



Tariq Durrani,
President IEEE EMS

President's Corner

Tariq S. Durrani, President, IEEE EMS

Dear Colleagues

I write this column in between two keynote meetings - the Meeting of the IEEE Technical Activities Board (TAB) held in Minneapolis on 23-24 June, and the Meeting of the EMS Board of Governors scheduled for the weekend of 28-30 July 2006 in Philadelphia.

The TAB Meeting brings together the Presidents of all IEEE societies and councils where, in addition to the formal proceedings, the Presidents learn from each other and share best practice.

The meeting of TAB was its usual lively self. Several strategic issues were addressed, in addition to normal operational business. These included "Approval to adopt as a best practice that 50% of the papers submitted to journals are reviewed and receive 1st decision within 90 days". The motion will have important long-term consequences, in ensuring more rapid responses to authors submitting papers to IEEE journals. All this is in aid of minimizing delays and improving the timeliness of publications. TAB further approved a number of proposals for new periodical publications.

TAB received a number of presentations, including Phase 1 results of the 2006 Member Value Survey carried out by the IEEE Research & Planning Department. The Survey results were particularly encouraging for EMS, where it was found that ideally, after Computers, Communications, Circuits & Systems, IEEE members surveyed, perceived most value in Engineering Management. We should build on this.

TAB also received a presentation by Moshe Kamm, the Vice President of

the IEEE Education Activities Board, on two special initiatives taken recently - TISP - Teachers In-Service Training Program, and TryEngineering.org. TISP is aimed at outreach activities by IEEE volunteers to provide teaching material relevant to pre-college educators. TryEngineering.org is a massive portal for students, parents, school counselors and teachers to give individuals an appreciation of engineering and engineering careers, and to help young people understand better what engineering means, and how an engineering career can be made part of their future. The site is well worth visiting.

A key issue of concern that emerged at the TAB Meeting was the impact of IEEE Infrastructure charges, and more importantly its affect on a number of societies, including EMS. These charges cover overhead costs and include charges for central services. At its February 2006 meeting, TAB had approved a new algorithm for the distribution of infrastructure charges across all TAB societies and councils, and for the distribution of revenues from the sale of publication products. Regrettably these changes have adversely affected EMS, and have much exercised the EMS Board of Governors.

The TAB meeting was rounded off by a glittering occasion - the 2006 IEEE Honors ceremony, where the good and the great were recognized for their contributions. In the words of the IEEE President Michael Lightner - "The recipients of the 2006 IEEE Awards are pioneers and thought leaders whose visions have opened many new technical territories, accelerated the path of technological change and help improve the world we live in". Information on the Medalists is available at: <http://www.ieee.org/portal/pages/about/awards/pr/2006mdrecips.html>

While all Medalists are remarkable individuals, one specifically stands out from the EMS

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perspective – Antonio Bastos – the General Chair of our very own conference- IEMC 2006. Antonio received the 2006 Haradan Pratt Award “for leadership and distinguished service in sustaining and extending IEEE’s global recognition”. Antonio’s outstanding dedication and leadership has expanded IEEE’s recognition throughout South America and further afield.

In this context I hope you are planning on attending IEMC 2006 in Bahia, Salvador, Brazil, which will be held on 17-20 September 2006. (Please visit: <http://www.iemc2006.org>). The Conference Organizing Committee has put together an exciting program of presentations by authors from all over the world, responding to the theme of the Conference - The Human Technology Interface- and covering all related aspects of Engineering and Technology Man-

agement. In addition the Conference includes a most entertaining social program, reflecting the famed hospitality of the Brazilians.

The forthcoming Meeting of the Board of Governors (BoG) in Philadelphia will be receiving a detailed report from the Governance Committee set up at the last BoG meeting to review the Society’s Constitution, Bylaws and Policies, and related Governance documents. The Meeting will also be giving consideration to the affect of increased Infrastructure charges, and looking to solutions to mitigate their impact, and assessing future directions that will be beneficial to its members.

We have recently learned of the results of the elections to the 2007 EMS Board of Governors, and the following were elected:

Milton Chang
Celia Desmond
Saumyendu Ghosh
John Grefford
Lois S. Peters
Howard Wolfram

I am sure you would like to join me in welcoming these colleagues to EMS, and congratulating them at their election.

While on the subject of exercising your democratic right to vote, may I encourage you to cast your vote in the forthcoming elections for the 2008 IEEE President, for either Lew Terman or John Vig. Both candidates are excellent choices, with a very large number of years of experience as IEEE volunteers, and both have held high positions on IEEE entities and Boards.

IEEE Member Benefits — Much More than a Magazine Subscription

George McClure

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Occasionally, IEEE members will compare their member dues only to the cost of other magazine subscriptions, but that is a short-sighted view. True, member receives the award-winning IEEE Spectrum magazine monthly, in print and online <http://spectrum.ieee.org>, but membership also affords access to many other member benefits.

Knowledge Benefits

In addition to receiving IEEE Spectrum, all members have access to 12 monthly issues of The Institute newsletter (four in print and eight online) <http://www.the-institute.ieee.org>, to six bi-monthly issues of the student magazine IEEE Potentials online www.ieee.org/portal/pages/membership/students/potentials/, and to the monthly What’s New @ IEEE with a choice among nine technical topics <http://whatsnew.ieee.org>.

Through the online IEEE Xplore, members have access to tables of contents for all archived IEEE publications, and to abstracts for over 1.3 million documents <http://ieeexplore.ieee.org/Xplore/guesthome.jsp>.

Community Advantages

Networking with colleagues in more than 300 sections and 1440 technical chapters in 150 countries worldwide is available to all members. All IEEE Section and Chapter meetings are open to members at no charge. Members enjoy a substantial discount when registering to attend IEEE conferences. The IEEE Online Communities offer a way for individual members to keep up with developments in their own areas of interest, interacting with other members in 30 open forums www.ieee.org/portal/pages/services/communities/communities.html.

Those who have ever had to change internet service providers (ISP) will keenly appreciate the IEEE e-mail alias. If you use the IEEE alias and subsequently change ISPs, only one e-mail — to IEEE — is required to redirect all your e-mail to the new ISP. Other features include virus protection and a selectable level of spam filtering www.ieee.org/web/membership/benefits/products/prod_emailalias.html.

Member discounts on IEEE products and publications — as much as 50 percent off — can save you more than the cost of your membership <http://0-shop.ieee.org.csulib.ctstateu.edu/ieeeshop/>.

A recent innovation is a personalized gateway for members only — myIEEE — which brings together in one Web site information about all of your IEEE

interests. You can get started by entering your IEEE Web account information at <http://www.ieee.org/web/membership/myieee.html>.

Opportunities abound in your IEEE community for volunteering your services in ways large and small, building leadership skills at the same time that networking opportunities are thereby expanded. More than any other professional technical society, the IEEE depends on the services of many dedicated volunteers to carry out its services to all members. www.ieee.org/web/membership/benefits/products/prod_volunteering.html.

Professional Advancement

A variety of tools exist to help members advance along their chosen career paths. You can locate career opportunities through the IEEE Job Site — easily and confidentially <http://careers.ieee.org>. A member can maintain a posting for a dream job, while maintaining the desired degree of confidentiality.

The weekly Career Alert e-mail with links to news on engineering careers, education and professional issues is available to all members, as is a bi-weekly Tech Alert www.spectrum.ieee.org/industryfocus.

Surveys show that many of our members have a keen interest in technology policy issues that affect their careers. Supporting that interest is What's New @ IEEE-USA Eye on Washington, with news collected from many sources www.ieeeusa.org/policy/eyeonwashington/newsources.html.

Continuing education also ranks high among the IEEE member interests. Responding to this interest, the IEEE has more than 15 providers in its Education Partners Program. Exclusively for IEEE members, this program offers online degree programs, certifications and courses at up to a 10 percent discount to members. The partners are a carefully selected number of universities and corporations, reviewed and approved by highly qualified IEEE volunteers to ensure members receive the

most effective learning resources www.ieee.org/portal/pages/education/partners/eduPartners.html.

The IEEE-USA Web site provides continual updates on matters affecting engineers' careers and provides news on public policy and ways to communicate your views to your elected officials in Washington www.ieeeusa.org.

IEEE-USA Consultants Database, the premier service matching technical consultants with clients, is available to members at no cost to search for consultants or for posted assignments, with a nominal charge to be listed in the database. The database contains 20,000 consultants and is used for 30,000 client searches per year www.ieeeusa.org/business/consultants.

IEEE-USA Today's Engineer Online is a monthly Web publication devoted to the issues affecting U.S. IEEE members' careers, such as professionalism, management skills, engineering performance, engineering skills and competencies, product development practices, project management issues, innovation and entrepreneurship, ethics and business practices. In addition, Today's Engineer Online includes articles and commentary on the topics that are shaping legislation, the technology workplace, and the engineering world www.todaysengineer.org. Today's Engineer Digest is distributed quarterly to all U.S. IEEE members in the polybag with IEEE Spectrum.

The IEEE and its organizational units worldwide maintain an active program of awards and recognition for contributions to the profession and to the Institute. Members are encouraged to submit nominations for these awards at www.ieee.org/portal/pages/about/awards and www.ieeeusa.org/volunteers/committees/awards.

IEEE recognizes career accomplishment with the Senior Member grade, the highest grade for which a member may apply www.ieee.org/organizations/rab/md/smprogram.html. Senior Membership is required to hold many

offices within the IEEE. In addition, the Fellows program receives nominations for outstanding members whose career accomplishment qualifies them to be considered for election to the grade of Fellow. The total number of Fellows selected in any one year cannot exceed one-tenth percent of the total voting Institute membership www.ieee.org/portal/pages/about/awards/fellows/fellows.html.

A variety of scholarships, design competitions, student paper contests, and internships are available through the IEEE to undergraduate and graduate student members. www.ieee.org/portal/pages/membership/students/sc_scholarships.html

Two other electronic society publications are available to members without additional charge. They are IEEE Distributed Systems Online <http://dsonline.computer.org>, with peer-reviewed content, and the IEEE Transactions on Device and Material Reliability, at <http://www.ieee.org/ieeexplore>, also with peer-reviewed content (as are all Transactions).

To this point, we have looked at the benefits available with the basic IEEE membership. Additional benefits allow you to tailor your membership to your individual needs.

Additional Memberships

From among the 39 IEEE technical societies and five technical councils, members can find published information, conferences and workshops, and society chapters that aid their careers and provide networking opportunities with colleagues engaged in similar endeavors www.ieee.org/web/membership/societies.

The IEEE Standards Association offers both individual and corporate memberships. With nearly 1,300 standards either completed or under development, the Standards Association is a central source of standardization in both traditional and emerging fields, particularly telecommunications, information technology and power genera-

tion. Members have the opportunity to participate in developing new standards and updating existing ones in their fields of expertise www.ieee.org/web/aboutus/home/.

The IEEE Women in Engineering affinity group is available to any member who wants to promote the entry of women into engineering and their retention in engineering careers www.ieee.org/web/membership/women/wie.html.

Expanded Benefits

Adding the Proceedings of the IEEE to your membership gives you access to the leading authoritative resource for in-depth research coverage, tutorial information and reviews www.ieee.org/web/publications/procieee/.

For those engaged in wide-ranging research, the IEEE Member Digital Library affords an economical way to access the full text for up to 25 papers per month from any IEEE publication or conference proceeding www.ieee.org/web/membership/benefits/products/prod_md.html.

Members are eligible for a customized selection of insurance products, ranging from life insurance and disability insurance to homeowners', auto and long-term care insurance. www.ieee.org/web/membership/benefits/products/prod_insurance.html.

Members receive discounts on financial services from IEEE partnering companies. Financial planning services are available to U.S. members. Credit cards are available, including those offering cash back from purchases www.ieee.org/web/membership/benefits/products/prod_creditcard.html.

Discounted home and office services are another member benefit, covering office supplies, express delivery, moving services, and a computer hardware and software purchasing program www.ieee.org/web/membership/benefits/products/prod_bus_svcs.html.

IEEE members and their families have access to IEEE Travel Services, providing one-stop shopping for business, personal and vacation travel. Negotiated travel discounts are available with

three preferred air carriers and four auto rental companies www.ieee.org/web/membership/benefits/products/prod_travel.html.

Special Circumstances

Assistance is available to members who are unemployed, have minimum income, or are retired. All benefit from reduced dues. A Web page listing 10 assists for unemployed members is found at www.ieeeusa.org/careers/help/.

The Employment Navigator offers access to five million job leads from 160,000 Web sites in a single searchable database. The portal also provides tools for resume creation and distribution. Six-month introductory subscriptions are available <https://salaryapp.ieeeusa.org>.

George McClure is chair IEEE-USA's Communications Committee, a member of the IEEE-USA Career & Workforce Policy Committee, and technology policy editor for IEEE-USA Today's Engineer. Comments may be submitted to todaysengineer@ieee.org.

Small Company, Bulletproof Software: How a Small Control Systems Team Delivered Big

Sue Dorward

I recently had the opportunity to interview the former CEO of a small energy sector company that specializes in building control systems for gas turbines and turbocompressors. Their international client base uses these systems in gas pipelines, oil and gas production and transmission, electrical power plants, chemical processing plants, and the like. A serious malfunction of software or hardware could lead to destruction in seconds. Consequences could include loss of life and downtime costs up to millions of dollars per day. Thus, hardware redundancy and flawless software are essential.

This company, which has delivered several hundred such systems, has

maintained a perfect record of no in-operation software problems for the past 15 years. An in-house team of merely six engineers developed all the critical control software, using a development process also developed in-house. Here are some lessons that the company learned along the way.

Don't Outsource Critical Code

The CEO explained that by the mid 1980's, software-based integrated control systems were rapidly going to obsolete his company's systems, which were based on assemblies of hardware-based analog blocks. To avert this, they engaged a highly regarded consulting firm to implement their application technology in software. The CEO

described their experience. "This didn't work very well. First, the result retained all of the limitations of our analog systems because we didn't understand the functional enhancements possible with software, and the consulting firm didn't have enough understanding of the particular control requirements to know what enhancements to suggest. Second, their development process divided the project among several programmers, each responsible for functional definition and coding, and their code was later integrated.

"Consequently, they quickly delivered software that met 95% of our needs, but each improvement beyond that

increased our costs exponentially. There were endless integration issues, actual software began to drift from the documentation, and code changes had unanticipated consequences. When we had spent 10 times the budget, we realized the system would never meet 100% of our needs, especially in reliability and documentation integrity, and that was not acceptable."

They could either start over by comprehensively educating the consulting firm's staff in all aspects of the control requirements for turbomachinery, including techniques that gave them a competitive advantage, or they had to learn how to develop software in-house. They chose the latter. The CEO proudly explained, "Our first step was to create a development methodology likely to produce beautiful software, which we did."

Separate Definition from Coding

As a reaction to their outsourcing experience where the roles of designer and implementer were combined, the CEO banned the title of Programmer from his company. "We borrowed the building construction model. We had an architect and a builder: two distinct roles that we called detailed functional Spec Writer and Coder." The Spec Writer was a master of the real-world application of the system, in this case often a mechanical engineer. The Spec Writer never wore the Coder's hat on any given project, and vice versa. However, a qualified employee could be the Spec Writer on one project and the Coder on another.

Enforce a Rigorous, Well-Defined Development Process

The Spec Writer was responsible for creating a detailed functional definition of the system, what they called "the Book", on which both the implementation and the user manual would be based. The Book had to be complete before coding could begin. Other engineers (not Coders) expert in the application area thoroughly reviewed and signed off on the Book prior to implementation. "We had to make

sure that we were doing the right thing, in addition to doing the thing right," the CEO explained.

The Coder could only implement what was in the Book. If the Coder found any problems or had ideas for changes in the Book, he had to go back to the Spec Writer, who had to work through the issue and update the Book before the Coder could implement the change. This ensured that the Book accurately reflected the implementation and that the Spec Writer oversaw the entire design.

Build a Robust, Reusable Library

"When building a large office building, you don't want the architect and builder to make a unique design for every window and door." They developed a code base that was primarily a library of highly reliable reusable modules (object classes), many duplicating the old analog function modules with which they were already familiar. In essence, they built an object library before object-oriented design was popular.

They spread the development cost over many systems, so they were able to justify the expense of carefully designing each module to be highly versatile and efficient. They had a standard process of thoroughly documenting and rigorously unit testing each module, to ensure the required functionality and reliability. If the Coder found that there was no module for a particular function, the Coder was required to follow the process for adding a new library module rather than write custom code. "If we had outsourced this, we could never have enforced this level of discipline and I would have been worried about technology leakage on top of that," reflected the CEO.

With the rigorously tested library in place, the process for development of a new control system was simpler. The Spec Writer could largely create The Book by linking graphic representations of available function blocks. Coding consisted largely of connecting and configuring the blocks exactly as

shown in the Book. The CEO explained that "the definition and development of software-based systems became very similar to the previous definition and assembly of systems based on analog hardware blocks. What's more, when a system was completed, it was usually 100% correct or could easily be brought to 100%."

The company found that the best way to develop new products was to first develop a master system (and associated library modules) with all available features and options. To meet the requirements of a particular sale, they removed unneeded features prior to compiling the final code. This ensured a solid design and avoided enhancement-related issues, but had the bizarre consequence that the most complete and highest cost systems required the least effort to deliver!

Complete, Accurate Documentation Is Critical

The Book, code, and library each contained considerable documentation. They developed a standard, detailed documentation format that they followed for each project. "In addition, The Spec Writer and the Coder communicated primarily through the Book, which forced the Book to be 100% accurate," the CEO explained. Since the Owner's Operator Manual was derived from the Book, the client could be confident that the manual accurately represented the functionality controlling the machinery. The Book remained platform independent, and so could be used as the basis for implementation on any technology platform. Only the code was platform-specific.

Library and application source code were required to be at least 80% comments, a standard set and enforced by the R&D manager. Coders were encouraged to adopt a uniform coding and documentation style, so that the code base was consistent and easier for everyone to work with and understand.

Build a Small, Committed Team

A team of just six employees, including management, built this company's real-

time control systems. The CEO explained, “I found that a team's progress and success was driven by the one brightest person, as opposed to the sum of all of the team members' talents. A small team of very capable, well-paid people performed better than a larger group of merely average people.”

So how did a small New Orleans-based company attract and retain the skilled employees that they needed to succeed? They built a relationship with a local university's engineering school, by giving guest lectures and even teaching courses in real-time control systems. They would hire

top students, and then put them through a six-month hands-on training rotation.

The company experienced very low staff turnover. “Being based in New Orleans, there weren't many other opportunities in town for our Development employees. We found that if they were technically challenged, involved hands-on and well paid, most stayed.”

Can You Achieve This Kind Of Success?

As you can see, there was no magic, no special sauce here. A small company in a city not noted for technology was

able to produce robust and capable software-based control systems with a very small team by creating and committing to an effective development process. They were able to develop this process by having a clear vision, performing a careful analysis of a failed development process, and building on already-existing strengths. The result was a highly successful company with a reputation for top-notch products. Could this recipe for success work for your company?

Sue Dorward is a tech management coach who specializes in coaching high-potential employees. She is based in New Jersey and can be reached at sue@sudocoaching.com.

Hidden Job Market Secrets: Six Newer P's that Maximize Job Search Success

Debra Feldman

Job hunting has striking similarities to a marketing project. The operative “P” words for a successful campaign are positioning, process, and persistence followed closely by performance, personality, and pricing. The product is the candidate. In order for a candidate to have the opportunity to sell their value to the targeted buyer/employer, the strategy driving the search has to be effective which means choosing the correct focus and developing the right approach. Your job search project may be one of the most demanding, and rewarding, campaigns you will ever manage. Let's look at ways you can improve odds in your favor through savvy job hunting and best practices job search implementation skills.

Positioning:

The first step to launching a successful campaign and propelling it forward is to identify what makes you a unique candidate. With such stiff competition, it is imperative that candidates distinguish themselves. This means creating a message or an identity that is remarkable and memorable, one that will separate you from the pack of resumes hit-

ting recruiters' desks. It is sometimes difficult to develop this for yourself especially if your career has depended on doing this for others. You may want to seek advice and counsel to establish your value objectively. What is it that you do better than others? What is it about you that enable you to succeed where others don't? Is there something in your background that others easily remember? This bit of specialized, personal data is your tagline. If you get the positioning targeted correctly, your campaign will be focused on the right employer market with a message that the buyer will value generating more employer interest. Once you have captured an employer's attention, then you have created a chance to demonstrate your abilities that eventually may produce a job offer, the goal of your job search campaign project.

Process:

The swiftest route to a new opportunity is to identify your target employers and then address their needs in terms of how you can meet them better than anyone else. Don't wait around for a company to advertise for a job that is perfect for you. Rather, go out there

and seek out a company where you are confident you can make a positive impact, especially one measurable in dollars saved or made. Double back to ensure that your positioning vis a vis your target employers is consistent with your most outstanding ability or characteristic that an employer will instantly value. In other words, the better the match, the greater the likelihood for capturing the employer's interest immediately to actually satisfy their needs and exceed their expectations. If you understand the dynamic between meeting employers' needs first and then promoting your skills against these requirements, your chances of making a connection are much greater than if you concentrate only on your achievements and accomplishments without customizing them for an individual company in a way that unmistakably proves your value. Cite ways you can save money, save time, retain customers, reduce costs, increase sales or profits, etc.- this will offset their expenses of adding you to headcount.

Persistence and Perseverance:

The early bird, the first candidate to impress the decision maker, has a com-

petitive advantage. So be the one to create a new job just for you by introducing yourself to employers you want to work for. This also means staying in contact with individuals with whom you "clicked" but didn't reach an employment agreement for whatever reason. That positive interpersonal chemistry can make or break a situation in your favor so don't let a good relationship slip away because the timing was off for hiring you. Sticking with your job search goals also means doing a whole lot more than simply submitting a resume or an online application—go and find out who is the hiring manager and speak with them directly. This will get you name recognition and hopefully allow you to pitch them on the phone or in person with your credentials; a much better method than a written marketing document/resume by itself. A word about focus and establishing priorities: concentrate your resources on activities with the largest potential return on your investment. While all search methods have their place, most executive jobs are filled through one avenue: personal referrals. Keep track of your contacts and refresh them periodically. Use different methods to stay in touch varying phone, email, snailmail, an article or clipping, invitations, face to face, etc. according to the recipient preferences. Remember that in networking, maintaining contact is key to results—out of touch can mean out of mind. Ask your contacts for advice, introductions and information—not directly for a job. Rely on your professional network and return favors generously. Persistence in personal interactions is guaranteed to be the very best way to identify a new opportunity. Recommendations carry tremendous weight over cold calls and unsolicited inquiries. If you can get a colleague to make a direct referral to a prospective employer, your chances of being given serious consideration are much higher. If one colleague asks another to meet with a third person, this usually happens and once you are face to face, this is the best possible circumstance to create good interpersonal chemistry and share ideas. Interactions like these often

lead to creating a new opportunity specifically in response to a candidate being available; in other words an unadvertised position in the hidden job market is created just for a particular candidate. Let this be you!

Performance and Presentation:

Make sure your resume speaks to your strengths, talents and skills, but nothing beats actual performance to prove to an employer that you can deliver for them. If you can provide proof of your competency through a customized presentation developed especially for a prospect, (Think: Impact) you have demonstrated initiative and creativity as well as your wealth of knowledge. Doesn't this speak volumes to your willingness to work hard, your desire to make a contribution, to want to go all out to make a difference, to be a team player, to be a leader and to go beyond expectations? Rather than use your words, show the prospective employer what you are made of!! Do a report just for the informational interview occasion demonstrating your grasp of the concepts and your ability to use the material effectively. Does this effort rate the preparation time? Yes, because it is more likely to gain attention and lead to further discussions of your mutual interests and ways you might fit into the organization than mailing out a thousand resumes that are headed for the wastebasket or automated applicant tracking database. This definitely gives you a huge advantage over others who simply submit a resume and wait passively for a reply. You are already past the gatekeeper wowing the decision makers. Don't waste a chance to show hiring managers your capabilities. Put yourself out and you'll reap a competitive advantage, getting on the inside track to joining the company you want to work for!

Personality:

The greatest credentials in the world are not enough. Interpersonal chemistry, that essential feeling of trust plays a critical role in hiring decisions. If you are fortunate enough to make direct contact with a prospective employer, concentrate on letting them get to

know you and begin to cultivate their trust. Listen rather than talk so you can hear what is important to them and then can address their needs and calm their concerns. This is critical to encouraging the employer to be comfortable in choosing you to join their business. Gaining credibility might be even more important to your selection than whether your skills and background are desirable. Focus on generating a dialogue, getting to know each other, sharing experiences and thoughts. If there is good chemistry, the rest will follow. If this encounter doesn't lead to an offer, it will likely produce additional leads, interviews and referrals that in turn generate more leads to opportunities. Your personality will facilitate networking and this is how you are going to eventually find your next challenge. Just passing your paperwork around is less likely to motivate people to recommend you than if well-connected colleagues care about your future and want to help you find a job.

Pricing:

Compensation provides a guideline to where you fit into an organization's hierarchy, how much responsibility/authority you merit and an indicator of the additional value you represent to the employer. Until a prospective employer is sufficiently intrigued to bring up money, don't raise this issue. Assure them that if you both agree that this is a good fit, you are confident that the financial details can be worked out agreeably. All the more time to invest developing interest in you that the employer would not want to abandon. When you do start talking dollars, be sure to frame this in terms of a range, not a single figure. Skirt this issue assuring the employer that you are certain that this is a negotiable item that won't be a problem. Rather than get into the language of closing a deal, let me suggest that you be prepared to show the employer that you can recoup the expense of bringing you on board through creating new income, saving this amount, retaining business, capturing new clients, increasing client loyalty, etc.

The goal of a job search campaign is to find a great new career opportunity—great from both the employer's perspective and the candidate's viewpoint. To attract a targeted, prospective employer's attention requires implementing correct marketing strategy. To accomplish this, as a candidate you must develop the right positioning and put together a unique value proposition that distinguishes you from your competition. Equally important is selecting prospective employers who will appreciate what you bring to their organization and that you initiated discussions. If these tasks are successful, you will generate exploratory interviews leading to exciting new challenges. You'll have to expect to put substantial effort into all phases of your campaign from research to execution

and then persist with your dedication over time. Guaranteed the network of personal contacts you develop using the Six Newer P principles will generate job leads better and faster than other job search methods.

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Debra Feldman is the JobWhiz™, a nationally-recognized expert who designs and personally implements swift, strategic, and customized senior level executive job search campaigns, banishing barriers that prevent immediate success. Her gift for cold calling - executed with high energy and savvy panache - connects candidates directly to decision makers, not HR.

Network Purposefully™ with the JobWhiz, and compress your job search into mere weeks, using groundbreaking techniques profiled in Forbes magazine.

In addition to writing columns and conducting workshops for the AICPA, IEEE, Financial Executives International (FEI), Marketing Executives Networking Group (MENG), Financial Executives Networking Group (FENG), Technology Executives Networking Group (TENG), and Harvard Business School alumni, Debra is endorsed by NetShare, BlueSteps and ConstructionExecutive. The career officers at several top tier colleges and universities also recommend her. Contact Debra now at www.JobWhiz.com to expedite your executive ascent!

Managing for the Future through Innovation

Lois S. Peters
Associate Professor RPI
IEEE EMS Governor

America's challenge is to “unleash its innovation capacity to drive productivity, standard of living and leadership in global markets” (Council on Competitiveness, 2004). Despite recognition of its importance, there is general consensus we need to have greater understanding about the challenges to and opportunities for innovative behavior in large organizations. Indeed most large corporations are unable to sustain themselves over the long haul and some think this is a reflection of undeveloped strategies for innovation. A focus on breakthrough or high impact innovation is one line of attack for managing for the future.

Our research on radical innovation (RI) that began in 1995 underscores that management practices developed for incremental innovation or traditional new product development are inappropriate when the goal is to create radical innovation – innovation exhibiting totally new performance features or order of magnitude differences in cost or functioning (e.g. managing for high impact innovation under conditions of high uncertainty). The initial phase of our RI research was

a study of challenges and practices related to managing RI projects. We identified seven challenges in Harvard Business Press' Radical Innovation: How Mature Firms can Outsmart Upstarts (Leifer, Richard, McDermott, Christopher, O'Connor, Gina, Peters, Lois, Rice, Mark, and Veryzer, Robert. 2000).

The challenges included identifying really good ideas, living with chaos and uncertainty, creating markets, finding the right business model, accessing resources, managing the transition from project to new business and attracting the right people and types of support. More significantly we found that while large corporations did produce and profit from radical innovation they most frequently did this by managing in an ad hoc manner or by relying on the occasional skunk works or CEO projects and mavericks or champions to pull them through. Furthermore it's been documented that most new ventures groups (and radical innovation hubs) last, on average, 4-5 years. Just as they're coming up to speed on the appropriate tools and mechanisms to use, they are cut off. A

generation later, they may be resurrected, but the learning has dissipated. A key question is “what does it takes to sustain such an activity so that companies are in a position to more systematically control their growth and renewal?”

With this in mind we embarked on the second phase of our study which identified and characterized the challenges and practices related to developing a RI capability and management system for establishing a pipeline or portfolio of RI projects, in order that those companies could count on repeated innovation to meet the fast paced tempo of today's high velocity markets. To date 27 companies have participated in our field investigations. They include: Air Products, Albany International, Corning, DuPont, GE, IBM, Johnson and Johnson, Kodak, Mead-Westvaco, Sealed Air, Shell Chemical, 3M, Bose, Intel, Dow-Corning, HP, PPG, P&G, Guidant, Rohm and Haas, Xerox, Analog Devices, Polaroid, Nortel Networks, Otis Elevator (UTC), TI, and GM.

Each has a declared strategic intent to evolve their breakthrough innovation

capabilities. Our four year analysis of these efforts indicates that not just one competency is needed but three: discovery, incubation and acceleration. Discovery is a conceptualization activity and involves bridging scientific understanding and discovery with societal or individual needs. Incubation relies on experimentation that involves testing assumptions about technology, markets, organizational context and resources required to bring the concept to market. Acceleration involves elaborating the business proposal prepared in incubation and building critical mass and appropriate operational procedures. It requires expertise in new business creation and in scaling it up. Each

competency requires different skills and management procedures. But each must be tied together as a system and thus an additional competency of interface management is required.

Bundling radical innovation competencies, however, is only part of the story. Innovation leaders need to understand the corporation's capacity for innovation and resource each of the competencies according to this capacity. For example if the pipeline needs to be filled then discovery must be revved up through appropriate programs or incentives. If discovery is working fine, and the company is successful at soliciting bigger high impact idea, they must be careful not to

fall into the trap of incremental execution. If they do it suggests an impatience or inadequacy with their incubation activity. In some instances companies may have significant investment in new ventures and therefore may want to decrease the discovery activity in order to keep at bay too high expectations regarding near term investment in the ideas realized through the discovery process. The key is orchestration of RI competencies according to realistic expectations for growth and renewal. For scientists and engineers engaged in breakthrough innovation projects our findings have important implications for technical leadership and career paths. This will be the subject of a future Newsletter article.

Preliminary Program IEMC 2006 - International Engineering Management Conference

September 17-20, 2006 - Mercury Hotel
Salvador, Bahia, Brazil

September 17 - Sunday - Tutorial Sessions

08h00 / 09h00	Tutorial Registration
09h10 / 12h00	Tutorial 1: Social implications in Engineering Management (3 hours) Provider: Brian M. O'Connell
	Tutorial 2: Re-engineering the Technology Acquisition Process for product and process development (3 hours) Provider: Tariq Durrani and Sheila M Forbes
	Tutorial 3A: Beyond the project manager - High performing teams (6 hours-1st part) Provider: David Hancock
12h00 / 13h00	Lunch (provided by IEMC 2006)
13:10 - 16:00	Tutorial 4: Building an Effective Engineering Organization (3 hours) Provider: Leslie Martinich
	Tutorial 5: Professional Development of Engineering Managers* (3 hours) Provider: Anthony Bainbridge
	Tutorial 3B: Beyond the project manager - High performing teams (6 hours-2nd part) Provider: David Hancock
14h00/ 18h00	Conference Registration
19h00 /21h00	Welcome Reception

September 18 - Monday

08h30/09h00	Opening Ceremony
09h10/10h30	Keynote 1: Engineering Management: The Human-Technology Interface Keynote speaker: TBD
10h30/10h50	Coffee Break
11h00/12h30	Technical Session 1 Themes: Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D
12h30/14h00	Lunch (provided by IEMC 2006)

14h10/15h00	<p>Invited Speeches</p> <p>1. Social implications in Engineering Management; Speaker: Brian M. O'Connell</p> <p>2. Beyond the project manager - High performing teams; Speaker: David Hancock</p> <p>3. How Intel deals with management topics; Speaker: Ketan Paramaje</p>
15h10/16h20	<p>Technical Session 2</p> <p>Themes: Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>
16h20/16h40	Coffee Break
16h50/18h00	<p>Technical Session 3</p> <p>Themes: Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>

September 19- Tuesday

09h00/10h30	<p>Keynote 2: The Management Education for Engineers</p> <p>Keynote speaker: TBD</p>
10h30/10h50	Coffee Break
11h00/12h30	<p>Technical Session 4</p> <p>Themes: Human Side of Globalization / Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>
12h30/14h00	Lunch (provided by IEMC 2006)
14h00/15h00	Invited Speeches 4, 5, 6 TBD (sponsors nomination)
15h10/16h20	<p>Technical Session 5</p> <p>Themes: Human Side of Globalization / Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>
16h20/16h40	Coffee Break
16h50/18h00	<p>Technical Session 6</p> <p>Themes: Human Side of Globalization / Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>
20h50/22h00	Conference Banquet

September 20- Wednesday

08h30/10h10	<p>Technical Session 7</p> <p>Themes: Human Side of Globalization / Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>
10h10/10h30	Coffee Break
10h40/11h30	<p>Technical Session 8</p> <p>Themes: Human Side of Globalization / Human Side of Globalization / Risk Assessment / Environmental Management / Continuous Innovation and Entrepreneurship / Knowledge Management / Sustainable Growth / Leadership Development / Quality Management / Engineering Careers / Global Project Management / Intellectual Properties / Outsourcing R&D</p>
11h30/12h30	Closing Ceremony

Chapter Reports

IEEE Trinidad and Tobago Section

Professor K.F. Pun

Chairperson, EM14 Chapter, IEEE Trinidad and Tobago Section

Engineering Management Society Chapter of IEEE Trinidad and Tobago Section Co-hosted the Industrial Engineering and Management (IEM-2006) Conference. The Conference, with the theme "Building Industrial Engineering Competence And Leveraging Best Management Practices That Meet The Diverse Needs And Foster Industry Competitiveness In The Caribbean Region," was the centre for discussions on current engineering and management competence issues from 1-2 June, 2006.

The Conference was hosted by the Faculty of Engineering of The University of the West Indies (UWI) in collaboration with the Engineering Management Society (EMS) Chapter, the IEEE Trinidad and Tobago Section, The Association of Professional Engineers of Trinidad and Tobago (APETT), and The Council of Caribbean Engineering Organizations (CCEO), and sponsored by The Water and Sewerage Authority (WASA) of Trinidad and Tobago, Phoenix Park Gas Processors Limited, The Campus Research and Publication Fund and The Campus Research and Publication Fund.

The conference offered a platform for academics, engineers, government officials and industry practitioners to share experiences, present research results, and review recent applications and developments in the areas of Industrial Engineering and Management. Its goal was to facilitate a region-wide awareness of engineering competence, the use and further development of best management practices in the emerging CARICOM context and today's knowledge-oriented, global economy.

On June 1, 2006, the opening ceremony was hosted at the Faculty of Engineering. In attendance were some key speakers including Professor Gurmohan S. Kochhar, Deputy Principal, St Augustine Campus, UWI; Professor Compton Bourne, President, Caribbean Development Bank, Barbados; Mr. Errol Grimes,

Chief Executive Officer, The Water and Sewerage Authority of Trinidad and Tobago; Mr. Frank Look Kin, President, National Gas Company of Trinidad and Tobago; Mr. Alvin C. Daniell, Executive Director, Comfort Engineering Limited. Three sessions were carded with sixteen technical papers presented in the areas of IE tools and applications, IE management and environmental issues.

Facilitated by Professor Clément Imbert, Faculty of Engineering of UWI, a Discussion Forum was also organized to enhance views sharing among the participants and a panel of invited academia and industry practitioners. The panel members included Eng Eugene Tiah, President of Phoenix Park Gas Processors Limited; Mr. Mark Loquan, President of Yara Trinidad Limited; Professor Devdas Shetty, Dean of Research, College of Engineering, University of Hartford (USA), Professor José L. Zayas-Castro, Senior Vice President of International Affairs, Institute of Industrial Engineers (USA); and Professor Kit F. Pun, Professor of Industrial Engineering, Faculty of Engineering, UWI. An Evening Reception was hosted by Dr. Bhoendradatt Tewarie, Pro Vice-Chancellor & Campus Principal, at his Office, St Augustine Campus, UWI.

On Day 2 (2 June), the Morning Session was officiated by Professor Clement K. Sankat, Dean of the Faculty of Engineering and addressed by The Honourable Kenneth Valley, Minister of Trade and Industry. Presentations of eight technical papers in two sessions (i.e. IE education and research and IE tools and applications) were carded, including two keynote presentations made by Professor Devdas Shetty of the University of Hartford and Professor José L. Zayas-Castro of Institute of Industrial Engineers. Then, the Afternoon Session incorporated the Third Engineering Management Final-Year Students' Project Competition Forum. Ten short-listed engineering projects in two categories of engineering competence and management competence were presented.

EMS Chapter, IEEE Trinidad and Tobago Section: Engineering Students Win Engineering Management Project Competition

Professor K.F. Pun

Chairperson, EM14 Chapter, IEEE Trinidad and Tobago Section

Two Mechanical Engineering students, Mr. Narvin Andy Ramkissoon and Mr. Kevin Mohan, secured the winner awards in the Third Engineering Management Final-Year Students' Project Competition held at The University of the West Indies (UWI), on Friday 2 June 2006. The UWI Faculty of Engineering hosted the Competition Forum in collaboration with the Engineering Management Society (EMS) Chapter, the IEEE Trinidad and Tobago Section, and sponsored by the Phoenix Park Gas Processors Limited.

"Building Engineering and Management Competence" was the theme of the Competition. The primary aim of the Competition forum was to recognize and encourage the good project work from UWI graduates in their respective disciplines and the applications of concepts, techniques and skills in building engineering and management competence that meet the diverse needs of the Caribbean Region. The forum could provide an avenue for students to demonstrate their meritorious project work to the industry and the stakeholders of the University.

Ten short-listed engineering projects were presented to a panel of judges representing academia and industry. The panel was led by Professor José L. Zayas-Castro, Senior Vice President of International Affairs of the Institute of Industrial Engineers (USA), and comprised of Professor Devdas Shetty, Dean of Research, College of Engineering, University of Hartford (USA); Mr Stanley M.J. Lau, Senior Lecturer of the Department of Mechanical and Manufacturing Engineering, UWI; Mr Clarence Blanchfield, representative, The Power Generation Company of Trinidad and Tobago; Eng Valerie Quan-Vie, representative, The Petroleum Company of Trinidad and Tobago; and Eng Anthony Chadee, representative, The Water and Sewerage Authority of Trinidad and Tobago.

These projects cut across a wide range of scope from the design, construction and testing of a vertical axis wind turbine, a stainless steel pan, a robot to play the Tabla, a synthesizable VHDL core and an automation of the level control module, in the "Engineering Competence" category, to the retro-fit of steam turbine speed control system, the identification of safety performance metrics of well servicing, the implementation of total productive maintenance practices, an evaluation of environmental management practices and the applications of reverse engineering practices, in the "Management Competence" category. Projects were judged on relevance, methodology, validation and presentation of project findings. After an interactive and competitive 3-hour presentation among contestants, the panel selected two best project winners along with other awardees as listed below:

For Engineering Competence Category:

Best Project Award Winner:

- Narvin Andy Ramkissoon BSc (Eng) Mechanical Engineering

1st Runner-up:

- Rajiv Samaroo BSc (Eng) Mechanical Engineering

Merits:

- Natalie Harrichand BSc (Eng) Electrical and Computer Engineering
- Rajendra Ramnarine BSc (Eng) Electrical and Computer Engineering
- Annil Rampartap BSc (Eng) Mechanical Engineering

For Management Competence Category:

Best Project Award Winner:

- Kevin Mohan BSc (Eng) Mechanical Engineering

1st Runner-up:

- Jeanine Lee Chee BSc (Eng) Industrial Engineering

Merits:

- Chanua Johnson BSc (Eng) Electrical and Computer Engineering
- Anastasia Lai King BSc (Eng) Industrial Engineering
- Nadine B. Seecharan BSc (Eng) Mechanical Engineering

The judges highly commented the standards of professionalism and the articulating of information demonstrated by the contestants. Invited guests and par-

ticipants particularly those from industry were inspired by the presentations. Some commented that the Forum provided the viewing public with a peek of the talent available at UWI.

Dallas Chapter

Bob Bishop

Our Fall 2006 monthly chapter meetings will be held on September 15, October 13, and November 10 at 1130 AM, at the Richardson Holiday Inn Express, just South of Campbell Road on Highway 75, near University of Texas at Dallas.

We look forward to hearing Dr. Hans Stork, Senior Vice President and Chief Technology Officer, Director Silicon Technology Development, Texas Instruments, on September 15, 2006, at 1130 AM.

In March, Mr. Robert B. Bishop, Jr. spoke on Emerging Engineering Management Trends and how they will affect your future.

In April, Senior Member Morris West-erhold spoke on Telecom Boom & Bust Management Lessons, and how Competitive Local Exchange Company (CLEC) networks triggered 8 years of litigation and stagnation. CLECs never became profitable, and Internet companies stopped paying phone bills.

Investors lost 4 trillion US dollars, and 650,000 telecom jobs were lost. Packet platforms are the obvious solution. Lessons: Know your industry, Avoid hype and irrational exuberance, and Business models still matter.

In May, Mr. Laurence Briggs spoke on Angel Investors Overview. In the year 2005, in the US, 24 billion US dollars were invested by Angels, with an estimated 500,000 active angels investing in 60,000 companies. The process includes the application, due diligence, and the post deal. Angel investors are looking for coach ability, proof of concept, clear exit, incremental shareholder value, and a return commensurate with risk. A full tutorial is available on the Web site www.TheInvestINForum.com

Our Brainstorming Session in June has led to activity to see how we can attract 50,000 professional managers within a

few miles of our meeting location, and industry support.

El Salvador Chapter

Mayra Méndez

On May 31, 2006, EMS El Salvador Chapter organized a Distinguished Lecturer training program entitled "Making a Transition from Engineer to Manager" with Gerard (Gus) Gaynor as lecturer. The full-day event enjoyed a participation of twenty individuals from different areas of engineering in our country; electric companies, consultants, operation managers of shopping center, computer consultants, and electric suppliers. The conference was a complete success. Participants enjoyed with the expertise of Gus Gaynor. They wrote their satisfaction about the excellent content of the exposition, domain of the theme, and encourage us to continue with this kind of topics. We plan to continue with these activities to support the development and knowledge of our engineers in the management of technology. The El Salvador Section and EMS Chapter give thanks to Gus Gaynor for his support and participation in the workshop.

Delhi- EMS Chapter

Prakash Ekande

A Report on Visit of 2006 IEEE President & CEO to Delhi Section

It is a matter of pride that the 2006 IEEE President and CEO Prof. Michael R. Lightner chose Delhi as one of his destinations on his five day long tour of India. Prof. Lightner arrived in Delhi on April 28 night, after brief stopovers at Bombay and Bangalore. The Delhi Section arranged a series of professional and technical meetings for the President on April 29 and May 1, with April 30 kept aside for a brief visit to the Taj Mahal at Agra.

April 29 was full of activity with the President meeting the Delhi Section Exec Com and the India council Exec Com. The function started with Delhi Section Chair & EMS Chapter Past Chair Mr. P.V. Ekande welcoming the gathering, followed by the formal introduction of the IEEE President by the India council Chair Mr. R.K. Asthana. Mr. H.L. Bajaj, FIEEE & former R10 Director gave a meaningful presentation highlighting the contribu-

tions of India and specially Delhi Section to the growth of IEEE in Region 10 and stressed the need to strengthen the operations in India. This was followed by the IEEE President felicitating Mr. R.K. Vir Past Chair EMS Chapter & Delhi Section and Dr. Mini S. Thomas, for their contributions to Delhi Section and for winning awards for the Section.

Prof. Lightner gave an information packed presentation highlighting the share of India and other Asian countries to the growth of IEEE and also highlighting the steps taken by the top leadership to take IEEE to the next decade effectively. This was followed by an interactive session with the President.

After a brief tea break, the India Council meeting followed. It was attended by representatives from Delhi, Bombay, Calcutta., Kharagpur, Uttar Pradesh, and Chennai, who made brief presentations highlighting the achievements of their Sections. Dr. Mini S. Thomas, Secretary, proposed the vote of thanks. The lunch which followed was attended by Fellows and Life Members of Delhi Section.

In the afternoon of the day, the Student Representatives and Branch Counselors of Delhi Section were invited for an interactive session with Prof. Lightner at Bharati Vidyapeeth College of Engineering, Paschim Vihar. Mr. P. V. Ekande, Chair, and Dr. Mini S. Thomas, Secretary and Student Activities Chair, accompanied the IEEE President for the session. About 152 students attended the program in spite of the ongoing examinations and had a very fruitful discussion with the President. Ms. Neeta Pandey, Branch Counsellor of Bharati Vidyapeeth Student Branch coordinated the event.

The IEEE President got an opportunity to meet the Honourable President of India Dr. A. P. J. Abdul Kalam in the evening on April 29, 2006. The dignitaries had fruitful discussions on the ongoing technological development and research on cognitive assistive technology for the benefit of mankind.

On May 1, 2006, the Delhi Section members were invited for a lecture

jointly organized by IEEE Delhi Section and Center for Bio medical Engineering, Computer Services Center and Department of Electrical Engineering, IIT Delhi. The 75-minute long lecture on "Cognitive Assistive Technology – An Emerging Discipline" by Prof. Michael R. Lightner was very well received with researchers from various disciplines discussing issues related to this emerging field. Prof. Surendra Prasad, Director, IIT Delhi had a brief discussion with Prof. Lightner and also with Dr. Jayashree Santhosh, who coordinated the event from IIT Delhi.

Overall, the IEEE President had a successful visit to Delhi and was highly impressed by the dedication of the volunteers and the work done by the Section in various sectors. The visit of the IEEE President to Delhi in consecutive years is a clear indication that Delhi is prominent in the map of IEEE in the days to come.

Southeastern Michigan Chapter

*Mark Ciechanowski, P.E.,
Engineering Management Society
Chapter Chair*

At our last meeting at the Spring Section Conference and Dinner on April 13, 2006. Steven W. Baker from DTE Energy presented "A Principle-Based Approach to Agile Solution Delivery". As he describes it:

"Agile methodologies have emerged to become a prevailing discipline in Software Engineering. Many strive to "go agile" by selecting a few agile techniques and piloting them on a project. This "a la carte" approach often leads to measurable benefits. A top-down or "principle-based" approach to embracing these techniques provides a foundation for meaningful, sustainable agile solution delivery." Steven W. Baker is a software methodologist at DTE Energy. Leveraging his extensive background in both agile and traditional solution delivery methodologies, he leads and enables the brewing of DTE Energy's "house blend" of agile and adaptive methods. Steve recently presented at the Agile 2005 Conference.

The article titled "Change or Die" appeared in the Third Quarter 2005

edition of the IEEE Engineering Management Review. It asks:

"Change or Die. What if you were given that choice? For real. Could you change when change really mattered?"

This was the topic of our discussion at our February meeting. Marty Biancalana, Chapter Vice-Chair and Manager at General Dynamics in Ann Arbor, was our presenter and discussion lead. Changing business process performance depends on changing the behavior of people. The author argues that change is best accomplished in a single, radical, all-at-once program rather than by a series of small incremental changes. The evidence of this comes from results of heart attack patient and by-pass patient recovery. We discussed the article and what the author recommends for effective management of business change. Marty described how this style is similar to the military boot camp process of changing a recruit into a productive graduate. They run the program of "slob in --> marine out".

The chapter maintains an email list that we use for meeting announcements. It is called "semichigan-chapter10". All members are welcome to join the email list, and you can do so by sending an email message containing the command "subscribe semichigan-chapter10" (without the quotes, of course) to listserv@ieee.org.

John Miller, Ph.D., P.E., IEEE Fellow and Distinguished Lecturer of the IEEE Power Electronics Society, was the keynote speaker for the Spring Section Conference in April. He presented "Evolution of Hybrid Vehicles, Architectures, and Energy Storage Systems".

Hybrid electric vehicles were first developed in 1894 but disappeared from the automotive scene as the power capability of the internal combustion engine improved. A century later the hybrid re-emerged and was again offered to the motoring public by visionary companies that saw hybrids as the bridge to a future hydrogen economy in the face of a looming oil gap.

Dr. Miller is Vice President Advanced Transportation Applications at Maxwell Technologies and a strong advocate of

introducing ultra capacitors into truck and bus, automotive, industrial utility vehicle, and utility voltage support applications. Dr Miller is Editor-in-Chief, IEEE Power Electronics Society Newsletter.

Don Bramlett, P.E. will present the IEEE Leadership Skills workshop to us on Saturday, July 29 9am-2pm. The Leadership Skills workshop is intended to help prepare participants in interpersonal, group, team and leadership skills. The workshop is targeted to those in management or leadership roles in business, industry, academia or volunteer activities. However, anyone interested in further developing these skills in dealing with people and working within any type of organization will benefit from the workshop. See the flyer on our web site and look for reg-

istration beginning at the end of June.

Dave Laurent, Chapter Vice-Chair and engineering project consultant, will lead the discussion at our next evening meeting on August 1, 2006, 6pm. Dave will present "Project Management Real-World Realities", where we will discuss what practices are really needed on actual engineering projects.

John Ford, Electronics Engineering Division Manager at National Radio Astronomy Observatory (NRAO), Green Bank, West Virginia will be our keynote speaker for the Fall Section Conference, November 2, 2006. He will present "The World's Largest Fully Steerable Single Aperture Radio Telescope". NRAO operates the Robert C. Byrd Green Bank Telescope (GBT), the world's largest fully steerable

single aperture antenna. Many technical areas come together to make this telescope a mechanical, electrical, electronic, astronomical, RF/Microwave control, and measurement system. Look for registration and reduced attendance prices in October.

Meetings Scheduled for 2006

- Saturday, July 29, 2006 9am-2pm "Leadership Workshop" by Don Bramlett, P.E., Fairlane Center, University of Michigan-Dearborn
- Tuesday, August 1, 2006 6pm-8pm "Project Management Real-World Realities" By Dave Laurent, West Bloomfield Public Library
- Thursday, November 2, 2006 5pm-9pm Fall Section Conference, Fairlane Center, University of Michigan-Dearborn, John Ford from National Radio Astronomy Observatory (NRAO)

ICMIT 2006 Conference Report

George Farris

ICMIT 2006 (International Conference on the Management of Innovation and Technology) was held in Singapore June 21-23. The conference was organized by the IEEE Engineering Management Society Singapore Chapter, the IEEE Singapore Section, and the Center for Management of Science and Technology at the National University of Singapore. The IEEE Engineering Management Society was a technical co-sponsor of the conference. CC Hang, M Xie, and KH Chai, all of the National University of Singapore, were General Chair, Organizing Committee Chair, and Program Committee Chair, respectively.

Approximately 300 engineers, managers, and scholars from throughout the world

attended, and the program included 240 papers selected from approximately 500 submissions. The papers presented current research on a wide variety of topics in engineering, technology, and innovation management.

Keynote speakers were Professor Yves Doz of INSEAD, Willy Enzing of Philips Applied Technologies, Professor Shang-Jyh Liu of National Chiao Tung University in Taiwan, and Manoj Singh, CEO of Deloitte Touche Tohmatsu, Asia Pacific. The speakers presented stimulating views of the challenges and opportunities facing engineering managers in the 21st century, discussing key issues such as globalization, shifting demographics, intellectual property management, and structuring organizations to take advan-

tage of local talent in the global context.

Pre-conference activities included visits and workshops at the 1300-engineer Philips Innovation Campus, the largest R&D Center of Philips outside the Netherlands; a tour of the Tiger Beer Brewery; and a workshop on publishing in IEEE Transactions in Engineering Management and other top journals offered by Editor-in-Chief George Farris. The conference banquet was held outdoors on beautiful Sentosa Island.

ICMIT 2008 will be held June 4-6 in Bangkok. If the energy, enthusiasm, good will, and intellectual stimulation of ICMIT 2006 are any indication, ICMIT 2008 should be very successful conference as well.

The \$100 Laptop is Coming

News from IEEE-USA

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WASHINGTON (21 July 2006) -- Some manufacturers Dr. Mary Lou Jepsen approached about producing and selling a laptop computer for \$100 laughed at her. Despite this chiding and disbelief, the One Laptop per Child

(OLPC) chief technology officer has persevered, and the \$100 laptop is on track to be shipped next spring.

Jepsen describes the OLPC program in "Working on the \$100 laptop" in the

July issue of "IEEE-USA Today's Engineer Online." OLPC is a non-profit association dedicated to researching and developing a low-cost laptop to serve as an educational tool for children in the developing world. The cheapest laptops

on the market today typically sell for about \$499, a price completely out of reach for most of the world's children and their parents. The \$100 laptop has the potential to transform education in the world's poorest countries.

Jepsen writes that Billy Edwards, AMD's chief strategy officer describes our design of the \$100 laptop as the first fundamental revisit of personal computer architecture since IBM launched the PC in 1981. Twenty-five years, and now, for the first time, we're redesigning the whole architecture" hardware, software, display" and we're coming up with some remarkable inventions and innovations.

The \$100 laptop, which will have online capability, will also have features that most typical laptops do not. These include instant on, three to four times the range of WiFi antennae, a hand crank to recharge the battery, one-tenth the power consumption, and a higher-resolution display.

"This is not a cost-reduced version of today's laptop" Jepsen writes. "It's an entirely new approach to the idea of a laptop." To read the entire article, go to www.todaysengineer.org. To subscribe to "Today's Engineer Online," IEEE members can go to: <http://ewh.ieee.org/enotice/options.php?LN=IEEEUSA>. Non-members can visit

<http://www.todaysengineer.org/emailupdates/index.html>

IEEE-USA advances the public good and promotes the careers and public policy interests of more than 220,000 engineers, scientists and allied professionals who are U.S. members of the IEEE. IEEE-USA is part of the IEEE, the world's largest technical professional society with 360,000 members in 150 countries. See <http://www.ieeeusa.org>.

Contact: Chris McManes
IEEE-USA Senior Public Relations
Coordinator
Phone: + 1 202 530-8356
E-Mail: c.mcmanes@ieee.org

Academic Positions Available

University College Dublin

University College Dublin (UCD) is Ireland's most diverse and largest university. The National Institute of Technology Management in UCD seeks to fill three academic positions at levels up to and including Professor.

National Institute of Technology Management

Supported by the Government development agency Enterprise Ireland and UCD, NITM is the flagship organisation for innovation and technology management in Ireland. Based in UCD's Smurfit Graduate School of Business, the Institute is a collaboration between the College of Business and Law; the College of Engineering, Mathematical and Physical Science; and the College of Life Sciences. The role of the Institute, through its programmes of research, teaching and industry outreach, is to support innovation in technologically intensive industries and to pursue the Irish Government's initiatives to transform Ireland into a leading knowledge economy. (For further information about UCD and the Institute, see our websites www.ucd.ie and www.ucd.ie/nitm)

Three Senior Academic Positions

The positions advertised are to develop the Institute's programmes of teaching and research in the following areas:

1. Science and Technology Policy. The

focus of this programme will be on national and international innovation systems, specifically on researching and enabling the emergence of biotechnology and telecommunications clusters in Ireland through the integration of MNCs, indigenous companies, universities and the innovation support system.

2. Entrepreneurship and Innovation. The focus of this programme will be on the management of innovation at the level of the firm and on the formation and growth of New Technology Based Enterprises. One position will be oriented toward analytic and strategic aspects of innovation, the other toward human and organisational aspects.

Appointees at full Professor level will lead development in the relevant area, especially the development of research and the careers of young scholars. For appointments at this level, candidates must have a strong record of publication in leading refereed international journals, together with a record of building a research programme and effectively supervising PhDs. A demonstrated capacity to compete successfully for research funding at national and (where relevant) at international level is desirable. For appointments at other levels, candidates must have a strong record of publication in refereed international journals. A demonstrated capacity to teach effectively at postgraduate and executive level is a

requirement for all positions.

The positions will be tenable within the School of Business. While it is desirable that these positions should be full-time permanent positions on the standard internationally-competitive UCD terms and conditions, NITM is willing to consider more flexible arrangements for exceptional candidates. The standard terms and conditions for Professors, Associate Professors and Senior Lecturers can be accessed on the UCD website www.ucd.ie by clicking on Administration, Personnel, Payscales

The closing date for applications is September 15, 2006. When replying, please indicate which of the areas designated is your major interest, and whether you wish to be considered for appointment at full Professor level only.

For further information about these posts, visit our website or contact:

Dr. Breffni Tomlin
Academic Director
National Institute of Technology
Management
UCD Smurfit Graduate School of
Business,
Carysfort Avenue, Blackrock, Co.
Dublin, Ireland.
Tel: (00353-1) 716 8012
Fax: (00353-1) 716-8030
Email: nitm@ucd.ie
Website: www.ucd.ie/nitm

Board of Governors

Your Board serves the interests of the Society and promotes Excellence in Engineering Management. The EMS Board needs your input to help determine if the Society meets your needs. Please contact any Board member for additional information, for expressing opinions, or raising issues that need to be addressed by the Society.

Tariq S Durrani, President
t.durrani@ieee.org

Irving Engelson, Past President
i.engelson@ieee.org

Gerard H. (Gus) Gaynor, Executive VP
g.gaynor@ieee.org

Charles Rubenstein, VP Conferences
c.rubenstein@ieee.org

Mark Werwath, VP Education
markwerwath2000@yahoo.com

Celia Desmond, VP Member Relations
c.desmond@ieee.org

Leslie Martinich, VP Publications
lmartinich@ieee.org

Joel Snyder, VP Recognition & External Relations
j.snyder@ieee.org

Mary Reidy, Secretary
mary.reidy@us.ngrid.com

Louis A. Luceri, Treasurer
l.a.luceri@ieee.org

BOARD OF GOVERNORS ELECTED:

2004-2006

Gerard A. Alphonse
g.alphonse@ieee.org

Celia Desmond
c.desmond@ieee.org

John Grefford
grefford@ieee.org

Terrance J. Malkinson
t.malkinson@ieee.org

Lois S. Peters
peterl@rpi.edu

Mark Werwath
markwerwath2000@yahoo.com

Howard Wolfman
howard.wolfman@sylvania.com

2005-2007

Robert B. Bishop, Jr.
r.bishop@ieee.org

Peter A. Eckstein
p.a.eckstein@ieee.org

Margaretha A. K. Eriksson
margaretha.eriksson@ieee.org

Gerard H. (Gus) Gaynor
g.gaynor@ieee.org

Thomas H. Grim
t.grim@ieee.org

Mary Reidy
mary.reidy@us.ngrid.com

2006 - 2008

Tariq S. Durrani
t.durrani@ieee.org

Bradley Fox
brad.fox@duke.edu

Louis A. Luceri
l.a.luceri@ieee.org

Leslie Martinich
lmartinich@ieee.org

Charles P. Rubenstein
c.rubenstein@ieee.org

Joel Snyder
j.snyder@ieee.org

BOARD OF GOVERNORS

Ex-officio:

Dennis Bodson, Senior Past President
d.bodson@ieee.org

Merrill W. Buckley, Jr.
m.buckley@ieee.org

Vivian A. Carr
v.a.carr@ieee.org

George Farris, Transactions Editor
ieeetem@business.rutgers.edu

Wade Shaw, Review Editor
w.shaw@ieee.org

Terrance J. Malkinson, newsletter editor
malkinst@telus.net

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Terrance J. Malkinson, Editor <malkinst@telus.net> Paul Doto, IEEE Newsletter Coordinator <p.doto@ieee.org>	

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