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GROUP

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Engineering & Technology Management Group Newsletter

Steven P. Nichols, Editor

Spring 2000

Chairs' Message



John Paul

On behalf of the three Chairs of the Divisions in our Group "Welcome!" This newsletter represents a new approach to serving our members. Our current efforts are focused on a combined newsletter and expanded participation at the ASME Congress.

1. Combined Newsletter: You can see from the multiple logos appearing above this message on the masthead, we have combined the newsletters of the Safety Engineering and Risk Analysis Division (SERAD), the Technology and Society Division, (T&S), and the Management Division (MGT) of ASME. These three divisions constitute the Engineering & Technology Management Group of ASME. We intend to broaden the coverage of topics included in the Newsletter, and to increase the frequency of communication with all of the members in each of the three divisions. Thanks to the Management Division for serving as the "host" of the first combined newsletter. The combined newsletter is unique in that it is the first time in the history of the three divisions and in the history of the Group. The combined newsletter is also an experiment. I stated earlier that we designed these changes to better serve our members. We need your input as to

whether we are, indeed, better serving you. Please provide us your comments, suggestions, and criticisms.

2. Expanded Participation at the ASME Congress: This newsletter includes a description of a Symposium that is scheduled to take place concurrently with the IMECE 2000 on November 5-10, 2000 in Orlando Florida. The Symposium, SUCCESSFULLY MANAGING THE RISK AND DEVELOPMENT OF YOUR BUSINESS AND TECHNOLOGY, is designed to serve the needs both of academic and practicing members of each of the three divisions. We have included sessions on protecting intellectual property, managing risk and reliability, implementing agile manufacturing, and global and sustained competitiveness. I strongly encourage you to review the description of the Symposium and to attend the sessions that are of interest to you. The topics and the sessions of the Symposium reflect our interest in better serving the practicing engineering and engineering managers who have selected one of the three divisions in the Engineering Technology Management Group of ASME.

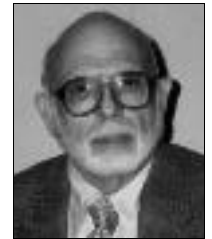
We invite you to become actively involved in your Society, ASME, and our Divisions. You will find a list of contacts for each of the three divisions on page 10 of this newsletter. We all encourage you to communicate with us. As a start, there is a handy coupon on page 11.

Chairs: Steven Nichols, MGT Paris Stavrianidis, SERAD John Paul, T&S

VPs WELCOME: First Combined Division Newsletter



Jeff Rode



Arnold Rothstein

To Members of Divisions in E&TM Group:

As the VPs (both current and elect) for the Engineering & Technology Management Group, we express our enthusiasm regarding the successful publication of the first Group newsletter which you are now reading. We also see great opportunities for the future of the Group. As we begin the new millennium, the leaders of the E&TM Group's Divisions are presented with many challenges to meet your needs. The volunteer leaders in each division, group committee, and their support staff are all dedicated to meeting this goal.

To achieve the goal we need your help, too. At the least, we need communication/feedback from you, our members. It is vital to hear from you. Therefore, we call upon the Group's members to feel free to contact us or any of the Division chairs

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Safety Engineering and Risk Analysis Division (SERAD)

Safety, risk, and reliability are key public issues, as seen in public reports about transportation accidents, accidental releases, national projects, and manufacturing improvements in reliability and safety. In keeping with the conference highlight topic of "Beyond Traditional Boundaries", SERAD is focusing on new and evolving codes, standards, assessment or management methods as applied to industry. Our six sessions are diverse with approximately thirty papers by international authors in industry, government, and academia. Your attendance is welcome! A brief summary of our six sessions is noted below.

Risk & Reliability Issues at Federal Facilities, SERAD-1

Chair: Mr. David Pyatt, Phone: (301) 903-5614, or e-mail: David.Pyatt@eh.doe.gov
Issues of risk and reliability will be discussed as they apply to rail transportation, inland navigational structures, technology programs, or operational activities at federal facilities, such as US Department of Energy, US Department of Defense, and other national-level organizations.

Safety Through Design, SERAD-2

Chair: Mr. Paris Stavrianidis, Phone: (781) 255-4983, or e-mail: paris.stavrianidis@fmglobal.com

Improvements in the mechanical safety of equipment can be manifested by inherently safer design, incorporation of design safeguards, or use of better design criteria. Cross industry risk assessment protocols, machine guarding, snow blower design, power transmission safety standards, and academic curriculum requirements are planned to be discussed in this session.

Performance-based Standards and Risk-Informed Approaches, SERAD-3

Chair: Dr. Ben Ale, e-mail: ben.ale@rivm.nl
Performance-based regulations such as OSHA Process Safety Management, EPA Risk Management Program, or Seveso I & II, are driving changes in standards and the development of new approaches to risk and reliability problems or compliance. This session will present new approaches and developments to performance-based, risk-informed issues in the areas of allowable population densities around dangerous facilities, risk-based inspection guides and mechanical integrity approaches, and fire protection risk assessment at oil and petroleum facilities.

Beyond Regulatory Compliance for Safety and Risk Engineering, SERAD-4

Chair: Dr. Michael Stamatelatos, FAX: (301) 987-7355, or e-mail: mstamatelatos@prodigy.net
Merely meeting a standard or regulation's requirements (such as OSHA PSM, EPA RMP, or an international standard) may be the goal of some organizations. However, some establishments are beginning to go

beyond what is required and this session will explore the purpose, motivation, or approaches for doing so which will include model uncertainty analysis, mechanical integrity, investment opportunity aspects of risk-based inspection, and engineering assessment approaches.

Risk-informed Decision Making in Aerospace & Allied Industries, SERAD-5 Part I of II

Risk-informed Decision Making in Aerospace & Allied Industries, SERAD-6 Part II of II

Chairs:

Part I: Mr. Robert Navarro, e-mail: rnavarro@mail.arc.nasa.gov

Part II: Ms. Alexis Flippen; Phone: (650) 504-4901, or e-mail:

aflippen@mail.arc.nasa.gov

Leading issues and advances in risk analysis for space and aerospace risk and reliability are presented for NASA programs, missions, and complex high risk aerospace systems. Approaches, solutions, or success metrics to problems associated with observatories, NASA's "Better faster cheaper" space missions, the Space Station, extreme risk, test pilots, airport hazards, and risk and tort are planned for this special set of industry sessions.

All of the SERAD organized papers are peer-reviewed and a Proceedings volume will be prepared by the SERAD for the Conference. If you have further interest in these Sessions, please contact the Session Chair noted above, the SERAD Programming Coordinator: William Doerr, Factory Mutual Research, at (781) 255-4986, or e-mail: william.doerr@fmglobal.com, or visit SERAD's Technical Program Webpage at: <http://www.asme.org/conf/congress00/serad.htm>

Technology and Society Division (T&S)

Along with the other divisions of the Engineering and Technology Management Group, the Technology and Society Division will be presenting several sessions at Congress 2000 as part of the Group's Symposium entitled *Safe and Successful Technology and Business Development*. Technology and Society (T&S) will be sponsoring a total of nine sessions at the Congress, covering topics ranging from education in engineering to intellectual property to lean manufacturing.

New Paradigms for Manufacturing and Design: Engineering Management's New Look at Technology Development, - T&S_HB13

Organizer: Dr. Hiroshi Honda, PE
(Hondah9876@aol.com)

This session is one of the four highlight topic sessions for this year's Congress. *New Paradigms for Manufacturing and Design: Engineering Management's New Look at Technology Development* will focus on a variety of new techniques for achieving contin-

ued industrial growth in the face of limitations imposed by energy, the environment, and the economy. An international panel of speakers will share their perspectives on such topics as resource circulation, lean manufacturing, and strategic team-working. This highlight topic session will be of particular interest to engineering professionals interested in learning about cutting edge techniques for managing technology and sustaining growth and development. Participants include Shuichi Fukuda, a professor from the Tokyo Metropolitan Institute of Technology, who will be discussing "Team-working in the 21st Century" and Masafumi Katsuta, a professor from Waseda University, who will be discussing "Collaboration of Academia, Industry, and Governmental Sectors." More information regarding this session can be requested from the session's chair.

Protecting Inventions with Patents, T&S_HB02

Co-Chairs:

Robert Burns, burnsr@finnegan.com

Jeff Schwartz, jeff_schwartz@

McKennaCuneo.com

T&S also will continue its efforts to educate ASME members on intellectual property issues at Congress 2000. Various intellectual property issues will be presented in three of the T&S sessions. This first session, entitled *Protecting Inventions with Patents*, focuses on the basic tenets of intellectual property protection (patents, trademarks, copyrights, and trade secrets), with an emphasis on the patenting process. The distinctions between the various forms of legal protection are considered and the pros and cons discussed. When flushing out the patenting process, the myths and misconceptions regarding patent protection are revealed. More specifically, in analyzing patents, the scope of protection is reviewed and attention is given to discussing the universe of subject matter that is protectable. The legal rights conferred and the ownership of those rights are also topics addressed. Also, insight into the limitations on the legal rights conferred by patents will be provided. Additionally, the process for obtaining a patent will be discussed and examples of various types of patents will be provided. Finally, this session will address the legal challenges and procedures available in federal courts and administrative agencies that deal with patent issues. Ultimately, participants in this session should come away with an appreciation for how to navigate the rough waters of the patent system and deal with either obtaining patents or making business decisions about the patents obtained and asserted by others. As part of this process, information regarding the areas of record keeping, invention disclosures, and licensing issues will also be presented. The second and third sessions revolving around intellectual property issues will be panel discussions. The goal of these two

(Continued on page 4)

An engineer's guide to ... protecting and licensing valuable ideas...managing risk and reliability...attaining sustainable global competitiveness...and much more...

SUCCESSFULLY MANAGING THE RISK AND DEVELOPMENT OF YOUR BUSINESS AND TECHNOLOGY

A Symposium at the
2000 ASME International Mechanical Engineering Congress and Exposition
November 5–10, 2000, Walt Disney World Dolphin, Orlando, Florida

Sponsored by the
ASME Engineering & Technology Management Group:
Safety Engineering & Risk Analysis Division
Technology & Society Division
Management Division

You, as today's leaders, must stay abreast of the emerging issues that are refocusing the direction of every industry. In our fast-paced, technology-driven economy, it is impossible for you and your business to effectively compete and maximize profits without understanding how to manage issues such as intellectual property, agile manufacturing, resource sustainability, and risk-informed decision-making.

You are invited to join other practicing engineers, entrepreneurs, business leaders and managers to explore these new engineering, management, and technology concepts and their application in a variety of business and industry sectors. This symposium provides a broad understanding of these innovations, techniques to apply them in a safe, sustainable and successful manner, and opportunities to share experiences with colleagues. You will walk away with tools and techniques to achieve practical engineering and business results as well as with new and important professional contacts.

Sessions are organized into over 20 industry-focused technical sessions with tracks in:

- Manufacturing & Design Management
- Ethics & Intellectual Property
- Entrepreneurship & Business Development
- Emerging Engineering & Business Paradigms
- Risk, Reliability & Regulations

Representative session topics include:

- Protecting Inventions with Patents
- Beyond Regulatory Compliance for Safety & Risk Engineering
- A Practical International Business Development Tutorial for Engineers
- New Paradigms for Manufacturing & Design: Emerging Engineering & Management Philosophies
- Industrial Ethics and the Engineering Profession
- Managing Technology Transfer & Technology Partnering
- End-of-Life Product Management for Resource Sustainability
- International Recognition of Educational and Professional Credentials

For a complete list of all sessions in the three division sponsored symposium, see our group web site (<http://www.asme.org/groups/etmg/>). For more information contact Susan Ipri Brown at sibrown@asme.org.

Details of the Currently Organized Sessions are on Pages 2, 4 and 5.

T&S

(Continued from page 2)

sessions is to provide ASME members with useful information on how various technology businesses successfully develop, protect, and use intellectual property.

Managing Strategic Technology Partnering, T&S_HB07

Chair: Susie Tinker, tinkers@finnegan.com
One of the panel discussions, *Managing Strategic Technology Partnering*, will include speakers from a large corporation, a small corporation, and a start-up company, who will share with the audience their approaches to technology transfer. Topics of discussion will include how to finance technology development, how to choose a technology partner, how to protect a technology partner relationship, and how to successfully conclude the relationship once the transfer has been completed.

Current Trends in Protecting Intellectual Property, T&S_HB08

Chair: John Paul, john.paul@finnegan.com
Panelists from industry and local businesses in the Orlando area will discuss their respective strategies and methods for protecting intellectual property, both during development stages and throughout commercial life. Topics of discussion will include how to identify, select, and allocate resources for profitable technology, the pros and cons of keeping trade secrets vs. patenting, and strategies and objectives for successful marketing of the developed intellectual property. Perspective views from different sizes and types of technology-based companies will be presented, with the goal of showing how these companies ultimately turn their developed intellectual property into profitable, commercial products. Overall, the T&S division is looking forward to providing an opportunity for ASME members to learn about the interesting and evolving trends occurring in technology businesses today. We hope that you can join us in Orlando for Congress 2000 - like Disney, we intend for our sessions to present some thrills and attractions of their own!

Management Division (MGT)

The Management Division has organized seven sessions for the Symposium. The sessions are a natural progression from the topics addressed at IMECE 1999. The 1999 sessions included: management issues in Environmental Stewardship, Entrepreneurship, management issues in implementing Agile Manufacturing, End of Product Life Issues for a Sustainable Business and management issues in implementing Concurrent Design. The following papers may be of particular interest:

A Practical Approach to Effective Requirements Development, ASME paper no. 99-IMECE/MGT1

Leveraging 3D CAD Data Management For Integrated Product Development,

ASME paper no. 99-IMECE/MGT2

Coordinating Concept Design Decisions that Create the Product Architecture, ASME paper no. 99-IMECE/MGT3

Discrete Event Simulation for System Investment Analysis, ASME paper no. 99-IMECE/MGT5

Methodology and Application for Customer Driven Manufacturing and Mass Customization, ASME paper no. 99-IMECE/MGT7

Management Division Sessions Planned for IMECE 2000

Management Issues in Implementing Agile Manufacturing

This session will assemble experts, primarily from Industry, in the rapidly maturing fields of (Agile, Lean, Adaptive) Manufacturing. This is a continuation of the highly successful session inaugurated by the Management Division at IMECE99. This Session will establish a valuable trend in collaboration among Industry in addressing the complexities of agile manufacturing in the realm of multinational, multi cultural corporations. . As an example, one of our sessions will include Win Phillips, ABET President, and Hideo Ohashi (representative of the Japan Accreditation Board for Engineering Education and University President) which should be of interest to a wide cross-section of our international audience in academia and industry. All Symposium papers will be published. Symposium organizers will continue to entertain papers in each of these areas for as long as possible. Other expected paper topics are:

*Customer Driven Manufacturing and Mass Customization

*Discrete Event Simulation for System Investment Analysis

*Economic Profit And Product Portfolio Optimization

*Complexity Cost Analysis

*Design of Modular Reconfigurable Manufacturing Robots

Management Issues in Implementing DFX

This session will assemble experts, primarily from Industry, in the rapidly maturing field of Design for X (where X = Environment, Assembly, Resource Recovery, Disassembly, Remanufacture, etc) and Life Cycle Cost Analysis. DFX/LCA comprise crucial components of economic sustainability in manufactured products. This is a continuation of the highly successful session inaugurated by the Management Division at IMECE99. This Session will establish a valuable trend in collaboration among Industry in addressing tools, methods, and strategies for achieving sustainable products. Expected paper topics are:

* DFX/LCA Tools comparisons

* Materials inventory and tracking

* Case studies and metrics analysis

* Design for De-manufacture/Recycling

End-of-Life Product Management for Resource Sustainability

Product Sustainability does not imply infinite life. Future sustainable product development will incorporate up-front analysis and design of the strategies and processes for eventual recovery of the constituents of the product when it is no longer serviceable through wear, obsolescence, or economy. In the meantime the world is being inundated with millions of tons per year disposed manufactured goods. Economic and environmentally sound disposition of such products is the primary topic of this Session. This is a continuation of a panel session inaugurated by the Management Division at IMECE99. Authors from Industry, R&D, Government, and NGO's will participate and present. This Session will establish a valuable trend in collaboration among Industry in addressing the complexities of end-of-life product disposition in the realm of multinational, multi cultural corporations. Expected paper topics are:

*Demanufacturing and Recycling case studies

*Regulatory compliance

*Global challenges

Industrial Ethics and the Engineering Profession

The ethical challenges of multinational competition and collaboration in an era of vanishing boundaries are immense. The engineer practicing in this environment must quickly and accurately identify and act on issues of professional ethics on almost a daily basis. Conflict of interest, intellectual property, product liability/accountability, regulatory compliance, workplace and product safety, and others all require individual decisions by the engineer and businessman. This Session will heighten the awareness of attendees to such issues, and show them resources to better prepare them for the rigors of ethics in the new millennium. As an added point of interest, this session will include a paper by a team of ME students from The University of Texas at Austin that presents their proposal for a Code of Ethics for undergraduate engineering students-modeled on the ASME Code of Ethics. Panelists will represent Industry, University ethics centers, the legal profession, and engineering undergraduate students.

A Practical International Business Development Tutorial for Engineers

This session will be a companion session to the Highlight Session titled "The Engineer as Entrepreneur-Integrating Technical Know-how with Business Planning and Marketing Strategy." However where the highlight session could be seen as macro-entrepreneurship, this session will provide knowledge of tools for "micro"-entrepreneurship. Panelists will give practical presentations on how to develop and prepare business

case proposals and business plans, budgets, and market analyses. Novel and cost-effective communication modes such as Internet videoconferencing will be explained. Also covered will be the mechanics of accounting, human relations, domestic and international taxes, trade, labor, and transport. Special international considerations posed by NAFTA, the WTO, the EU, and other trade pacts and associations will be addressed. Potential pitfalls such as export control will be noted. Extensive two-way exchange will be encouraged among the panelists and audience in an informal organization. Attendees should leave this session with a greatly expanded toolbox for entrepreneurial development.

The Engineer as Entrepreneur-Integrating Technical Know-how with Business Planning and Marketing Strategy

Today's engineer doesn't have to be a consultant or small businessman to find that entrepreneurial acumen is increasingly crucial to his or her career. Even within traditionally bounded industries, large companies operate as a set of profit centers, requiring engineers to be more than just keenly aware of the bottom line. Engineering projects no longer end at new product rollout. In our increasingly complex techno-business climate, engineers must be comfortable in the arenas of international business, public/private partnerships, consortia, new product development and emerging market integration. Experts in technology and business planning will bring to this session the right talents and experience to show the audience how critical analysis can enhance their opportunities for entrepreneurial success in whatever level of business or industry they operate.

Managing Growth in Engineering Business

This is a continuation of the highly successful industry forum inaugurated by the Management Division at IMECE99. This Session will provide valuable information and shared experience in managing growth of engineering businesses in a rapidly expanding marketplace while maintaining competitiveness, innovation, and focus. The panel will consist of engineers with track records of starting, operating, and growing small-to-medium businesses. Expected discussion topics are:

*Managing teams of companies in strategic alliances

*Large/small business partnering

*Small businesses in international arenas

*Modern management tools and resources for growth-targeting businesses
Recruiting for growth

If you are interested in submitting a paper or serving as a panelist in one of these sessions, please contact Ted Aanstoos (t.aanstoos@mail.utexas.edu) as soon as possible.

Book Reviews

Engineering Ethics: Balancing Cost, Schedule and Risk. Lessons Learned from the Space Shuttle

By Rosa Lynn B. Pinkus, Larry J. Shuman, Norman P. Hummon, Harvey Wolfe. Cambridge University Press, Cambridge and New York 1997. 379 + xviii pp. illustrated, perfect-bound. ISBN 0-521-43759

This may be the most clearly written book on engineering ethics that I have read. Having said that, I will also observe that it is a strange book, with a fair amount of redundancy, probably due to its "committee" of authors. Unlike the majority of works in professional ethics, this one does not seek to impress the reader with the authors' mastery of arcane sociological jargon or obscure terminology from the field of philosophy. The authors intend the book to take a practical approach, to be useful in applied ethics. As such they take a case study approach but develop the case throughout the book to show how complexity can obscure our understanding. Unlike many cases, this analysis is not simply reduced to a single point or lesson. The authors construct a framework for posing questions and making decisions with ethical content. The three principles of engineering ethics that we are given are:

- competency
- responsibility
- Cicero's Creed II

For the first, engineers are obliged to know as much as is reasonably possible about the technology with which they are working. Individuals should acknowledge those areas beyond their sphere of competency and communicate their concerns to those in their organization with the authority to resolve those concerns. When an individual facing an ethical dilemma seeks help from the larger organization, the ethically competent organizations should attempt to fill the knowledge gap.

The second principle focuses on an engineer's obligation to voice concerns when an ethical dilemma is identified. The ethically responsible organization is obliged to consider and evaluate those expressions of concern. Organizations that are intolerant of individuals publicly expressing concerns about safety or performance lack ethical responsibility.

The oddly-named Cicero's Creed incorporates the dictum that engineers should understand the risks associated with the technology with which they work.

The authors draw upon a wide variety of sources — from Jules Verne to surgery — for examples to illustrate their discussion. They cast a wide net among previous publications for definitions (many of which, unfortunately, they do not include in the glossary at the back of the book). The authors seek to engage engineers' sense of responsibility and assist practitioners to deal with uncertainty and disagreement about moral issues. They contrast a fundamental difference between medicine and engineering. In medicine, a mistake is not an ethical failing if one learns from it and does not repeat it. Repetition of mistakes will cause one's competency to be questioned and usually lead to a bar against practice.

However, failure to report the mistake is a moral failure of the first priority with no second chance. Conditions adverse to public health and safety oblige the medical practitioner to speak up. Silence on the part of the engineering professional, in similar circumstances, seems to be readily excused and just as readily deplored by the authors.

The authors define an ethicist in a practical setting as an academician aiding practitioners to identify their own value stances, to recognize alternative values, identify moral issues, and attempt to resolve moral issues with the aid of principles. In many respects this book is meant for ethicists. Most of us lack the time and opportunity to perform involved, formalized ethical studies when confronted by ethical dilemmas but make our decisions within the context of whatever value framework we brought to work that day. Perhaps the chief value to those on the firing line comes from the period of reflection upon what the authors have to say about the principles. For most of us, our decisions will never have the publicity impact of a space shuttle launch failure. Ultimately, only that "sweet, small voice" will know if we performed today in an ethical, principled fashion. This book reinforces an individual belief in competency, responsibility, and public stewardship.

Review provided by: Gene Fricks, ASME Technology & Society Division. Stone & Webster

The Root Cause Analysis Handbook: A Simplified Approach to Identifying, Correcting, and Reporting Workplace Errors

By Max Ammerman, Quality Resources, New York 1998, softbound, 135 + iv. pp, index. ISBN 0-527-76326-8

Three publications came to hand simultaneously: "The Truth about Y2K", "Urban Legends", and the work under review. The persistence of cockamamie ideas and stories, even among presumably perceptive people, suggests that more exposure by society to root cause analysis might be valuable. The present work seeks to provide tools and a systematic analytical format to answer "why" technological problems arise. Written in a cogent, handbook style, the work exhibits the author's extensive experience in human reliability management and examining unfortunate situations in industrial facilities. Each chapter from "define the problem" to "develop corrective actions" and "report" identify helpful techniques; the sections on "pitfalls" within each chapter alone justify a purchase. Appendix B, with its list of categories of causal factors, will assist analysts to identify important causes more easily. Just to demonstrate that the techniques advocated in the book have wider applicability than just industrial plants, the author includes, as Appendix E, a medical problem example. I found the techniques and format the author suggests conducive to good analysis, regardless of the subject matter.

Gene Fricks

Outsourcing: An Accelerating Global Trend in Engineering

Introduction-An increasingly higher percentage of professional work is being "outsourced." This moves the focus of the employment of an engineer from "company" based to individual, "knowledge" based. For example, as frequently occurs to "freelance" writers and reporters, several other types of professional work have increasingly find themselves part of the trend. They treat professional work much like "commodity employment"; professionals become "free agents" on the free market. In a sense, even a licensed professional can be transformed into, say, a sort of "journeyman engineer or doctor or..."

Although short term contract work for engineers and several other professionals has been a staple for decades, the expanded nature of the trend tends to be oriented further up the tree toward more senior professionals. Along with the global markets, ubiquitous desk-top computers and their PC networks along with improved telecommunications, are part of the root. Analysis and results are exchanged on a global basis among widely distributed branches, more quickly, easily and accurately, with a minimum of language and societal barriers...at lower costs.

It is important to note that this change in technical work is no longer dominantly in the "smoke stack" or even light manufacturing plants. Service industries in developed countries are the most mobile in location. Easily crossing national boundaries, they are now said to be the majority technical employer. Current examples are computer programming, data processing, system analysis, accounting, financial/investment analysis, some branches of medicine, and engineering design and analysis. They are beyond "telecommuting". Dominantly they are not self-established "free agents". They often are forced orphans of commerce spawned without traditional companies. Some are at isolated locations connected only by phone lines. Some are clustered in groups into an intermediate company and become contract or "temporary" workers for others rather than traditional employees.

There are a number of titles which could be given to this. They all revolve about the clear global trend in the way engineering is being increasingly implemented both with traditional employees and with those on the job for just the task or project. It has been termed variously as: "24-hour engineering"; "outsourcing"; "contract engineering"; and similar. The term that appeals depends on the experience of the audience: certainly outsourcing and contract engineering are not new. Put in the context of "24-hour global engineering" it is newer, different, more complex; it can be loaded with significant issues including: commercial and military security;

educational and professional standards; application and repeatability of technical results. Some dimensions of the trend are described in an ASME report "*The Outsourcing of Engineering Functions and Services*", a study that is available from the ASME Council on Public Affairs and in an article published in "*The Engineering Management Journal*", March, 1998.

ISSUES RAISED-Issues raised for the participants by the outsourcing trend may best be summarized this way:

~ **Technical:** Engineering, test, risk evaluation and safety standards are undergoing some globalization. To assure targeted standards are achieved, how to cope in the interim when diverse standards, nationalities, educational backgrounds, ethical concepts and commercial and national allegiances are probably involved? How best to transition between project phases or create more effective project teams in the most competent way to achieve competitive and national purposes?

~ **Security:** Most often the work referred to is communicated via internet or other open communication links. How are these utilized in the best interests of the design requirements' originator or client? There is much activity underway worldwide in security measures from aspects of both integrity of the information being transmitted and potential leakage. In the meantime, what are the potentials for commercial and national technology loss or sabotage? And the potential impacts?

~ **Human Factors:** What are the implications for: technical education, training, and licensure; retention or archiving of so-called "corporate" memory; short and long term financial rewards and personal social insurance; other personnel and personal issues; management and technical skill inventories and reserves?

~ **National and Institutional Issues:** If and how should this trend be monitored? For example, using community of interest and achieving solutions with other like-minded entities may yield unsatisfactory long run proprietary results. Without such results, projects may be similarly stunted. If solutions or their identification are undertaken openly, will new measures subvert the countermeasures?

SO WHAT?-Engineers, managers and shareholders have a considerable stake in knowing the characteristics of the global trend spoken of here: Its advantages, disadvantages; problems and solutions; short and long run implications. Many globally positioned private firms are wrestling with such issues from their own perspectives. National agencies and other nations are characterizing the situation and evaluating solutions. Their collective positive and negative experiences thus far are useful basing points to the degree they can be shared. Many major engineering and manufacturing projects, commercial and military, have had foreign set asides or offsets. There are

potentially interested government agencies such as: DARPA, Energy, Military Services, NASA, NSA, NIST, other Executive departments and certain Congressional Committees. Several Foundations are involved in aspects of the definition of issues and solutions. Engineering Societies, Universities and other training and support arms play strong preparatory and follow up roles. Intergovernmental organization such as UNESCO, UNDP, UNCTAD, Pan American Union, and the World Bank have strong roles and interests. In the least, younger engineers and educators need be made fully aware of this changing model of technical employment and its implications.

If designing and engineering are becoming technological commodities, what further issues are involved? Some of these might include:

- Global Language for Global Engineering Design
- Design and Risk Tolerance Standards in Worldwide Engineering Practice
- Global Associations of Engineers: developing facts, impacting issues.
- Security Issues: Product, project, corporate, national.
- Global Engineering Practice, Licenses, Training, Ethics and Intellectual Property
- The Local Economics of Global Engineering: The Personal Impact on the Engineer

Committee on Engineering Entrepreneurship

The article (above) on outsourcing is reflective of an even broader change in engineering. ASME recently released a study entitled "Mechanical Engineering in the 21st Century: Trends Impacting the Profession". The study considered trends in Technological Culture, Demographic Change, Economic Change, and Social Change. The study observed that "skilled technical and engineering personnel are becoming more internationally mobile". This trend, when combined with increasing tendency to outsource, helps us all realize the increasing demand for engineers to work as entrepreneurs. This is true whether the engineer is in a large corporation, or if the engineering is in a one person shop. The Management Division has recently taken on the responsibility for ASME's Committee on Engineering Entrepreneurship. Neil Leon, a long term member of that committee and a member of the Management Division's Executive Committee, regularly contributes his "Entrepreneurial Exchange" article to ASME News. We encourage you to read his contributions.

We also encourage you to contact Steve Nichols (s.nichols@mail.utexas.edu), if you would like to volunteer to work with the Committee on Engineering Entrepreneurship (the successor to the Small Business Committee) in support of ASME activities in this area.

Steven P. Nichols

Gantt Medal Honors Luis Carrillo



Luis M. Carrillo, Jr.

Luis Manuel Carrillo Jr. received the 1999 Gantt Medal during the meeting of the ASME Industrial Advisory Board in October. The Gantt Medal was named for Henry Laurence

Gantt, a mechanical engineering management consultant. Carrillo founded Carrillo Enterprises, and has approximately 40 years experience in fields of engineering, land surveying, construction, contract administration, construction management services, inspection and supervision. Carrillo Enterprises provides professional services to the construction industry. We congratulate Mr. Carrillo on his many achievements and on his Gantt Medal.

Welsch and Schoonmaker Win Big at Congress

Dan Welsch (Walt Disney World Co.) and Stephen Schoonmaker (Grove Worldwide) captured the "coveted" IWTAR prize at the '98 and '99 Congresses at Anaheim and Nashville. The IWTAR prize was first awarded to those who attend and register at the Anaheim IMECE sessions sponsored by the Safety Engineering and Risk Analysis, the Technology and Society and the Management Divisions. Registrants' names and addresses at these sessions are then scientifically placed in a hat. The name drawn receives a free and clear Gift Certificate for \$100 at an international computer retailer. IWTAR is the "clever" acronym for "I Was There And Registered." This distinguished award will be presented again at the 2000 Congress in Orlando, FL. All attendees registered at these sessions received the second prize, a head full of great and pertinent information for professional, career and job/organizational improvement. On to Orlando!

Mentors are Available, Just Call

Not all of us are lucky enough to have mentors in our lives or organizations. We all know that mentors are trusted advisors or teachers. Back

when, we had them at home or in school. But on our jobs, where are we lucky enough to get one, few of us actually have them. And, as reported in the NY Times recently, fewer women than men are lucky enough to have mentors.

In your ASME Technical Group (the one your Division is in) there are senior members that are available to assist: in industry, government, academia and business (small and large). Either in person or on-line, these member will share with you their insights into the many situations that face us all. You can call on them...if you can find them. How? Contact the Chair of your Division or the Group VP or anyone on the Executive Committees. They will help you locate a suitable person. If there are enough of you interested we can set up chat rooms or the equivalents on the web sites for "mentoring" question exchange. Or we can simply set up contacts lists of those available to work with you on mentoring issues.

The mechanism that is set up depends on the demand. So far it has been light, very light. But then you didn't know it has been available to you. Now you know. And those of you in particular need, our female members, according to the Times, and perhaps minority members, we have more than just your divisions to call upon. In our Council on Public Affairs, ASME has a Board on Minority and Women who will do the same. We all see a need. To meet the need, we want to hear from you and we'll respond in an appropriate way. And if you don't get a response that works, call your Group VP. That's part of what he does...makes sure you get the most out of your membership in ASME International.

SERAD Student Safety Contest

SERAD selected the following papers to be the Student Safety Contest winner and second place finisher:

Winner: "Explosive Delivery System for the Ore Pass Explorer" by Langdon Deville, Rebecca Gibbons, Jeremy McClintock and Matthew O'Laughlin from Gonzaga University. Their advisor was Professor Tom Zysk.

Second Place: "An Identification of a Significant Hazard Associated with the Workplace: The SK-61 Three Motor Slitter—A Mechanical Safeguarding Solution" by Melissa A. Franz from Syracuse University. Professor Tom Vedder was her adviser.

A certificate and cash award was presented to the winning and second place authors at a Dinner on November 14, 1999 at the Congress in Nashville.

Engineering Management Journal

Engineering Management Journal (EMJ) is the quarterly international journal published by The American Society of Engineering Management (ASEM). Founded in 1989, the journal provides articles and features related to the management of engineering and technical professionals and of the organizations that rely on them. Practical and pertinent articles and reviews help engineering managers gain insight to and meet the challenges of coordinating the design, integration, and use of new technology in the workplace.

The journal focuses on providing new theories and tools, insightful and innovative applications, and clear descriptions of well-known engineering management principles. Articles are classified as research manuscripts, applied engineering management manuscripts such as case studies and overviews of practice, and management tools such as tutorials, critiques, and opinions. Articles published encompass all engineering disciplines.

Member Price - \$40

In order to subscribe, please contact go to the following web address:
<http://asme.org/pubs/journals/emj.html>

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Your Division Looks Ahead, Too!

SERAD, T&SD, AND MGTD are doing their best to meet your needs. They do it best when they know what your needs are “this week and next. “ Your Division Chairs and your Executive Committees use a planning format that seems convenient and useful. It also meets the needs of the ASME hierarchy that requires information for their work on your behalf. Each rung in this organizational ladder tries to keep each other informed, too. The following annual plan and report outlines are provided for your information. If you have any interest in contributing to your Division’s plan or would like a copy of your Division’s current plan, please contact your Division Chair. Contact information is listed in the directory on page 10, or contact our staff member, Erwin Weinberg, at 212-591-7863.

Annual Division Plan Member Divisions of the Engineering & Technology Management Board

DIVISION:

This Annual Plan (Part 1 and Part 2) is to be submitted to the V. P. of Board) by January 15, annually. In addition, each Division will give an informal presentation of their Annual Plan and Report at the first Group/Board meeting thereafter. The E&TMB would like the incoming chair to present the Plan and the chair to present the report.

Answers to most questions should be no more than two or three sentences. The questions have been created to help the Division Leadership be introspective in assessing the specific areas on which they should focus during the coming year. The Annual Plan should be prepared by the incoming Division Chair in consultation with the members and the Executive Committee.

PART 1: DIVISION PLAN

Background Information

1. Division:
2. Year for Which the Plan is submitted. (Note: the ASME year is June to June.):
3. Division Chair submitting the Plan

Leadership

4. In *bulleted* format, list three to five specific objectives that the Division will accomplish during the next year. These objectives should be developed through observation of the operation of the Division, discussions with Division leadership, reference to the Division’s Strategic Plan, and consideration of ASME’s goals and objectives. Following each objective, list one specific *measure of success*, which when it is achieved will demonstrate that the Division has met this objective.
5. Following each objective, list one specific *measure of success*, which when it is achieved will demonstrate that the Division has met this objective.
6. What should be done to make the Division’s Technical and Administrative Committees more active in contributing to the operation of the Division? Are there committees that should be *sunset*? Are there new technical areas that should be pursued
7. What should be done to improve the participation of the Division leaders at Executive Committee meetings, i.e, Executive Committee members, Technical and Administrative?

Service

8. Committee Chairs, and past Division Chairs, so that routine business can be conducted and decisions made?
9. What are the Division’s Conference activities? Is the level of the Division’s conference activities appropriate or should it be enhanced?
10. What Is the Division doing to provide service to all of its customers, i.e., active members, inactive members, student members, prospective members, other elements of ASME, industry, the general public? Are there elements of this constituency that are not being adequately served? What should be done to remedy the situation?
11. What does the Division do to provide continuing education opportunities through workshops, short courses, etc.? If it does nothing, should it provide these services?
12. What does the Division do to recognize the contributions of its members? Is the Division’s Honors and Awards Committee activities appropriate and sufficient or should it be improved? Note: Most Divisions do not nominate enough people for Society Awards, Fellow, scholarships, etc
13. What does your Division do to provide informal fun-type activities for the membership to interact?

Finances

11. Does the Division provide sufficient financial resources for the Technical and Administrative Committees to pursue their programming? Is limited funding a problem for the Division?
12. In tabular form, show the current balance of all Division financial resources, list all anticipated expenses for the coming year, list all sources of potential income for the coming year, and project the balance for the end of the year.

PART 2: DIVISION STATISTICS

List the number of Active Division Members: Division Primary Members: Primary and Secondary Members: The number of Division Fellows:

Bylaws/Operating Guide

Strategic Planning

(Each Division should have a short Strategic Plan that extends three (3) years into the future.)

Honors & Awards

(In general ASME Divisions do not provide enough recognition of their volunteer members by nominating them for ASME and other national-level awards.)

Technical Programming

Please complete the following table for all conferences in which the Division participated during the past year. List the name(s), date(s), Division Participation (sponsor or participant), total attendance, Division attendance, at all conferences in which the Division participated during the past year.

At all Conferences during the past year, how many Technical Sessions did the Division sponsor and how many Please list all of the Division’s continuing education activities, special publications, workshops, etc. for the past year.

Division Meetings

List dates of and attendance at Division Executive Committee Meetings during the past year.

List the Division’s Technical and Administrative Committees, their Chairs, terms of office for the chairs, and when the Committees met during the past year.

Relations with other organizations

Please list special representatives of the Division to other organizations in and outside of ASME (other Divisions, other technical associations, sections, regions, etc.).

How are E&TMB actions and requests acted on and reported to the general Division membership? Who within the Division is responsible for responding to inquiries from Washington Office? How many Division delegates attended the most recent Technology Executives Conference?

(The coordination of Division activities with other ASME Divisions of similar interests, other technical societies, and the ASME are critical to its successful operation. As members of the ASME, the Divisions must report to the ASME through the E&TM Board.)

Membership

For each of the past five years, please list the number of active members in the Division, the number of Primary members, and the number of Primary plus secondary members.

What does the Division’s have a Membership Development Committee do to increase membership and participation in the Division? What kind of industry support does the Division have?

How many active Division members are from industry? How many from the primary and secondary membership are industry members?

Publicity

List the dates of publication and distribution of the last three Division Newsletters.

What types of recruiting and membership development tools does the Division utilize? How are they used? Does the Division have and maintain a web page?

Are Division’s activities publicized in any other way? How? Please list them below.

Finance

Please list the balance of the Division’s custodial fund for each the last five years.

List below the Division’s major sources of income over the course of a year and their relative amounts?

List below the Division’s major yearly expenses and their relative amounts?

(A Division with limited financial resources may have difficulty responding to the needs of its membership. A Division with high levels of resources is probably not best utilizing them in the interests of its membership.)

Annual Division Report Member Divisions of the Engineering & Technology Management Group

This Annual Report is to be submitted to the V. P. of the Engineering & Technology Management Board. In addition, each Division will give an informal presentation of their Annual Plan and Report at the Summer Annual Meeting. The incoming chair should present the Plan and the chair to present the report.

*The Annual Report should be prepared by the Division Chair in consultation with the Executive Committee.
This report should be a maximum of two pages in length*

Background Information

1. Division
2. Report year (note: the ASME year is from June to June.):
3. Division Chair submitting the Report

Accomplishments

4. In bulleted format, list three to five specific objectives that you set out to accomplish during your year of tenure as Division Chair (from your Annual Plan of last year) and briefly discuss your level of success in accomplishing each. List any other major Division accomplishments during your year as Division Chair.

Problem Areas

5. List the major problems or issues facing the Division.

Finances:

6. In tabular form, please list the budget projections from your Annual Plan and the actual expenses incurred during the past year. Please show the projections and actual values for the following: balance at the start of the year, expenses, sources of income, and the year-end balance. For any projections where the difference between the projected and actual value differs by 20% or more from the projected value, please include a short explanation for the difference.
7. Explanations for major discrepancies between projected and actual values.

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New Exciting Project Management Course Offered

Professional Development and the Management Division have developed a new and exciting project management course entitled, *"Practical Customer Skills in Project Management."* Communication and problem-solving strategies are important for engineers to learn in order to work effectively with others and complete projects successfully and on schedule. This course directly addresses these issues. It is being offered in conjunction with the IJPGC Conference to be held in Miami in July. **See discount coupon below.**

WHAT YOU WILL LEARN

In this highly interactive course, learn how to effectively communicate with internal staff, supervisors, and clients to determine realistic project goals and how to achieve them. This course offers a hands-on approach utilizing practical skills you'll use on daily business situations. You will leave the day prepared to become a problem-solver and ready to foster valued partnerships within your organization and with your customers.

WHO SHOULD ATTEND

This course is suitable for engineers, supervisors, and project managers of all levels. In particular, younger engineers will find the content extremely helpful as they advance their careers.

BY THE END OF THE DAY YOU WILL KNOW HOW TO:

- Communicate effectively with the right mix of listening, asking and informing
- Practice the process for planning successful interaction with others
- Develop interaction strategies to accomplish your goals
- Practice 10 kinds of influencing tactics
- Recognize common communication roadblocks and navigate around them
- Format written communication that effectively carries messages
- Write realistic strategies, with a group activity to put the process into action
- Build your credibility and others' trust
- Help others choose your ideas and like it - by focusing on their key issues and your project's benefits
- Become a valued problem-solving partner
- Create selling messages and visuals

THE INSTRUCTOR

Brigham Thomas is a Certified Instructor through Lore International Institute. With over 15 years experience in successful project management and business development, she also brings many real-life illustrations of customer interactions into the course. Brigham works at Lockheed Martin Energy Systems, where she is a Program Manager responsible for technology development for law enforcement, safeguards, and security applications. Brigham's broad working experience includes both the technical and the business aspect of project management, and covers a variety of areas: aerospace, automotive, energy efficiency, manufacturing, materials, technology transfer, economic competitiveness, proposal writing, proposal review, and funding selection.

An active member of ASME, Brigham currently serves on the Board on Government Relations as the appointed Council on Engineering representative. She is also the project manager of an ASME Foundation Grant that is developing a multi-media education-related web-site for middle schoolers. You may also recognize her as a past chair of the ASME Management Division.

Her captivating teaching style encourages participants to share their own workplace situations so that you leave the course prepared to position yourself as a valued partner and problem-solver in the eye's of your customer.

REGISTRATION INFORMATION

- **Course Date:** July 23, 2000 (With the IJPGC Conference)
- **Location:** Miami, FL (Sheraton Bal Harbour - IJPGC Hotel)
- **How to Register:** You can register by calling 1-800-843-2763 or on the ASME Professional Development website - http://www.asme.org/pro_dev and look under the short course inventory. Professional Development also has this course highlighted in their banner section of their page under *Courses and Products* (Top left of Page). The course registration number is **2101-399**.
- **Time:** 8:00 p.m. - 5:00 p.m.
- **Price/Credits:** \$195 (1 Day/0.7 CEUs/ 7.5 PDHs)

DISCOUNT COUPON

Name _____ Telephone # _____

Address _____ Fax # _____

ASMEMembership # _____ Email _____

Primary Division Affiliation: MGT [] SERAD [] T&S [] Check one.

Comments: _____

I'd like to receive the discount offered by subscribing to one of the following (check one):

- [] Engineering Management Journal – \$10 off the subscription price of \$40 [] Project Management Course (described above) – 5% off the \$195 price

Please mail coupon to ASME at the address on the reverse side of this page. Don't forget to affix a 33 cent postage stamp. Good only when mailed to the address on the reverse side. You will be sent a credit to use if you subscribe before December 31, 2000. Thanks for participating.

*Coupon received at ASME must be postmarked no later than June 15, 2000.

**VPs WELCOME: First Combined Division
Newsletter**

(Continued from page 1)

or any of the volunteers listed (with email addresses and telephone numbers) on page 10 of this newsletter regarding questions, suggestions, comments, or to express your desire to become more involved. A partnership between the general membership

and those setting the course is the only sure way to ensure ASME is the professional Society of choice for mechanical engineers. We look forward to hearing from you soon! Thanks!

*Jeff Rode, VP-elect
E&TM Group*

*Arnold Rothstein, VP
E&TM Group*

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