of the organization. The people in the organization are the key to success."

Morris says that above all else, accepting and enjoying change is crucial to success.

"I've been at Tek a long time, and the company is not the same today as it was when I joined," he says. "A world without change would be enormously dull, and would drive everybody crazy.

"Change is a constant part of the environment, and people who are uncomfortable should do some real soul-searching as to why, because it's an opportunity to do something new, exciting and adventurous.

"If we don't react properly to change, we aren't going to succeed. So rather than fearing change, we should control it and accelerate it to the degree that we know which way we want to be going, and then try to have some fun doing it.

"That's what adventure in life is all about. Do something new, something different."

—Rick Moss



Morris Engelson