

NIMBYs, BANANAs, baby boomers and IT

Spreading the blame for today's shortage of engineers

The U.S. population is projected to grow by 65 million people over the next 25 years. Naturally, this phenomenal growth will lead to huge increases in the demand for water, electricity, gasoline and other staples.

"The problem is our existing infrastructure is already working at maximum capacity," says Ronald Stein, vice president of business development for Principal Technical Services. "The even bigger problem is that we don't have enough engineers and other professionals in today's work force to update, retrofit, and expand the existing infrastructure."

Smart Business spoke with Stein about the factors contributing to the engineering shortage and some strategies for boosting the size of the engineering work force.

Is the shortage due to large numbers of engineers leaving the work force?

That's a huge part of the problem. Fifteen percent of today's work force is composed of baby boomers at or approaching retirement age. As these individuals leave the work force, they impact the engineering shortage in two ways. The first is simply a reduction in the number of workers.

But the more important effect is that of 'brain drain.' This term refers to the phenomenon of the loss of talent and expertise that occurs when experienced workers leave the industry. In the short term, the shortage of manpower will severely limit the number of projects that can be undertaken. In the long term, brain drain will result in projects taking longer to complete, and therefore costing more.

Why can't engineering graduates replace retirees?

There just aren't enough of them. The number of engineering graduates has been declining for the past 20 years, and it's largely due to the NIMBYs (Not In My Backyard) and BANANAs (Build Absolutely Nothing Anywhere Near Anything).

In our democratic society, local commu-



Ronald Stein

Vice president of business development
Principal Technical Services

nities have the power to reject proposals to build things like refineries and power plants in their 'backyards.' In the last two to three decades, the NIMBYs and BANANAs have succeeded in paralyzing the infrastructure industry. The lack of projects, and therefore job opportunities, for entrants into the field has discouraged young people from choosing engineering as a career.

Engineering fields also have to compete with the high-profile, glamorous image of IT (information technology.) Who wants to design oil refineries that the NIMBYs and BANANAs won't allow to be built, when they could be writing algorithms for tomorrow's best-selling new software? IT is also more attractive to young people because career advancement happens more quickly. Much of the training in engineering happens on the job, so increases in salary and responsibility take longer to occur.

Another factor discouraging students from pursuing a degree in engineering is the negative image associated with much of the infrastructure industry. The oil and gas industries in particular are not compatible with the environmentally conscious idealism that pervades most universities.

What can corporations do to minimize the effects of the shortage?

This is a problem that has been developing for decades. There's no quick fix, and the problem has to be addressed from both sides — slowing the exodus of individuals from the work force and adding new individuals to it.

The first thing companies need to do is encourage the baby boomers to delay retirement. Although this may sound expensive, it doesn't need to be. Many mature workers are interested in nonmonetary incentives such as telecommuting, job sharing and decreased job-related travel. Some of these seasoned veterans are also interested in taking on new and different responsibilities such as mentoring their younger colleagues. In addition to enticing the baby boomers to stay, this type of program facilitates the passage of information to the next generation of workers, thus lessening the problem of brain drain.

Another short-term strategy to boost the engineering work force involves looking outside of the United States for qualified candidates. Infrastructure development is active in many other countries, and many experienced foreign nationals are available to provide needed manpower here in the U.S.

In the long term, we need to entice more technically minded college students to pursue a career in engineering. Corporations and universities should work together to restructure engineering education in a way that makes it more attractive and more practical. At some universities, programs are already in place that allow students to work on real-world problems with representatives from corporations in the infrastructure industries. Fast-track programs are also being developed at some companies to decrease the amount of time it takes for newer professionals to advance in their fields.

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