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HOW DO YOU become head of a major corporation?

Have a "love affair with the company," says Bill Swanson, who was named last summer as the new CEO and president of Raytheon Company, one of the nation's largest defense contractors.

Education is also key, according to Swanson, who characterizes himself as an insatiable learner with a compulsion to add something new to his knowledge base every day. Most days he aims for two, so he has one in the bank "for days when I slack off."

This passion for learning was evident during his days at Cal Poly, where he graduated magna cum laude and was named Outstanding Industrial Engineering Graduate.

Swanson, who was awarded an honorary doctorate of

laws degree from Pepperdine for his work with the university and students, believes the practical experience and self-confidence he acquired at Cal Poly made him a double threat when he hit the business world. "I fit right into the Raytheon culture – comfortable with the equipment, knowledgeable in engineering theory, and in possession of a no-fear attitude," he recalls. "I definitely had the advantage over my peers from other schools."

His fearless approach to getting the job done propelled

*Cal Poly industrial
engineering alumnus
Bill Swanson shares
his experiences as
CEO and president of
Raytheon Company
and reflects on how
"learning by doing"
got him there.*

**Story by Leah Kolt
Photos by Jeff Greene**

Raytheon at a Glance

Raytheon is an industry leader in defense, government and commercial electronics, space and information technology, technical services, and business aviation and special mission aircraft.

STAFF:

- More than 76,000 employees worldwide

REVENUES:

- \$16.8 billion in 2002

STRATEGIC BUSINESS AREAS:

- Missile defense
- Intelligence, surveillance, reconnaissance
- Precision engagement
- Homeland security



Raytheon Research Opportunities for Cal Poly Students, Faculty

Industry partnerships offer win-win scenarios: they provide opportunities for student learning and funding for faculty research, while companies benefit from research outcomes, innovative problem-solving and graduates well prepared to enter the workforce.

The Raytheon Company, under the leadership of Bill Swanson and previous executives, has provided a wealth of project opportunities for Cal Poly students and faculty, including the following:

- An interface design project to an embedded system for Raytheon, funded by a \$5,000 grant from Raytheon to Computer Science Professor Clint Staley
- A project developing computer simulation models of a slot array antenna – an antenna that radiates efficiently over a very wide frequency range – funded by a \$20,000 Raytheon grant and conducted by Electrical Engineering Professor Dean Arakaki and his students
- An Automatic Target Recognition (ATR) system for Synthetic Aperture Radar (SAR) imagery. (ATR is an application of computer vision to identify “targets” such as tanks or airplanes in an image, or to monitor the environment regardless of time-of-day or atmospheric constraints, by a complex comparison to geographical features.) This project is being funded by a \$20,000 grant from Raytheon to Electrical Engineering Professor John Saghri and two Cal Poly computer science graduates (one of whom used the project as a thesis topic, the other as a springboard to employment).
- Six research projects awarded by Raytheon to Industrial and Manufacturing Engineering Professor Tali Freed, ranging from the study of a more efficient workflow at Raytheon Vision Systems’ (RVS) clean room, to estimating fixed and variable costs of a production process through cost tracking and budgeting, to producing a scheduling system for the Oven-Bake process, to a collaborative study with Business Professor Mike Stebbins on RVS industry benchmarking and providing a theory for designing and implementing an improved organizational structure within RVS
- A project funded by a \$20,000 grant from Raytheon to Physics Professor Peter Schwartz to explore how DNA can be used to assemble structures onto a surface with nanometer precision. Three-dimensional research models in this research program target the production of “smart materials.”

him to take on the toughest assignments from the start. He had “no qualms whatsoever” about accepting any and all challenges, a trait that “got me known and got me some great assignments.”

Okay, maybe once he “experienced some trepidation.” Ironically, it was not as an engineer new to the production floor – or even when he was the company’s youngest plant manager – but after he had become a seasoned executive. The assignment? “I was invited to speak to 200 female employees who were part of Raytheon’s women’s network,” he says.

This was a number of years ago, and he had never done anything like that before. He had no idea what to expect, so he called the leader of Raytheon’s missile business, Louise Francesconi, to ask for her advice. “She told me to just be myself. The result was that I had a great dialog with them and came out feeling nine feet tall. To be a leader, you have to be willing to get out of your comfort zone,” he says.

Today, Swanson, who served as Raytheon’s first “diversity champion,” spends time frequently with diverse groups of employees. He credits Cal Poly classes with showing him the value of differences. “Several of my classes had a large number of

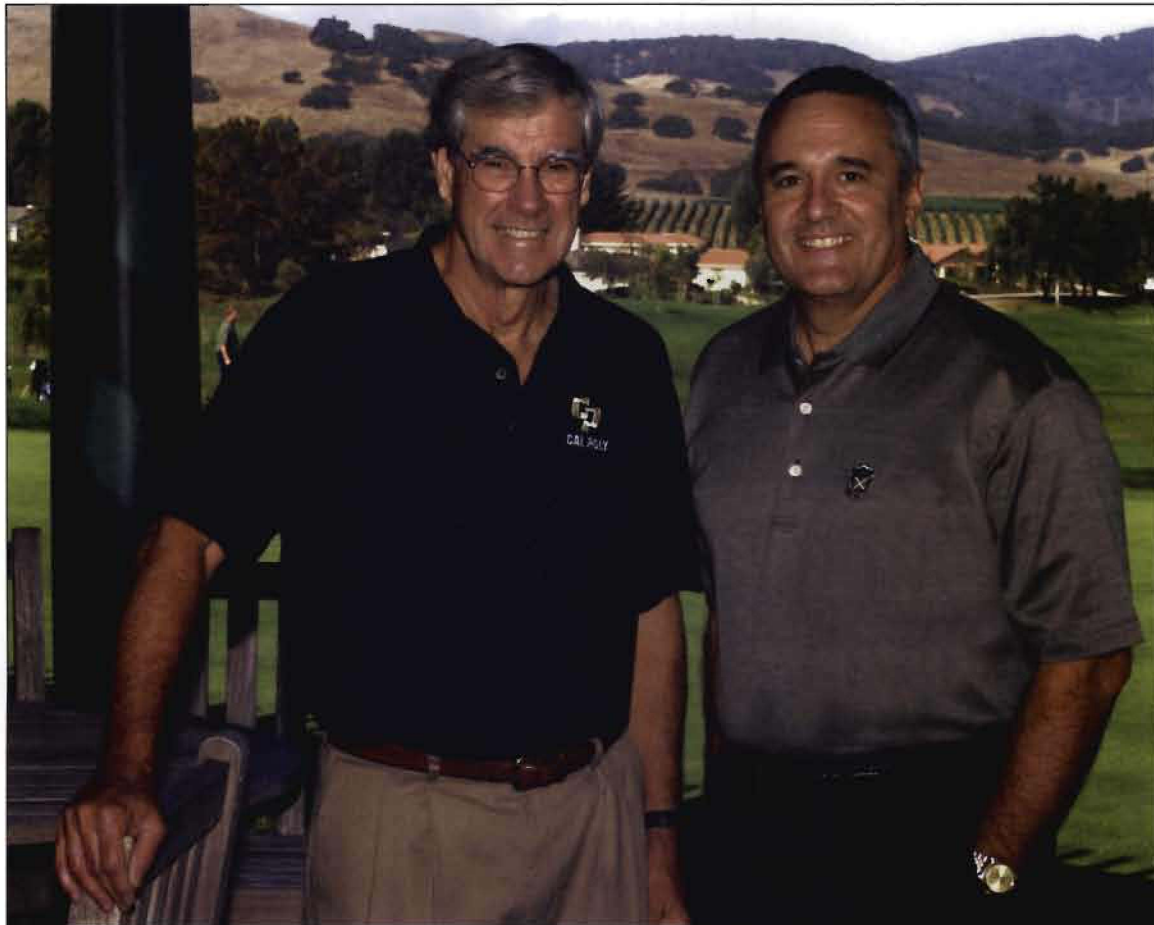
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Swanson’s Unwritten Rules of Management

- ✓ Learn to say, “I don’t know.” If used when appropriate, it will be often.
- ✓ It is easier to get into something than it is to get out of it.
- ✓ If you are not criticized, you may not be doing much.
- ✓ Look for what is missing – many know how to improve what’s there, but few can see what isn’t there.

- ✓ Viewgraph rule: When something appears on a viewgraph (an overhead transparency), assume the world knows about it and deal with it accordingly.
- ✓ Work for a boss that you are comfortable with telling it like it is. Remember that you can’t pick your relatives but you can pick your boss.
- ✓ Constantly review developments to make sure that the actual benefits are what they were supposed to be – avoid Newton’s law.

- ✓ However menial and trivial your early assignments may appear, give them your best efforts.
- ✓ Persistence or tenacity is the disposition to persevere in spite of difficulties, discouragement or indifference. Don’t be known as a good starter but a poor finisher.
- ✓ In completing a project, don’t wait for others; go after them and make sure it gets done.
- ✓ Confirm your instructions and the commitments of others in writing. Don’t assume it will get done!



*With Cal Poly
President Warren
J. Baker*

'Cal Poly is fortunate to have involved alumni like Bill Swanson who work through their companies and businesses to stay involved with the university at every level. Such industry partners are especially valuable for a polytechnic university that depends on support for undergraduate research, student mentoring and access to the latest technology to maintain our margin of excellence. Over the past year alone, Raytheon has provided faculty grants in the College of Engineering and the College of Science and Mathematics which enable our students to explore exciting new research areas in projects that prepare them well for a bright future.'

Cal Poly President Warren J. Baker

- ✓ Don't be timid – speak up – express yourself and promote your ideas.
- ✓ Practice shows that those who speak the most knowingly and confidently often end up with the assignment to get it done.
- ✓ Strive for brevity and clarity in oral and written reports.
- ✓ Be extremely careful of the accuracy of your statements.
- ✓ Don't overlook the fact that you are working for a boss. Keep him or her informed – avoid surprises! Whatever the boss wants takes top priority.
- ✓ Promises, schedules and estimates are important instruments in a well-ordered business. You must make promises – don't lean on the often-used phrase, "I can't estimate it because it depends upon many uncertain factors."
- ✓ Never direct a complaint to the top – a serious offense is to "cc" a person's boss.
- ✓ When dealing with outsiders, remember that you represent the company – be careful of your commitments.
- ✓ Cultivate the habit of "boiling matters down" to the simplest terms – an elevator speech is the best way.
- ✓ Don't get excited in engineering emergencies – keep your feet on the ground.
- ✓ Cultivate the habit of making quick, clean-cut decisions.
- ✓ When making decisions, the pros are much easier to deal with than the cons. Your boss wants to see the cons also.
- ✓ Don't ever lose your sense of humor.
- ✓ Have fun at what you do. It will reflect in your work. No one likes a grump except another grump!

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international students, with different backgrounds and opinions. This leads to what I call 'elegant' solutions to problems. I passionately believe that companies who can harness the strengths of all their employees have a great advantage," he says.

Integrity is another of Swanson's passions. He remembers a class in logic and philosophy for engineers at Cal Poly that conveyed "the value of doing the right thing." Such a code of ethics is the antidote to some of the business ethics issues that have been prominent in the news. "No matter how high the cost, you have got to do the right thing!" he says.

His practice of maintaining "a clean screen" extends to his computer. On a daily basis, he personally answers every e-mail sent to him by any of Raytheon's more than 76,000 employees. He often shares his personal observations with employees through mass e-mails; a recent report he sent about a trip he took to Japan resulted in scores of employee responses.

Staying connected with the human resources at Raytheon means getting out from behind his computer, too. "I love skip-level meetings and town-hall forums, where I can meet face to face with employees. I am not brilliant. I got to where I am with the help of my co-workers and I never forget that," he says.

His life isn't all about work, though. An avid golfer, his passion



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Bill Swanson
Raytheon CEO & President

for the sport extends to his college days, when he was a member of the golf team. "In addition to getting a first-class education, we had fun at Cal Poly. I think I played every golf course in the state. I still see a sense of fun in the students we hire – a bit of an impish quality. This camaraderie helps them stay in touch after graduation, too," he says.

Staying in touch is important to Swanson. Although he lives in Boston, he maintains a strong connection with family, friends and employees in California, where 260 Cal Poly graduates work for Raytheon. He even owns a second home in Edna Valley, where he plans to retire some day.

He and his wife, Cheryl (who once worked at Cal Poly), visit the Central Coast often, never missing dinner at the Mission Grill in downtown San Luis Obispo – a filet with a nice bottle of San Luis Obispo County red wine.

It is not only the great food that draws them to the restaurant – it's owned by Swanson's mother, Rosemary Cameron, and his sister, Olivia Faries, whose son, Sean Faries, is the general manager. Ryan Faries, Swanson's other nephew, is a Cal Poly senior in materials engineering. Swanson's niece, Lauren Faries, plans to attend Cal Poly after graduating from junior college.

'Bill's extraordinary professional achievements make us extremely proud to call him one of our own and have earned him the distinction of College of Engineering Honored Alum. Moreover, we're grateful for Bill's service as a member of our Centennial Campaign Committee and longtime member of the Dean's Advisory Council. His strong support of our "project-based learning" paradigm has resulted in a very productive collaborative relationship with Raytheon and, over the years, dozens of sponsored student and faculty projects.'

Peter Y. Lee • Dean, College of Engineering