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E&TM



GROUP

T & S

Engineering & Technology Management Group Newsletter

Jeff E. Schwartz, Editor

Fall 2001

### T & S Division Chair's Message



Robert Burns

Greetings again. We just finished our summer annual meeting in New Orleans, during which Bourbon Street lived up to its reputation of being quite the social place.

At the Executive Board meeting, we focused on the upcoming Congress and the numerous sessions we are coordinating. Ken Horne has overseen many aspects of our upcoming programming and deserves all of our thanks for a job well done. As you will see in this Newsletter, we are again pursuing an ambitious agenda for this fall.

Also of note, the T&S Division is actively helping its new members to get involved in ASME and Division activities. This fall we will be sending out new member welcome packages followed by a friendly telephone/e-mail contact. So if you are reading this and you are a new member, look forward to hearing from us about future events and ways you can get involved. Or, you can contact me at robert.burns@finnegan.com about becoming more active with the T&S Division.

We look forward to seeing you in New York this November.

Robert Burns  
Chair, T&S Division

### SERAD Chair's Message

What do the 3,100 ASME members who identify the Safety Engineering and Risk Analysis Division (SERAD) as their primary or secondary interest get when they pay their annual dues? In general, the SERAD promotes practices that lead to reduced risk and losses by creating safer products, processes, and occupational environments. But in particular, we produce papers, attract students to the safety profession, offer technical advice, and influence risk technology projects. From personal experience, the SERAD becomes more valuable to you when you actively participate; and most areas offer you that opportunity.

The SERAD presents safety and risk papers in November every year. Because writing a paper takes personal time and effort without immediate monetary benefit, the authors are rewarded with a dinner and an opportunity to be a guest speaker in November. You can read the abstracts of the papers that will be presented this November via the IMECE web site ([www.asme.org/conf/congress01/author-center.htm](http://www.asme.org/conf/congress01/author-center.htm)). Exponent and FM Global sponsor the dinner because they see value in the papers that SERAD produces. Exponent investigates major product and property accidents and the risks of new products being developed. FM Global needs to understand risk so their premiums pay for the potential losses of the companies they

(continued on page 2)

### Management Chair's Message



John Bozewicz

It is with great pleasure and anticipation that I assume the Chairmanship of the Management Division. I have the honor and responsibility of representing almost 19,000 members who identify the Division

as a principal interest area.

I must first recognize and thank Steve Nichols for the contributions he has made as Chair of the Division during the past two years. Steve has set the Division on a course of increasing growth as it endeavors to serve its membership. He has provided me a very strong foundation on which to build. Fortunately, I will still have Steve to call upon in his new role as Past Chair of the Division.

I would also like to thank all the members who have volunteered their time and talents to make the Division a success and to invite the rest of you to participate.

ASME is a member organization and the Management Division's Executive Committee is composed of members. All play a key role in creating, organizing and executing programs for the membership. There is always room for additional volunteers on the Executive Committee or special committees (some that are already established

(continued on page 2)

## SERAD Chair's Message

(continued from page 1)

insure. As we prepare for the November 2002 IMECE in New Orleans, we need to fill a number of positions such as program coordinator and peer reviewers.

The SERAD and the National Institute of Occupational Safety and Health (NIOSH) sponsor an annual contest to attract students into the safety engineering profession. By July 31, students submit a report on a meaningful safety engineering/risk analysis project that they successfully completed. A panel reviews the papers and announces the winner and runner-up in September. The first place student winner(s) and faculty advisor are recognized at the SERAD dinner in November. The first place student winner(s) share \$2,000 and their faculty advisor receives \$500. The second place student winner(s) share \$500 and their faculty advisor receives \$200. Other sponsors of the prizes are The Bridgestone/Firestone Trust Fund, FM Global, Glasgow Products, and Roger Harvey. Last year's winner and paper titles can be found on the SERAD website ([www.asme.org/divisions/serad/comp.html](http://www.asme.org/divisions/serad/comp.html)). At least one position in this area needs to be filled.

The SERAD lists a number of Technical Advisors who have specific risk knowledge in safety and process control systems, department of energy facilities, passenger transport safety, hazardous materials transport safety, nuclear safety, human performance in process safety, nuclear risk-informed testing and inspection, industrial risk-based inspections. You can find these advisors and their e-mails also on the SERAD website ([www.asme.org/divisions/serad/techadv.html](http://www.asme.org/divisions/serad/techadv.html)). At the moment, no positions are available in this area.

Finally, if you want to know what risk technologies are being developed, the SERAD has access to the Research Committee on Risk Technology. The SERAD primarily produces papers but the Research Committee on Risk Technology produces projects. The projects are sponsored by raising funds from participating organizations through the ASME's Center for Research and Technology Development. You can read about the committee through the ASME website ([www.asme.org/research/crte.html](http://www.asme.org/research/crte.html)). You may be able to join an on-going risk technology project or start one of your own.

Over the next 12 months, the SERAD Executive Committee will be improving what we have and will consider at least one new area.

*Joe Balkey*

## Management Chair's Message

(continued from page 1)

and others that could be established with good ideas from the membership). Ideas are always welcome. I would like to hear your views on the newsletter, Division sessions at the ASME Congress, activities, special interest areas, or other thoughts you may have regarding the Division.

Just what does the Management Division encompass? It has a very wide scope concerned with management of the engineering process, both nationally and internationally, focusing on project and program management, quality control, productivity and competitiveness, finance and cost management, professional development, motivation, communication, product and market analysis and planning, sales engineering, economic development, management and information systems, application of computer programs and data banks, small business management and performance measurement, and entrepreneurship.

The primary vehicle used to reach our members is the Symposium that the Division will participate in at the 2001 International Mechanical Engineering Congress and Exhibition to be held in New York City. The Symposium will feature eight sessions from the Management Division on such topics as product sustainability, agile manufacturing, entrepreneurship and the new engineering business. A highlight of the Division's activities at this year's Congress will be the delivery of the Reestablished Towne Lecture on Monday, November 12 by Mr. Stephen Lewis of the Ford Motor Company.

The Division will again join with the Technology & Society Division for a joint dinner event on Sunday evening, November 11 where Mr. Kerry Russell, a noted mechanical engineer and attorney, will be the featured speaker. The topic will be a very interesting one of: "Professional Ethics - the Foundation of an Engineering Career."

I would ask that you make plans now to join us at the 2001 Congress. There is much to be gained not only from the sessions and special events but also from interaction with your colleagues who share an interest in the management of technology.

But don't wait until November to get to know us or get involved. Drop me a line at [bozewiczj@asme.org](mailto:bozewiczj@asme.org) and let us know how we are doing or offer suggestions/ideas on how we could improve or institute some new way of benefiting our members. Get the full benefit of your membership by actively participating in the Division. Opportunities are endless and everyone has a unique experience and perspective to offer to their fellow members. If you can't actively participate - encourage or guide someone else to participate. It's in your best interest to continue to pursue professional development for yourself and your staff. The Management Division exists "to

serve its members" and is only as strong as its member participants.

*John Bozewicz, Chair*

## VP Message - E & T Management Group



*Jeffrey Rode*

The Engineering & Technology Management Group is collectively progressing toward finalizing our program for our follow-up symposium to be presented at Congress 2001 in New York entitled;

Partnering to Succeed: Keys to Managing Technology Development, Risk and Globalization. I encourage everyone to attend this exciting ASME conference and in particular our symposium sessions.

I would also like to take the opportunity to once again appeal for more E & TM Group members to become active in our Division activities in any way you feel you can. Our three Division Chairs look forward to input from its members especially if you have new ideas to enhance the programs or services we offer.

One new initiative we have begun to develop involves a "New Member Welcome Package" which shall be specifically structured for those new ASME members choosing any of the E & TM Group's Divisions as their primary Division. We hope to be able to offer this later this year as one more benefit to those ASME members interested in the activities of the Engineering & Technology Management Group.

I look forward to seeing you at Congress in New York and feel free to provide me with your feedback. Also, I encourage you to visit [ASME.org](http://ASME.org) and the E & TM web page.

*Jeffrey Rode*

## FORD's Stephen Lewis to Present Towne Lecture at 2001 IMECE

Stephen C. Lewis, Director of Strategic Planning at the Ford Motor Company has been selected by the Management Division to present the Henry Robinson Towne Lecture at the International Mechanical Engineering Congress and Exposition in New York City. This prestigious lecture will take place on Monday, November 12, 2001 at 1:00pm. The lecture will be part of a Symposium, presented by the Engineering and Technology Management Group, entitled: "Partnering to Succeed: Keys to Managing Technology Development, Risk and Globalization".

Mr. Lewis will deliver the first Towne Lecture since 1995.

(continued on page 3)

## FORD's Stephen Lewis to Present Towne Lecture

(continued from page 2)

The Henry Robinson Towne Lecture was established in 1925 in honor of Henry Robinson Towne, President of the Society in 1889. In 1886, Mr. Towne presented a paper titled: "The Engineer as an Economist". This paper was the beginning of many valuable ASME contributions on the subject of scientific management.

The Towne Lecture provides an opportunity for outstanding leaders in the field of management, economics or business to share their experience with members of the Society. Some very famous engineers/managers have been Towne Lecturers in the past, including Herbert Hoover, Charles E. Wilson, James M. Gavin, Peter Drucker and Robert C. Seamans, Jr.

Plan to be in attendance in New York City for the continuance of a long tradition of distinguished lectures.

## Liaison/Editor Needed for Engineering Management Journal

David Wyrick, Cooperating Society Editor for ASME International, is moving on to other projects and must relinquish his role as ASME's liaison with the Engineering Management Journal. Dave is one of those volunteers who stepped up a few years ago to fill a position. Our appreciation goes to Dave for his participation and efforts. Please consider this opportunity. It's a great way to get involved and be close to the latest thinking in engineering management. Contact John Bozewicz (bozewiczj@asme.org) of the Management Division if you are interested.

The Engineering Management Journal has case studies, management tool articles, and research pieces of interest to members of the Management, T&S, and SERAD divisions. EMJ is an international journal published by the American Society for Engineering Management and has a cooperating editorial relationship with ASME. It is practitioner oriented and is published quarterly.

ASME members can subscribe to EMJ for \$40 per year by calling 1-800-THE-ASME or via the following web address: <http://asme.org/pubs/journals/emj.html>

## ASME Member wins Fred Merryfield Design Award

Professor Steven P. Nichols received the Fred Merryfield Design Award from the American Society for Engineering Education. Dr. Nichols received recognition for his contributions to engineering design, engineering design education, and promotion of professional responsibility. He serves on the faculty of the Department of Mechanical Engineering at the University of Texas at Austin. Dr. Nichols is a Fellow of ASME and served as Chair of the Management Division of ASME from 1999-2001.

## 2001 E&TM Symposium Promises Focus on Pressing Engineering Problems and Challenges

The E&TM Group will sponsor its second joint symposium, Partnering to Succeed: Keys to Managing Technology Development, Risk and Globalization, at the 2001 Congress in New York City, NY. The Symposium, running Sunday to Wednesday, will include nearly 40 hours of technical content and opportunities for professional networking, fellowship and fun at several guest lecture meals, committee meetings and other events. Technical content has been grouped into five tracks scheduled by day to improve and concentrate the value for the time pressed engineer, manager and entrepreneur. With an increased emphasis on programming on Sunday and Monday, attendees may take advantage of reduced Saturday night stay airfare to lower the cost of attendance.

With technical tracks in the areas of knowledge management, design safety, business ethics, sustainable manufacturing and technology advancement, this symposium promises to offer high value to the technology professional interested in gaining an edge on their competition while sharpening their own awareness of cutting edge trends and developments. The networking, technical presentations and real world solutions are not something to miss - so plan to attend and join us in the big apple!

## Kerry E. Russell to Speak at the Joint MD/T&S Banquet at Congress 2001



Kerry E. Russell

At the Joint Banquet of the Management Division and the Technology and Society Division, on Sunday, November 11, 2001, Mr. Kerry E. Russell will present a speech titled "Professional Ethics

- the Foundation of an Engineering Career." This dinner and speech will help to inaugurate the E&TM Group Symposium Partnering to Succeed: Keys to Managing Technology Development, Risk and Globalization, which is being held in conjunction with the 2001 International Mechanical Engineering Congress and Exposition in New York City.

Mr. Kerry Russell is a mechanical engineer who is also an attorney licensed to practice in Texas and Colorado in State and Federal Courts. Mr. Russell practices primarily in the areas of environmental and administrative law in state and federal courts, as well as state and federal environmental agencies. Mr. Russell holds a Mechanical Engineering degree from The University of Texas at Austin and a Juris Doctor from the University of Wyoming.

Mr. Russell is a former officer of the Central Texas chapters of the American Society of Mechanical Engineers and the Air and Waste Management Association. He is the current chair of the University of Texas Mechanical Engineering Alumni organization. Mr. Russell is a published author and a frequent speaker on contemporary environmental topics. Mr. Russell also frequently lectures engineering classes on professional ethics and the legal aspects of engineering practice.



As of 7/31/01, the demographic statistics for the Divisions in the Engineering & Technology Management Group are:

Division	Primary Members	Secondary Members	Other Members
Management	12,959	6,026	9,250
Safety Engineering& Risk Analysis	1,325	1,821	3,806
Technology & Society	548	1,108	4,878

## E&TM 2001 Congress: At-A-Glance Program

Sunday (November 11) - Wednesday (November 14)

### Partnering to Succeed: Keys to Managing Technology Development, Risk and Globalization

Session No	Day	Time	Tentative Session Title
E&TM-9A	Mon	3:45 – 5:15p	Symposium Opening Lectures: Keys to Managing Technology Development, Risks and Globalization
<b>Track 1: Knowledge Learning, Protection and Transfer</b>			
E&TM-5A	Mon	7:45 – 9:15a	Current Trends in Protecting Intellectual Property
E&TM-6A	Mon	9:30 – 11:00a	Technological Innovation Partnerships: Intellectual Property Rights between Industry and Government
E&TM-7A	Mon	11:15 – 12:45p	Managing Technology Transfer and Partnering
E&TM-8A	Mon	2:00 – 3:30p	Life-Long Learning as the Engineer's Responsibility to Self
<b>Track 2: Business &amp; Engineering Ethics</b>			
E&TM-7B	Mon	11:15 – 12:45p	Ethical Decision Making Skills for Engineers and Engineering Students
E&TM-8B	Mon	2:00 – 3:30p	Ethics World: Corporate, Professional, Individual
E&TM-9B	Mon	3:45 – 5:15p	Risk Communication - The Key to Risk Acceptance
<b>Track 3: Safety &amp; Risk, Rising to the Challenge</b>			
E&TM-13	Tue	2:00 – 3:30p	The New Frontier of Product Safety at the End of Product Life
E&TM-14A	Tue	3:45 – 5:15p	The Global Application of Risk-informed or Performance-based Standards
E&TM-15	Wed	7:45 – 9:15a	Impacts of Standards and Design on Safety
E&TM-16	Wed	9:30 – 11:00a	Beneficial Approaches and Examples of Hardware Maintainability for Safer Use
E&TM-17A	Wed	11:15 – 12:45p	Business Approaches to Managing Risk and Reliability
E&TM-18	Wed	3:45 – 5:15p	Conflict Resolution between Siting of Facilities and the Public
<b>Track 4: Sustainable Design &amp; Evolving Manufacturing Methods</b>			
E&TM-1	Sun	11:15 – 12:45p	Product Sustainability through Design, Management, and Public Policy—Can We Afford It?
E&TM-2	Sun	2:00 – 3:30p	Factory 2005: Strategies, Practices, and Tools for Agile Manufacturing
E&TM-3	Sun	3:45 – 5:15p	Failure Analysis & Prevention
E&TM-4	Sun	5:30 – 7:00p	Entrepreneurship: The Engineer as a Profit Center
E&TM-5B	Mon	7:45 – 9:15a	New Engineering Business: Planning for Growth
<b>Track 5: Collaboration, History and Advancement of Technology and Education, and Their Impact on Society and Industries</b>			
E&TM-6B	Mon	9:30 – 11:00a	Past President's Perspective: Modern History of Technology and Its impact and Interaction with Society and Industries (1)
E&TM-10A	Tue	7:45 – 9:15a	Advancement of Materials Technology and Its Implication and Impact on Future Society and Industries
E&TM-10B	Tue	7:45 – 9:15a	Collaborative Engineering
E&TM-11	Tue	9:30 – 11:00a	Advancement of Space Utilization and Its Implication and Impact on Future Society and Industries
E&TM-12	Tue	11:15 – 12:45p	Past President's Perspective: Modern History of Technology and Its Impact and Interaction with Society and Industries (2)
E&TM-14B	Tue	3:45 – 5:15p	Advancement of Energy and Engineering Technology and Its Implication and Impact on Future Society and Industries
E&TM-17B	Wed	2:00 – 3:30p	Modern History of Mechanical Engineering Education and Its Interaction with Society and Industries

## E&TM BRIEFS

### Mechanical Engineers in Business

**F**actory Logic becomes first software development company to win the coveted Shingo Prize for Research and Applied Programs in Manufacturing. Richard Lebovitz is President of Factory Logic Software, Inc., located in Austin, Texas. Of note, Richard Lebovitz chaired a session on the management of manufacturing at the 1999 ASME Congress.

In Austin, Texas on May 21, 2001, Factory Logic Software, Inc., a provider of Web-based manufacturing software that seamlessly integrates the factory into a complete e-business strategy, announced that it has been awarded the 2001 Shingo Prize for Research and Applied Programs in manufacturing. "This makes Factory Logic the first software winner in the history of the Shingo Prize," said Dave Smith, vice president of marketing. "It validates our premise that software is not only a desirable component on the path to lean, but it also is being recognized as a critical element for successful and enduring lean implementations."

The Shingo Prize is named in honor of the late Dr. Shigeo Shingo, who helped create several lean manufacturing processes, including the original Toyota Production System. The Prize promotes world-class manufacturing and recognizes companies that achieve superior customer satisfaction and business results. Factory Logic's Web-based solution, Streamline(tm), was nominated for the Shingo Prize and underwent an extensive review process by prominent academicians and practitioners. Streamline comprises seven services that utilize lean, option-driven methods to manage factory operations and Web-based technology to connect customers and suppliers directly to the factory floor.

"We are elated to be the first software company to receive such a prestigious award for world-class, lean manufacturing," stated Richard Lebovitz, co-founder and CEO of Factory Logic Software, Inc. "Our domain experts have spent years working around the world to implement lean technologies and have experienced first hand the problems companies have had in making lean stick. With lean expertise built into our Streamline software solution, companies are given what is most often missing from lean conversions: an infrastructure that supports lean initiatives and manages continuous improvement on a day-to-day basis."

Co-founder and CTO, Henry Perez added, "This award is for the developers and the manufacturing domain experts who have contributed their knowledge, long hours and skill into making Stream-

line an extraordinary solution-set. It makes those long hours getting the newest 4.0 release ready ... worth every minute!"

Referred to as the "... Nobel Prize of manufacturing..." (May 15, 2000) by Business Week magazine, the Shingo Prize is to manufacturing as the Malcolm Baldrige Award is to quality. The Shingo Prize is awarded annually to companies in the United States, Canada, and Mexico that demonstrate excellence in lean manufacturing leading to superior customer satisfaction and business performance. "We are unique in the criteria by which we judge, and Factory Logic Software is unique in its Streamline software offering," stated Ross Robson, Shingo Prize executive director. "This is the first time we have seen a software application which ties lean manufacturing techniques and processes within the factory directly to customers and suppliers outside the four walls."

Headquartered in Austin, Texas, Factory Logic Software, Inc. is the leading provider of Web-based manufacturing software that seamlessly integrates the factory into a complete e-business strategy. Web-based technology connects customers and suppliers directly to the factory floor while dynamic manufacturing operations significantly improve responsiveness, reducing costs and improving service.

*Steven P. Nichols, PhD, P.E., JD  
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### Knowledge Management— An Indian Perspective

**A**bout four years ago, one of my friends, who teaches at the Indian Institute of Technology at Bombay was narrating some of his interesting experiences during his visit to one of the engineering companies in the USA. In connection with failure analysis of one of its components, the company wanted to see if there was a similar (material-related) failure in their company in the past. And, if so, what was done in that regard. The knowledge tracking system in that company was so unbelievably efficient, that within 10 minutes all the relevant information was collected and presented. There indeed was a similar failure in 1954! The failure didn't look like anything extraordinary at that instant. I brushed it aside as a routine happening. My friend was rather surprised to see my lukewarm response. I must admit that it took me two full days - an awful response time - to appreciate the significance of retrieving any data, information, or knowledge so fast, and then using it to provide solutions. (I call this Solution Engineering, which nobody teaches formally, but every practicing engineer is

involved in throughout life. Later in the article, I will try to correlate solution engineering to knowledge and its application.) After two days I called my friend at an odd hour to discuss further the knowledge tracking system of the American company. He was amused!

Now, after four years, when we are all busy implementing Knowledge Management (KM) systems in our respective companies, I realize the value of the above incident, and have made that as the basis for formulating my Key Result Areas (KRAs).

This incident tells us several things: 1) that KM is nothing really new; 2) many organizations were practicing it (without calling it by that name - the other famous example being the Chaparral Steel case); 3) implicit knowledge was being used as an organizational asset to compress the learning curve and to solve real-life problems, and to add value to the products, - finally making an impact on the bottom line. Probably, of late, the entire process has been systematized and publicized - thanks to Peter Drucker, who introduced us to the "Knowledge Worker" & "Knowledge Society". Some enthusiast took this Knowledge series to "Knowledge Wars"! And lo & behold, through issues related to Intellectual Property Rights (IPR), the Knowledge Wars are indeed being fought in the courts of law!

It is heartening to see that like the developed countries, the developing (Newly-Industrialised) countries are also on a Knowledge Spree. You will see that many progressive organizations in India have realized the significance of knowledge as a highly competitive resource, and have been quick to resort to KM systems - each one in its own way. I find this quite in fitness of things, because there is nothing unique about the KM system, and each organization - depending on its specialized knowledge, competition, workforce, culture, spread, etc - needs to design its own workable system that delivers the goods.

Although I hate to define and contain KM, my simple definition of KM is "Taking knowledge where it exists to where it is required, with a view to creating wealth for the organization." It would consist of making the right kind of knowledge available in the right form to the right people at the right time. Who will and should take up this role? The Knowledge Keeper, (KK) of course! The KK, therefore, ought to know whom in the organization would benefit from specific knowledge. The KK also takes responsibility of "adapting" that knowledge to the need of the user(s) and ensuring that the knowledge is used and converted into something value-added. That is quite a load of responsibility.

*(continued on page 6)*

## Knowledge Management— An Indian Perspective

(continued from page 5)

ty! There could be as many Ks in the organization as there are specialized disciplines. As an illustration, for the R&D wing of an automotive company, there should be Ks in areas like Engines, Combustion, Emission, Auxiliary Systems (Cooling & HVAC), Noise, Vibration, Alternative Fuels and so on.

India is essentially a Technology Follower (TF), and not a Technology Leader (TL), country. Consequently, learning, consolidating the knowledge and applying it to provide solutions (Solution Engineering) is more crucial than creating knowledge. It follows, therefore, that the knowledge that we need to manage does not have to be highly scientific in nature. Instead, it should be technology-oriented. Who will be the proverbial cat in setting up and demonstrating the benefits of KM in a company in TF country? According to me, it's the R&D department. Because in a TF environment, R&D becomes the formal (but not the only) innovating unit of the organization, and hence, should assume the role of a catalyst for establishing the KM system and spreading it across-the-board. In view of this all the R&D engineers should be the Ks. However, this does not mean that only the R&D engineers need to be the Ks. In fact the K for (say) manufacturing should be from production dept, and so on. It would now be easy to conceptualize the primary role of the Chief Knowledge Office (CKO): Networking with all the Ks. And, of course, more managerial responsibilities exist. But before that let's turn our attention to the most crucial aspect of KM: the people.

All the knowledge resides in people's heads. They are constantly engaged in (generating and / or) using the knowledge, but most of them don't want to share it. For them knowledge is power that they like to wield. So, if they have to contribute to sharing and using the knowledge and convert it into the organizational asset, they need to be recognized and / or given suitable incentives. Their contribution to knowledge-based activities needs to be included as their KRAs.

In India, most of us were so conditioned that we always felt that knowledge is to be acquired for the sake of learning and gaining status in society. Using it to earn money was considered almost a taboo. It's only in the recent past that we started viewing knowledge as a corporate asset - like land and capital - that can create wealth and provide companies the necessary competitive edge. We now understand the economics of knowledge and how to create organizational wealth through that route.

As I said earlier, in many developing countries, KM is now being taken seriously. At least in India, one of the reasons for that is the increasing mobility of employees. We certainly don't want the knowledge to leave along with people and then start from scratch. Different organizations have different approaches to designing and implementing KM systems and addressing their own peculiar problems. I would like to briefly describe what KM-related activities my current and the previous organizations have been involved in during the past four years, and would be delighted to receive comments / suggestions from the ET&M Newsletter readers and exchange views with them.

There is a multi-functional KM Group (KMG) at the corporate level involving all the stakeholders, whose primary objective is to drive KM across the organization. Each member owns KM in his group/sector. The KMG strives to integrate KM with Business Strategy, establish knowledge connections (networking) with outside world and encourage use of knowledge to improve products and services. Special focus is provided on integrating (and sharing) highly distributed knowledge & experience and expanding the knowledge base to upgrade in-house technology to provide solutions. The knowledge connections are established with universities/research organizations, consultants, suppliers (through vendor meets), design boutiques and R&D joint venture partners. These connections effectively result in what I call Knowledge Import (or Cross-over) from other sectors of industries which can be gainfully used to add value to our products and services. The knowledge network, being established for all the employees to access and use, consists of Best Practices, Lessons Learnt, Information Repository, Good Initiatives and also Technology-oriented R&D portals. The R&D portal would, in turn, disseminate the relevant knowledge in terms of outcomes of Design Reviews/ Project Reviews, Workshops & learnings through external training programs. All this is gainfully assimilated and used, among other things, to provide valuable input to our Training Modules that impart the collected knowledge to right people. In order to take stock of what we have and what we need, the KMG has prepared directories of (internal and external) domain experts, consultants, softwares (and their capabilities), facilities & equipment as well as various technical agreements that are in force but scattered all over the company. Sharing of these directories has resulted in handsome gains and uniform practices throughout the company.

Quite apart from the above, external expert in a field relevant to company operations is invited every month to give a technical talk on state-of-the-art technology. The knowledge generation and sharing during question-answer session is of great

value. Not only that, the subsequent interaction with these experts and their companies has resulted in useful technology upgrading. An in-house newsletter takes the solution engineering concept to people through its "Your Question - Your Answer" column where readers are encouraged to refer their technical problems that have not been solved, and they only are "enticed" to provide direct or indirect solution. (Indirect solution pertains to directing the question contributor to a person, group, or agency that has the potential to provide solution). The solution provider is duly recognized by publishing his photograph and brief resume in the newsletter so that the entire organization knows that. Such recognition as well as appointing (willing) Ks - as described above - does a great good to the intellectual ego of employees and effectively takes care of the human angle. The newsletter also features a thought-provoking guest column by an external person. The purpose of this column is to set the readers thinking and making them see a new point of view so that they start doing things differently. Various happenings are also shared through the newsletter, which keeps the left hand fully aware of what the right hand is doing.

The human angle and the social skill factor are partly addressed through a new initiative called "Happy Hour" celebrated every fortnight. It's an informal get-together of people that promotes conversations through small talks, team games and bind people together, ultimately paving the way to sharing. The happy hour also provides relaxation to the employees from the otherwise hectic schedule.

All said and done, this is just the beginning of our KM endeavor. We need to exert much more effort before KM is recognized as a key business process. Some of our plans include: Integrating IPR issues with KM, establishing a suitable security system, empowering the people using knowledge for value addition, making our customers/suppliers an integral part of our KM system, facilitating educational institutes to introduce a course on KM, and bringing in an innovative culture through Knowledge Enrichment.

I do look at Knowledge Management as an important subset of Technology Management and assign a very high weight to it. That's one reason why I feel that the study/review of technology management in the current context will not be meaningful without KM.

*Kamlesh B Pande  
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# BUSINESS METHOD PATENTS 101

## Historic View

According to the United States Patent and Trademark Office (PTO), the first business method patent was granted on January 8, 1889 to Herman Hollerith who created a method and apparatus which automated the tabulating and compiling of statistical information for businesses and enterprises. United States Patent and Trademark Office, Automated Financial of Management Data Processing Methods (Business Methods), USPTO White Paper, <http://www.uspto.gov/web/menu/busmethp/index.html> (July 2000). The protection of his patents allowed his fledgling Tabulating Machine Company to succeed and thrive. In 1924, Thomas J. Watson, Sr. changed the company name to International Business Machine Corporation.

However, traditionally, the PTO rarely granted business method patents, claiming that a process could not be patented if it was simply an abstract idea. Hence, the USPTO viewed software patents as unpatentable by the PTO and the courts, based on the view that they were unprotectable algorithms.

## Current View

A change in patent law occurred on July 23, 1998 when the U.S. Court of Appeals for the Federal Circuit issued its decision in *State Street Bank & Trust Co. v. Signature Financial Group Inc.* recognizing business methods, for the first time, as patentable subject matter. Lawrence M. Sung, Jeff E. Schwartz, and Don Pelto, Business method defense, Nat'l L. J., April 10, 2000, at B8. The court ruled that patent laws were intended to protect any method, whether or not it required the aid of a computer, so long as it produced a "useful, concrete and tangible result."

With this decision, the court legitimized both software patents and methods of doing business, opening the way for Internet related patents. The consequences have been astounding. The PTO reported an increase of roughly 700% in the number of patent applications containing business method claims. The PTO also created a new classification for business method patent applications: "Data processing: financial, business practice, management or cost/price determination." (Class 705)

## Requirements for a Business Method Patent

In order to be protected, a business method patent must be 1) within a class of patentable subject matter; 2) useful; 3) novel; 4) nonobvious.

## Usefulness

This requirement is satisfied if the business method has a functional purpose. The applicant must demonstrate that the method or software provides some concrete, tangible result. An example is Amazon.com's "1-click" system. The system

allows a repeat customer to bypass data entry forms when making a purchase from Amazon. Amazon accesses the customer's information directly from the customer's computer. This method is useful because it expedites purchase time.

## Novelty

A business method is novel when it is different in some way from all previous knowledge and inventions, which are called "prior art" in patent law. When examining a business method patent application, the PTO will consider all prior art, whether Internet-related or not. If prior art exists, then the business method cannot be protected.

## Nonobviousness

A business method is considered nonobvious when a person who has ordinary skill in the specific technology could not easily think of it. The PTO decides whether the differences between the applicant's business method and prior art would be obvious to someone with ordinary skill in the field of the business. In other words, whether or not the method provides a new or unexpected result.

## The Power of Business Method Patents

Numerous business method patents being issued involve Internet technologies and business methods. Critics say these patents are overbroad, and their reach remains to be tested in courts. However, if supported by courts, these patents could be powerful tools for dominating Internet commerce. Suits such as those of Amazon.com and Priceline.com suggest strongly that business method patents cannot be so easily dismissed.

Internet patents can be used offensively against a major competitor, as Amazon.com demonstrated when it stopped BarnesandNoble.com from using a one-click shopping system. They can also be used defensively as a bargaining chip against an aggressive competitor who threatens to sue based on one of its patents. Experience has shown that rivals are less likely to go to court when they know that their opponent can also wield a patent. Such competitors often prefer to reach a truce under which each company cross-licenses the other's patents.

## Current Challenges

Business method patents have created confusion. Critics claim that the PTO is ill-equipped to investigate whether they are novel and nonobvious. Critics also state that patent examiners are not adept at examining business method patents, which are based on new Web-based methods and software processes, because they have traditionally reviewed past patents and other information in the PTO library.

In response to this criticism, the PTO announced in March 2000 that it is adding

an additional "layer of review" to business method patent applications and is hiring technology specialists to aid examiners in the areas of finance, e-commerce, insurance and Internet infrastructure. In addition, on June 12, 2001, the PTO sent out a press release soliciting public comment on a Federal Register notice regarding databases it uses to find prior art relevant to its examination of software-implemented business method patents. Also, the agency seeks input on additional information and material that could be considered during examination of business method patents. This request is another component of PTO's March 2000 Business Method Patent Initiative.

Members of the public are invited to recommend databases and electronic resources that the USPTO does not currently access for searching business method prior art. Recommended databases must be publicly available. The PTO asks that detailed information regarding the suggested resource be sent to them. The next deadline for submitting recommendations is September 30, 2001. Comments should be sent to Robert.Clarke@USPTO.gov.

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## Past President E&TM Sessions at the 2001 Congress

Session 1 chaired by Art Bergles and Hiroshi Honda (9:30-11:00 a.m. on November 12 (Monday))



Skip Fletcher

*The history of Heat Transfer, Skip Fletcher, ASME President (1985-86), Director of Aerospace, NASA Ames Research Center*



Daniel T. Koenig

*The Role of the Engineer in 21st Century Industry, Daniel T. Koenig, ASME President (1995-1996)*

This presentation relates to the changing nature of work that engineers in industry must contend with. This would be an analysis of the effect on work caused by the changing nature of competition as exploited by expansion of computer technology applied to manufacturing. In addition this has created a change in

(continued on page 8)

engineering education requirements for the practitioner. Lastly, the expansion of computer technology has caused a merging of engineering disciplines and other work disciplines thus blurring roles between engineers, and between engineers and other functions within a company.



Winfred M. Phillips

*Bioengineering: From Mechanics and Devices to Tissue Engineering and Genetics, Winfred M. Phillips, ASME President (1998-99), Vice President for Research and Dean of the Graduate School, the University of Florida*

As defined by the National Institute of Health (NIH), bioengineering is an interdisciplinary field that applies physical, chemical, and mathematical sciences and engineering principles to the study of biology, medicine, behavior, and health. It advances knowledge from the molecular to the organ systems level, and develops new and novel biologics, materials, processes, implants, devices, and informational approaches for the prevention, diagnosis, and treatment of disease, for patient rehabilitation, and for improving health.

Bioengineering has made enormous contributions to the advancement of health care in the United States. It has been instrumental in establishing the United States as the world leader in

health care technology, as evidenced by a \$4.6 billion trade surplus for this sector in 1993. The field, through basic and applied research and technology assessment, has given us such devices as the pacemaker, orthopedic implants, and non-invasive diagnostic imaging. Bioengineers have developed new processes for manufacturing products in the pharmaceutical and biotechnology industries. An example is the manufacturing of human insulin, the first product based on recombinant DNA technology, where bioengineering was critical to the ability to commercialize the product.

This rich history and unprecedented growth, focus and opportunity will be a technical, social, and ethical challenge for the United States and the world.

## BOARD AND DIVISION ROSTERS

Session 2 chaired by Paul Torpey and Dick Rosenberg (11:15a.m.-12:45p.m., November 13 (Tuesday))



Nathan H. Hurt

*Nuclear Technology, A National Treasure, Nathan H. Hurt, P.E., ASME President (1991-92)*

The U.S. has realized for many years the benefits of nuclear technology in power generation and nuclear medica-

tion. However, advancements in technologies are needed which will provide greater safety and reliability, be more efficient and economical, generate less waste and dispose of that waste in better ways, and be more acceptable to society including those dedicated to opposition and stoppage.

U.S. was once a nuclear super power but today is realizing benefits from technologies that are twenty or more years old. New technologies are being developed but need to be expanded and accelerated.



Keith B. Thayer

*History of Technology 1950-2000 Engineering Changes Observed, Keith B. Thayer, ASME President (1997-98)*

This presentation covers the author's impressions of the changes in the engineering/construction

of process plants in the last forty years, touching upon: methods, philosophies, locations, products, safety, human relations, education, and management.

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