



by Dennis Bodson,  
President EMS

*“Management  
is leadership.”*



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## The Presidents Corner

by Dennis Bodson PE, President EMS

The IEEE Engineering Management Society (EMS) International Engineering Management Conference-2002 (IEMC-2002) has come and gone. It was, in my opinion, an outstanding success. Success can be measured in many ways, and includes both technical and financial aspects. IEMC-2002 established new levels of achievement never obtained by any previous conference. Some of the salient statistics are as follows; first time conference was held in Europe; received over 300 abstracts; more than 200 papers were accepted; 150 plus papers published in the conference proceedings; attendance in excess of 200; attendees represented more than 35 countries; and the ratio of academia/industry was approximately 60/40 percent.

The conference proceedings were published in two volumes. While this is a first, the more significant aspect is that it was also produced for the first time on CD ROM. Furthermore, in prior conferences; the ratio of academia/industry was approximately 90/10 percent. As can be seen, this statistic was shattered. As a result, we achieved almost a 50/50 balance, which has never been accomplished. IEMC-2002 has established a very high set of standards for all future conferences not only to emulate but also to exceed. The challenge is great but not impossible to achieve.

How did we accomplish this feat? It was achieved through the leadership of the conference chairman and the conference committee. One of the most important aspects is to advertise the conference everywhere we can. I believe that we were very

successful in this endeavor. Another factor is the selection of the venue, which was St John's College in Cambridge, England. Cambridge, with its long history of technological innovation, scholarly ambience, and medieval charm was an opportune location for the conference. St John's College is also one of the pretties of Cambridge Colleges. In addition, we introduced an innovation for Engineering Management Society conferences by including a series of interactive presentations, where authors hold one-on-one discussions with the audience through the medium of poster presentations. This offers the opportunity for more detailed and informal exchanges than set-piece presentations. In light of the above, the equation for success might look like:

**Success = Leadership + Venue Selection + Conference Promotion + Innovation + Dedication + Hard work**

What is next on the horizon? IEMC-2003 will be held in Albany, NY on November 1-3 at the Desmond Hotel. The theme of the conference is "Managing Technologically-Driven Organizations: The Human Side of Innovation and Change." This conference will offer the opportunity to study and assess new directions in technology management and the strategic use of human resources to shape and enhance innovation. It will offer attendees a platform for sharing experiences, presenting new results, and reviewing recent developments with keynote addresses by leading experts in the field.

The technical program will be co-sponsored by the Institute of Electrical Engineers United Kingdom (IEE UK) Management Professional Network (MPN). The MPN is the equivalent of the EMS within the IEE, and therefore, is our sister society in that organization. IEMC-2004 will be held in Singapore in

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## From the Editor

Gus Gaynor

This is my last issue as editor of the EMS Newsletter, Engineering Management. For the last five years we've tried to bring to our EMS members what we thought was appropriate content for the newsletter.

Our one disappointment is the lack of feedback from EMS members, not just feedback about the content but feedback about your experiences that could be shared with our members. Your experiences are the best case studies to help engineering managers learn to face the next problem or opportunity. We'd also like to hear more from the EMS Chapters - sharing your knowledge and chapter activities with all the chapters would enhance our effectiveness.

I'd like to thank our two past presidents, Cinda Voegtle and Wade Shaw and our current president Dennis Bodson for their timely and thoughtful articles. I extend my special thanks to Mike Aucoin and Joe Bellefeuille, a couple of stalwart contributors over these five years.

### Congratulations to New Senior Members

The EMS Board of Governors congratulates and sends its best wishes to the Engineering Management's Society newly appointed senior members.

<p><b>Francois Coallier</b> Montreal Section</p> <p><b>Osama Elamin</b> Oregon Section</p> <p><b>Mabe J. Hall</b> Central Texas Section</p> <p><b>Jesper Hoist</b> Denmark Section</p> <p><b>David K. Horn</b> Long Island Section</p>	<p><b>Mark W. Monaghan</b> Canaveral Section</p> <p><b>Anil L. Nisargand</b> Seattle Section</p> <p><b>Guiseppe Ratta</b> Argentina Section</p> <p><b>Wilfred A. Roberts</b> Jamaica Section</p> <p><b>Basil J. Youakim</b> Schenectady Section</p>
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I'd like to thank Andrea Watson, Jackie Parker, and Bob Smrek of the IEEE Publications Staff who over the five years have managed to put out every issue on time. It's been a pleasure working with all of you.

The new EMS Newsletter editor beginning in 2003 is Terrance Malkinson from the University of Calgary. I urge all our EMS members to send their editorial contributions to Terrance. Terrance can be reached at or at 403-282-1065.

## CALL FOR VOLUNTEERS

**How would you like to be involved in a process that IEEE heralds as one of its most exciting offerings?**

The IEEE Engineering Management Society is looking for volunteers to coordinate its Distinguished Lectures' (DL) program.

You can do this from the comfort of your own office or home and requires only about 2 - 3 hours per month.

**If you are interested contact:**

**Joe Bellefeuille, EMS 2003 Conferences  
Vice President, at [bellej@lucent.com](mailto:bellej@lucent.com)**

**For more information on the IEEE DL program visit:**

**<http://www.ieee.org/organizations/tab/ciaoverview1.html>**

## *...you can't afford to miss IEMC-2003*

Join your colleagues and leaders from academia, government, and industry to learn about ...

### **"The Human Side of Innovation and Change"**

**Albany, New York  
1-3 November 2003**

#### IEMC-2003 offers you opportunities to:

- Learn about the human issues related to innovation and change
- Find solutions to your problems and opportunities
- Learn about emerging management issues
- Master new tools and techniques for investing in technology
- Identify research opportunities
- Share your experiences and knowledge with colleagues

The IEMC-2003 theme is "The Human Side of Innovation and Change" The Conference will address all aspects of the human side of managing technology-driven organizations focusing especially on the question of how to unleash creativity and motivate employees.

In addition to the traditional IEMC tracks such as new product development and management of technology, topics of special consideration will include: group dynamics, culture, communication in the global enterprise; leadership and change management, and the impact of technological change on employees' performance, motivation, job satisfaction, and decisions to continue or terminate their employment.

Most companies recognize that their employees are their most valuable resource but few have been able to harness them to the fullest. The "human side" of innovation is both timely and consistent with the objective of creating excellent technology-driven enterprises. Complete details are in last quarter's Newsletter and on the Conference Websites <http://www.ieee-iemc-2003.org> or <http://www.mgmt.rpi.edu/ieee>.

Cooperating organizations include the Lally School of Rensselaer Polytechnique Institute and IEE of the UK.

If you wish to participate or help with the conference please contact either:

Lois Peters — Conference Chair — or  
Susan Sanderson — Program Chair — [sandes@rpi.edu](mailto:sandes@rpi.edu) both of the Lally School at RPI.

#### **IMPORTANT DATES**

May 15, 2003 — Paper abstracts, proposed panels, special sessions, workshops

June 15, 2003 — Notification of acceptance

August 15, 2003 — Deadline for "camera ready" copy and author pre-registration

#### **Conference Websites:**

<http://www.ieee-iemc-2003.org>

<http://www.mgmt.rpi.edu/ieee>

# Maximizing Positive Project Influence

by Cinda Voegtli,  
EMS Past President

For managers of teams or projects, the ability to get the best work and contributions out of all our team members is critical to our companies' success. For individual contributors, contributing significantly to each endeavor is important to personal satisfaction and career growth. So how do we as managers maximize the contributions and influence of the individual contributors on our teams — or as individual contributors, how do we have the influence we want to have?

To answer that question, think about the people you respect, colleagues whose opinions you seek out and trust. What landed them on your “trusted expert” list?

A couple of years ago, as a project management consultant I worked with several teams within a growing start-up company. The projects were intense and challenging, with many technical alternatives to consider, many feature decisions to make. One particular project stands out in my mind because of one team member and his ultimate influence on the project.

“Steve” was a senior engineer with the project. He'd been around since the early days of the company. He knew the products inside and out. Beyond that, he cared about the business itself — what the company was trying to achieve through all their technical projects. When he sat in a team meeting or investigated design alternatives, he brought both sets of knowledge to the table.

I can remember sitting in meetings with him where he just blew other team members away. He continually challenged assumptions about the project. Just because management thought the product should have feature A and B, this guy didn't necessarily buy it. He knew something about the customers, too, and didn't hesitate to assert his opinion about what they needed. I watched him take on the CTO and head of Marketing several times — he was passionate about getting the customer the right product at the right time and cost.

Steve also had a keen eye for technical risks and made sure they got intense scrutiny before anyone committed to including them in the project. He understood what the technology could do and had innovative ideas for product design, but he put considerable effort into balancing the technical capabilities with pragmatism about project risk. Needless to say, project managers wanted him on their teams.

Steve also took considerable initiative to bring new ways of working to his projects. Just because they'd “always done it this way”, no process or methodology was sacred. For example, as the company's custom integrated circuit capability developed, Steve suggested new ways of approaching the design process and new ways to use the tools, to help get projects completed quickly with high yields.

So ultimately where did Steve's influence come from? It had nothing to do with any job title or position. His influence resulted from the strength of his multi-faceted project contributions:

- He demonstrated detailed, practical technical knowledge of the technology and the company's products.
- He showed appreciation of customer needs and considered the business ramifications of project decisions.
- He brought experience and judgment from previous projects into each new project, doing whatever he could to make the effort go well.
- He took the initiative to suggest new and better ways of doing things.

The result? Steve had the ear of team members and decision-makers. They listened to his opinions, they sought his advice, and they depended on his judgment. Steve was on my “trusted expert” list: I personally wanted his discerning mind, rich experience, and strong opinions on my projects. He wasn't Superman; he wasn't always right; he was sometimes even hard to work with! But by virtue of his contributions to both technical product development and to the good of the company's overall business, he was very valuable to others, and me and therefore very influential.

The good news is that any team member can make such contributions — and as a result, can be all-powerful and influential as individual contributors to our companies' endeavors. Take a look at all you and your team members have to offer — find new ways to contribute like Steve — and maximize your own personal project influence and that of everyone on your team.

**Visit the EMS Website at [www.ieee.org/ems](http://www.ieee.org/ems)**

*Your ideas and comments are important to us —  
they determine the future directions of EMS — your Society*

# Promoted to Management – Now What?

by Peter Geary,  
EMS Board of Governors

**C**ongratulations on the promotion! After all your hard work you finally got what you've been wanting – a management role. Before your excitement turns to anxiety, however, it is time to think about succeeding in your new role.

Many things are going to change in your work life. Everyone, including you, will have new and heightened expectations. More than ever your success and reputation will be determined by your behavior, judgment, and ability to motivate, while navigating through the issues. You probably have taken some management training courses, are familiar with project and time management, understand budgeting and have even taken some human behavior courses. These are all necessary but insufficient requirements to become a great manager. The biggest challenge lies ahead in mastering new skills and letting go of many of the skills that have made you successful professional.

Here are some tips to make your move a success and your life less stressful.

## Appreciate the difference between “doing things” and getting things done

In the past you have been successful by “doing things”. This usually meant that you were in control of your tasks and could do almost everything required on your own. If something fell a bit behind, an evening here or there would put things back on track. Worst case – give up a little weekend time. Not so when you are managing other people – the tasks are bigger and by definition require more effort and knowledge than one person can provide. As a manager, the challenge is to get things done without trying to do it all.

In order to “get things done” you must master the art of delegation – even if it means delegating your favorite tasks to a less experienced individual. To delegate successfully you must communicate expectations effectively, motivate, provide direction and monitor progress. Simply assigning a task to someone does not mean it will be done. Providing too much or too little guidance will result in frustration and failure. Delegating tasks requires a great deal of self-confidence and trust in others.

## Manage expectations

In many Olympics medal presentations the Bronze Medallists are much happier with their performance than the Silver Medallists. In spite of the better standing, the Silver Medallists see their world standing as defeat.

The message could not be clearer: expectations influence outcome satisfaction. Managing expectations is as critical to your future success as great performance. Be sure that you understand whose expectations must be met and that the expectations you negotiate are both challenging and achievable.

## Your first days in your new role

New management roles usually start with a grace period. Use these days wisely and your efforts will pay dividends for several years. As brilliant as you are, take the first month or so to just listen and learn. You are going to find many things being done differently than you would like. Be patient. Use the time to get to know the strengths and weakness of your peers and those who report to you. Begin building the trust relations and better understand your role. Even if you have a absolutely brilliant, right on the mark idea, sit on it – making changes too quickly will just annoy people around you. Unless there is something going on

that will result in catastrophic failure, let it be. Things around you worked in some fashion yesterday, they probably will tomorrow without your intervention.

Once you feel comfortable with your knowledge take another month or so to create your action plan. Test your plan on paper and gain much-needed support by consulting with others. Be sure to include a communications component in your action plan.

With your thought-out plan in hand, it is time for action. Be sure to target early success, give credit and thanks for the contributions while accepting full responsibility for your decisions.

## Don't confuse process with purpose

A well thought-out, well-communicated plan is your best defense in ensuring that your focus is on the important, not just urgent, activities. However, when things get chaotic the natural tendency is to do what we are good at – perhaps exactly right – but often the wrong thing.

Be wary of falling into the planning process trap: forgetting the purpose and following the process. Evaluate everything you do against the contributed value towards the purpose of your plan.

## Develop personal “acid tests”

The person who best knows what you are doing is you. Unfortunately, additional workload, new challenges, family pressures and other life factors can affect your judgment.

To help check your performance, develop a few “personal acid tests” that let you know how you are doing. For example, if you are already working 50 hours a week and you think that things will get better if

*“A musician makes music, an artist must paint, a poet must write, if he is to be ultimately at peace with himself. This need we may call self-actualization ...”*

—Abraham H. Maslow

*“A novice can see things that the expert overlooks.”*

—Warren Bennis

you just work more, then you are probably on the wrong track. There is no prize, and should be no bragging rights, for working the “most hours”. Additional hours worked at sub-optimum performance yield diminishing returns and can become counter productive; i.e. total output declines with additional hours worked.

Another quick test is to measure yourself effectiveness in your “super set” – those things that you pride yourself in doing extraordinary well. If you are not doing these as well as you feel know you can do them, chances are you need to rethink your approach.

### Seek feedback

Even with your acid tests securely in place, be sure to establish a set of advisors and mentors whom you can consult and rely on for constructive feedback. Whether you follow a “360 degree approach” or establish your own internal review committee, be sure to include both your peers and your team. Feedback should be sought both directly and through periodic “secret surveys”. Meet with the group on a scheduled basis, park the egos at the door and listen to their feedback. Discussion should focus on your effectiveness, how you are perceived, what your reputation is and if you appear to be having fun.

### Be a leader

While managers frequently plan, select, assign and monitor resources against goals, great managers also provide leadership for the group.

Being an effective leader requires that you think about and communicate the vision and strategy, risks and rewards, and bring positive energy to your group without undo attention to implementation details.

Effective leaders employ the three leadership types, (positional, knowledge, and influential based) to some degree when executing their plan. Choose your leadership approach wisely and adapt to circumstance, individual, topic and organizational need.

### Represent your team & celebrate success

Being a manager means taking on responsibility for others. Without over-protecting, some protection is required. Be sure to represent your team’s strengths at peer meetings and push back unjustified criticism. Provide opportunities for your staff to present their initiatives at manager meetings. Those in your work environment will appreciate your fair play – acknowledging a problem, supporting your team and recognizing their contributions.

In “getting things done”, managers set tough challenges for individuals. Nothing gets done without someone taking on the challenge and putting in the effort to overcome the frustrations. Put as much effort into celebrating the success of the individuals and team. Avoid the tendency to just move on to the next urgent matter. Few managers celebrate successes enough – be one of them.

Those around you have expressed their confidence in you and believe you can master your new role. Now is your chance to prove it and be a master of the skills required. Be sure to have fun as you conquer this challenge and take the time to read at least one business book per quarter.

Congratulations.

Have a comment on the article? Your feedback is welcome. Please e-mail Peter.Geary@ieee.org.

# Leadership Development: A Process of Influence (Part Three)

by Joe Bellefeuille,  
EMS BoG Member

*In the first two parts of this series, I examined the problem of top executive turnover and outlined a new paradigm for executive development and leadership continuity. I also explored some of the major challenges facing executives today. In essence measures of success, focused on economic capital – financial performance – must be coupled with measures of intellectual capital – knowledge, skills, and abilities. This requires partnerships between human resource and technical as well as other line managers that will threaten to blur the organizational lines of responsibility between technical managers and their partners in human resource management.*

## A partnership framework

To create value and deliver results, the human resource (HR) professionals, in partnership with the line managers for running the business, will have to define the *deliverables* that enhance the performance of their businesses. Their roles will be multiple – not singular.

These professionals must maintain a two-fold balance: between process activities and people activities and between a focus on day-to-day operations and a strategic future focus. One can envision day-to-day and future as opposite ends of a spectrum and process and people as opposite ends of a second spectrum. Crossing the spectrums creates a two-by-two space – four quadrants. The four quadrants represent the principal roles that must be fulfilled to make business successful.

To understand these roles, we must consider three aspects of each: the characteristic *metaphor* or visual picture that accompanies each role, the *deliverables* that constitute the outcome of the role, and the *activities* that must be performed to fulfill the role. One

quadrant, whose metaphor is labeled *strategic partnership*, assures the deliverable *strategy execution*. In this role, leaders and HR professionals have to align human resource practices with business strategies. The partners define business strategy and move strategy into action. Key *activities* revolve around a process called organizational diagnosis, a process through which an organization is audited to determine its strengths and weaknesses.

A second quadrant is the placeholder for the deliverable *administrative efficiency*. Let's label its metaphor *infrastructure architect*. This metaphor coupled with administrative efficiency implies this role ferrets out unnecessary costs, improves efficiency, and constantly finds new ways to do things better. The activities include continuous improvement and continual reengineering of work processes. In partnership with technical managers, HR can assist in hiring and developing managers who reduce waste and increase productivity.

The metaphor for the third quadrant, *employee advocacy*, implies spending time with employees to understand and train them. The deliverables are *increased employee commitment* and *competence*. The main activities in this role involve listening to day-to-day problems, concerns, and needs of employees and finding ways to provide employees with resources, methods, and practices that help them contribute to business success while meeting their changing needs.

Characterized by the metaphor *change agent*, the fourth quadrant assures a capacity for change – *management of transformation and change*. *Transformation* in this context entails fundamental cultural alteration. *Change* refers to the ability of an organization to implement continuous improvement and occasional breakthrough in all organizational activities. A key deliverable is

a process to identify and implement change. This surfaces a fundamental change paradox. Change is often grounded in the past, but it is about and for the future. This calls for appreciating the past while acting and speaking for the future. Activities of change agents revolve around *identifying and framing problems, building relationships of trust, solving problems, and creating and fulfilling actions plans*.

## An agenda for competitiveness

An organization must be able to adjust its strategic *behavior* to the changing demands of the marketplace. This requires developing strategic leadership. In times of rapid change and revolution, developing strategic leadership – the essence of executive development efforts – needs to develop leadership muscle at all levels of the organization. This can be thought of as a strategic leadership talent pool that can create and maintain a positive tension and dynamic equilibrium in a changing environment. Vicere in an article titled *The Strategic Leadership Imperative for Executive Development* recommends:

1. Viewing management as a process of interpretation, not a process of control. This heightens the sense of leadership judgment to focus the strategic direction of the organization and exploit its capabilities.
2. Viewing executive development as a process of building commitment to strategic intent and engendering a focus on markets and customers.
3. Designing executive development strategies to create a talent pool of strategic leaders at *all* levels of the organization. These strategies need to go beyond tactical interventions to chart a course toward organizational competitiveness in a dynamic environment. The organization's agenda must remain focused on its values

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# How to Help Somebody Who Doesn't Want Help

by Ron Blicq, LSM IEEE

I was surprised to see Joe Xxxxxx at the retirement counseling center. I hadn't seen him for several years and I had assumed he would still be working.

"No, I retired early," he explained when we met for coffee later the same morning. "I was tired of being turned down for jobs I felt I was well-equipped to handle, so I took a buy-out package."

That, I felt, was a pity: the company had lost one of their sharpest engineers. Joe (that's not his real name – I changed it for this article) had been a remarkable field engineer, chasing problems and developing engineering change proposals at remote telecommunication stations. So when Wally Sandhurst retired as Manager of Field Maintenance, I assumed Joe's application to fill his shoes would be accepted. But that didn't happen and Joe was noticeably disillusioned.

Later, I learned the reason why: although he was a highly capable engineer, Joe's communication skills were inadequate. His field reports tended to ramble, his proposals seemed to lose focus, and his e-mails often had to be questioned to identify what he was trying to say. His inability to write clearly was severely inhibiting his career.

Joe's problem is endemic and has existed for over one hundred years. In 1901 the Society for the Promotion of Engineering Education (SPEE), which had been formed in 1893 to evaluate the quality of education that engineering undergraduates were receiving, reported:

*The writing skills of Engineering students are deplorable and need to be addressed by engineering colleges.*

Courses were not immediately inserted in undergraduate engineering education, as one might expect, but certain engineering professors around the world took notice and quietly did

something about it. Notable among these were T.A. Rickard, Karl Owen Thompson and J. Raleigh Nelson, all professors at engineering colleges in the US and UK, who inserted components on writing well into their courses, although the subject was not listed in the curriculum. After doing this for 15 to 25 years, they recorded their ideas and published them as books. Here are some excerpts:

Conscientious writers try to improve their mode of expression by precision of terms, by careful choice of words, and by the arrangement of them so that they become efficient carriers of thought from one mind to another.

— T. A. Rickard, 1908 [1]

The study of English at a scientific school has a more directly professional application than it has at an academic college. Instead of courses in literature with their cultural purposes, courses are given that prepare the students for the types of reading and writing that will be required of them after they are graduated from college.... English is more than a tool; it is a part of life itself in its many activities.

— Karl Owen Thompson, 1922 [2]

In report writing, in particular, there is an increasing demand that the first page or two shall provide a comprehensive idea of the whole report.

— J. Raleigh Nelson, 1940 [3]

The messages these writers conveyed are as cogent today as they were 60 to 90 years ago. Rickard focused on coherence; Thompson drew attention to the need for a different approach when teaching engineering writing; and Nelson was the first person to introduce the idea of an executive summary (although he did not call it that).

These were technical people and they were writing for technical people. Their purpose was to encourage their readers to clearly and coherently describe their

work, whether they were writing letters, reports, or operation and maintenance instructions. They could not foresee, then, that in the latter half of the century several developments would occur which would have a significant impact on an engineer's role as a writer of technical documentation.

The first development was the emergence, starting in the mid-1960s, of the career technical writer, who more and more often was a non-technical person. At first engineers were hesitant to let a non-engineer do their writing for them, but gradually they adapted to, and even welcomed, the writers' presence; they began to like their new role as the 'subject matter expert' who provided the raw information to the specialist writer.

Then, 20 years later – in the early 1980s – along came word-processing, which initially was the domain of the dedicated technical writer and the engineering secretaries. But when desktop computers started appearing on practically every engineer's desk, the engineers' role changed again. Now they were expected to type their correspondence, reports, and engineering change proposals directly into the computer, for printing or transmitting electronically. Sure, it was faster than handwriting their draft reports, but there was a penalty: in most cases they no longer had a secretary, on whom many had depended to correct their punctuation and spelling, and even catch any grammatical carelessness.

So there still is a need to help engineers communicate well, and we as engineering managers must encourage them to do so. True, most engineering colleges now include a technical communication component into the engineering curriculum, although it's often too brief — squeezed by technology's burgeoning demand to include ever more contemporary technical subjects. (There also is another problem: few undergraduates realize that good report writing will

be an essential part of their career, and so do not give the subject much credence.) We need to *push, push, and push*.

This is not just a North American problem. All over the world engineering managers are complaining that, on the whole, their engineers do not communicate well and don't feel it's their responsibility to learn to do so. The problem will be addressed specifically next July at the Forum 2003 International Communication Conference in Milan, Italy. Wojciech Murzyn, who teaches Presentation Techniques at the Warsaw University of Technology in Poland, will present a session titled:

*Presentation Skills for Good Engineers Who Are Poor Communicators:  
How to Help Somebody Who Does Not Want Help*

In the abstract to his paper, he writes: "Engineers usually do care about their professional background, while neglecting the need for improving their soft skills. The session will illustrate my experience in preparing and performing the communication skills training for technical university students and for engineers who do not recognize they need to improve their presentation skills."

I plan to meet Professor Murzyn next July, and will encourage him to write an article for this newsletter.

#### References:

1. T. A. Rickard, Royal School of Mines, London: *A Guide to Technical Writing* (San Francisco: Mining and Scientific Press), 1908.
2. Karl Owen Thompson, Case School of Applied Science, Cleveland, Ohio: *Technical Exposition: A Textbook on the Application of Exposition to Technical Writing* (New York: Harper & Brothers Publishers), 1922
3. J. Raleigh Nelson, College of Engineering, University of Michigan: *Writing the Technical Report* (New York: McGraw-Hill Book Company, Inc.), 1940.

*Editor's note: Ron Blicq has been teaching technical professionals how to write and speak well for over 30 years. He was Education Chair for the IEEE Professional Communication Society from 1974 to 1995, is the author of six textbooks on technical and business communication, and also is the co-author — with Lisa Moretto — of the eight-course online Technical Communication program the Engineering Management Society is recommending to its members (see announcement on page 9).*

***“Trust is the lubrication that makes it possible for organizations to work.”***

—Warren Bennis

## SPECIAL OFFER

The IEEE Engineering Management Society has arranged a special offer to help its members develop their communication skills.

### Build Powerful Communication Skills in a Self-Paced Environment

On-line courses teach the same concepts the rgilearning, Inc. has presented to organizations for over the past 30 years. Now you can learn rgi's learning techniques at your own pace, on your own time, in the office or at home. Each course incorporates self-evaluation tools, so you're not tied to the instructor's time schedule.

To monitor your progress rgilearning provides an optional exam and course completion certificates. If you prefer, you can choose to have a writing consultant evaluate examples of your work. Pause points within each course allow you to stop and start at your convenience.

Visit the IEEE EMS Website for complete details.  
[www.ieee.org/ems](http://www.ieee.org/ems)

## Leadership Development: A Process of Influence (Part Three)

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and strategic intent and that markets remain the context in which organizational decisions are made and activities are carried out.

4. Using executive development as a competitive capability that assists in the development, implementation, and revitalization of organizational strategy. Strategic leaders use executive development as a “glue technology” to pull an organization together and move it through the cycles of depression, growth, revitalization, and competitiveness.

5. Seeing executive development as an element of strategic business development and as a driver of both strategic

ideals and intent *and* of market awareness and development.

6. Creating executive development as a part of a consistent HR strategy that blends the processes of recruitment, selection, development, appraisal, and rewards into an integral system for talent pool management, rooted in the values of the organization and focused on the marketplace. Creating such a talent pool is a strategic leadership imperative.

There is an emerging paradigm for executive development focused on strategic leadership. It is time to move executive development beyond the role as an appendage to succession planning. The notion of strategic leadership as a focal point for redefining

executive development can help create the dynamic tension required for rapid organizational learning that Ray Stata says is vital for competitiveness in knowledge-intensive industries.

This article examined a schema for business executives and managers to form partnerships with human resource managers. We also laid out the rationale for the creation of a talent pool of strategic leadership. We examined some recommendations to aid in the development of the pool. In the fourth part of the series, I will develop a framework to draw hierarchical distinctions throughout the organization to facilitate a meaningful creation of a strategic leadership talent pool.

## Engineering Management in Our Modern Age

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*The key ingredients, provide engineering managers with learning experiences in product development, systems engineering, and project management.*

Editors Note:

We reprinted the presentation that Dr. Roger Manley gave the EMS Board of Governors in January in the second and third quarter issues of the EMS newsletter. Dr. Manley suggested that management was not a profession but an occupation. The discipline of management according to Manley lacks:

1. A body of specialized knowledge
2. A formal educational process
3. A public interest in the work the group performs
4. Recognition by the group of a social obligation
5. Recognized status indicated by a license or a special designation
6. Standards governing admission to the group
7. A code of ethics

Is engineering management a profession or an occupation? I believe that engineering managers possess all the elements that Dr. Manley suggests are essential for a profession.

You may wish to reflect on the role of management. I suggest that management is a profession and it meets all of Roger Manley's conditions. Just think about a society without management. Yes, industry often lacks discipline but so do our academic and political institutions. Utopia doesn't exist. We all play a role in improving the organizations in which we participate.

## The President's Corner

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the October- November timeframe. It will be co-sponsored technically and financially with the IEE UK MPN. Newfoundland is requesting that they be the host for IEMC-2005, and is in the process of preparing a proposal for the EMS Board of Governors to be considered at our January

2003 BOG meeting in Orlando, Florida. As you can see, your Society is working hard to provide the membership with an opportunity to attend a conference on an annual basis.

As noted above, I made reference to the IEE MPN as a Sister Society of

the IEEE EMS. There are many areas of opportunity for cooperation between both organizations. In my next column, I plan to more fully explain the IEE, MPN, and the many areas for cooperation between our Societies, which would benefit both memberships.

# Engineering Management in Our Modern Age

by Gus Gaynor,  
EMS Newsletter Editor

Dr. Wade Shaw our EMS President in 2000-2001 presented a paper at IEMC-2002 in Cambridge titled Engineering Management in Our Modern Age. I believe that a summary of that paper may lead some managers to go to the EMS website and read the complete paper.

Dr. Shaw begins by asking the question; "What is engineering management?" Is this discipline that we call *engineering management* just an extension of our engineering discipline with the addition of management training? Dr. Shaw approaches the definition of *engineering management* by considering *what managers do, how they do it, and for what purpose*. In spite of the complexities associated with engineering practice, the transformation process for converting raw inputs — competencies, technologies, resources, leadership, and culture—into value-adding results had not changed.

In developing a refined definition of engineering management, Shaw begins by considering three value adding processes that must exist for long-term survival: creation of knowledge by research and development, attracting customers through marketing and sales, and creating products and services through operations. Accounting, finance, legal, and all the other administrative groups support these three functions. Thus the refined definition of engineering management can be stated as:

*Engineering management then is about using the product/service development process to enable creation of knowledge, products/services, and customers.*

With this refined definition we can then consider the questions of *why engineering management, what do engineering managers do, and how do we do it?*

## Why—Product/Service Design and Development

*Why engineering management — design and development of competitive products and services that have economic value — a tangible outcome. Includes an array of sub-topics and sub-disciplines — managers to ensure the application of the needed competencies, skills, and attitudes.*

## What—Systems Engineering

Engineering managers are engineers with the management mandate to accomplish the system integration function — translate design requirements while considering the life cycle of the product or service.

## How—Project Management

Interdisciplinary teams are required to resolve engineering problems and opportunities so applying the principles of project management provide significant benefits over functional management.

After considering the Why, What, and How engineering management can be defined as:

*Engineering management exists to develop products and services using systems engineering in a project organization.*

If the field of engineering management was only an aggregation of existing knowledge and practice the education of future engineering managers could be limited to a simple collection of courses. Wade Shaw shares some features of the topical areas that define the future of engineering management.

## Product/Service Design and Development

- Managing innovation—engineering design crosses traditional boundaries
- Managing product complexity—complex systems require more explanation
- Making decisions—manufacturing and support costs will dominate decisions

## Systems Engineering

- Life-cycle cost—impact on engineering design
- System architecture—becomes principle component of theory and practice
- Engineering standards—theory and techniques to translate into methodology
- Simulation—will emerge as a standard design tool
- Maturity models—will emerge as best practices
- Systems engineering—becomes part of project management and distinguishes engineering projects from others

## Project Management

- Project management for engineering—expands to include management of requirements, risk, cost, life-cycle planning, and systems engineering
- Integrated product teams—prepare engineers for their role in multi-disciplinary teams
- Team design—team design will take precedence over team building
- Leadership—developing project leaders with the necessary competencies becomes a high priority
- Strategic project management—the project work plan will be connected directly to the organization's business strategy

Dr. Shaw's Observations

The engineering manager is not an engineer with an academic degree in engineering, years of practice as a professional, or someone who receives engineering management training or an MBA. Engineering management is a discipline. An engineering manager technical areas. An engineering managerial management skills generally associated with an MBA.

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## 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.

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IEEE Engineering Management Society Newsletter (ISSN 1066-212X) is published quarterly by the Engineering Management Society of the IEEE, Inc. Headquarters address: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. The cost is \$1.00 per member per year (included in Society fee) for each member of the Society. IEEE Customer Service: 1-800-678-IEEE (USA and Canada), 732-981-1393 (outside USA and Canada), FAX 732-981-0027.

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Printed in the U.S.A.

### Newsletter Deadlines

Issue	Deadlines
First Quarter	15 January
Second Quarter	15 April
Fourth Quarter	15 June
Fourth Quarter	15 October

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