Strategic Plan for the Design Engineering Division

ASME International

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Strategic Plan

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History and Background

The design engineering division of ASME was founded in 1945 with then the name of "Machine Design Division" as part of the General Engineering Department of ASME. In 1966, the division adopted its present name. It became part of the Systems and Design Technical Group of the Council on Engineering in 1981.

The objectives and function of the division was defined as follows:

> "to promote the art and science of mechanical engineering design in the conception, evolution, and design of machinery and products, as well as mechanical design aspects of other phases of engineering. The division encourages and provides a forum for the interchange of ideas relative to design engineering through publication, presentation, and discussion of technical papers, technical conferences and awards for outstanding achievement by individuals in the field of design engineering."

Division Membership: The division is presently the largest division of ASME and has been able to maintain approximately over 13,000 primary and 24,000 secondary members over the last several years. The division membership since 1997 is provided below:

Year	*Primary*	*Secondary*	*Other*	*Total*
1997	13,973	10,932	14,325	39,230
1998	13,763	10,848	14,471	39,082
1999	13,862	10,688	14,953	39,503
2000	13,652	10,392	14,942	38,976
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2002	13,522	9,697	14,417	37,636

Conference Participation: At present, the DED sponsors the annual International Design Engineering Technical Conferences (IDETC) each autumn which showcases advances in research on design related subjects. This conference usually has an excess of 500 participants and is currently the largest source of income for the Division. The Division also participates in the National Manufacturing Week formerly called the National Design Engineering Conference in Chicago, traditionally sponsoring 12 to 20 sessions and employing the conference as its primary source of contact with industrial members. The Division also participates in the International Mechanical Engineering Congress and Exhibition (IMECE) each winter – usually filling 22 to 30 sessions.

Division Publications: The DED presently publishes one conference proceedings in the form of a CD ROM for its annual Design Technical Conferences, two ASME Transactions journals and one cross society journal. The two ASME journals are the *Journal of Mechanical Design* and the *Journal of Vibrations & Acoustics*. The cross society journal, the *Transactions on Mechatronics*, is published jointly with the Institute of Electrical and Electronic Engineers (IEEE). The Dynamics Systems and Controls Division also participates in this journal. This is a multidisciplinary journal cutting across mechanical and electrical engineering.

Division's Technical Committees: The DED presently has ten technical committees structured to serve technical interests of division members and to promote professional success of the committee members. At present, the primary responsibilities of these committees include: disseminating state of the art research and practical information about design engineering through organizing conferences and publishing proceedings and journal articles; recognizing scholarly activities and noteworthy achievements of members through best paper and committee level achievement awards; and providing an environment for technical networking among division members.

International Activities: The division has made excellent progress in its international activities in recent years due to activities of the International Activities Chair, Prof. Phil Doepker. A symposium on international design issues held in conjunction with the 2001 IDETC was well attended. The Fall International Design Engineering Technical Conferences have become an excellent venue for international participation, and the DED intends to continue to leverage this opportunity. In addition, the DED participates in international conferences regularly and maintains strong ties with the International Federation for the Theory of Machines and Mechanisms.

Financial Outlook

Over the last several years, the division has developed a policy of viewing itself not only as a technical division but also as an evolving enterprise. This policy has moved

the division to take an active role and become an equal partner with ASME by sharing the risks and potential profits ~~in~~ of its International Design Engineering Technical Conferences (IDETC's). This policy has resulted in the division developing reviews and procedures for upcoming IDETC's. These processes ensure that these conferences are properly managed, thus reducing the risk for the conferences suffering losses while keeping the conference registration fees and services very competitive. As a result, the conference now provides some level of revenue stream for the ASME as well as the division. The division participation in the risks of IDETC's started with the conference in Sacramento in 1997 and continued until 2000. The Division assumed full risk for the conference in 2001. The divisional custodial account balances from 1997 are listed below. They show increases every year in spite of losses from investments of the custodial funds due to the poor performance of the financial markets in 2001 and 2002. The revenues from each year's IDETC are added in the next year balance of the custodial funds together with gains and losses from the investments.

Year	Balance	% change	Notes
2002	$319,379	(42% increase)	(the actual balance is $227,000 with the rest encumbered in various awards and committee accounts)
2001	$224,789	(8% increase)	
2000	$216,681	(10% increase)	
1999	$196,840	(34% increase)	
1998	$147,337	(67% increase)	
1997	$88,026		

The only source of revenue for the division, at present, has been the share of revenues produced for the division from proper management of the annual IDETC. Prior to fiscal year 2002, a major income source for the division was revenues received from division participation in the National Design Engineering Conference in Chicago. Restructuring of this conference by its organizers and changes in ASME's contracts with its organizers have resulted in loss of such revenues for the division.

Since the division has been able to develop a healthy financial status with potential for further revenue production, in1999, the executive committee of the division developed a plan to invest a portion of the revenues for future growth and well being of the division. This plan involves empowering the technical committees within the division by passing on large portions of the division revenues to the committees whose activities have helped produce the revenues. The plan involves a clear path for revenue sharing by technical committees in addition to matching committee's contributions towards endowment of committee level awards. In addition the division

also uses a portion of its funds to provide seed funding for activities that can develop in the future.

The division has also made significant strides in developing endowments for the division awards. Based on the 2001 fund distribution plan, approximately $92,491 of the custodial fund has been distributed as follows, reducing the actual balance of the custodial account from $319,491 to $227,000.

Division-Division Awards:	$27,332.
Division-Committee Awards:	$23,490.
Committee-Committee Awards:	$8,963.
Committee Discretionary Accts:	$32,706.

In addition, the division has obtained private support to endow the Spira Outstanding Design Educator award and has previously endowed the Machine Design award.

Long Range (5-Year) Vision for the Division

The DED is trying to develop itself into an evolving division that changes to meet industrial and societal needs. The Division wishes to take control of its enterprise operation to enhance its technical activities and services to its members. The Division must function as a bottom up organization to enhance the needs and careers of its members. At the same time, it must provide leadership in developing an enterprise that can anticipate the evolution of Design Engineering as a professional discipline. In order to accomplish these goals, it is important to develop an operating environment with complete accountability and transparency. In addition, a new and simple mission statement that would evolve the division accordingly must be developed.

The division has developed and makes available its bylaws, providing transparency in its operating procedures. The bylaws were last updated approximately 8 years ago. These bylaws were accepted by the COE in March 2002. The division has also embraced ASME headquarters' request for accountability. In addition, it has provided clear guidelines that would allow technical committees to see how they can share the revenues generated from their activities. The division also has a set of operating procedures to retain institutional memory of its practices.

The current vision and mission statements for the division are:

Current Vision Statement:

To be the leader, as a division of the Society, covering the art, science, and application of design engineering and to facilitate transfer of design engineering

technology between industry, academe and government through programs and publications.

Current Mission Statement:

To develop, promote, encourage, and support our members and technical committees in their quest for technical excellence and professional success in their respective fields, and to provide necessary processes and mechanisms to spawn new initiatives and identify emerging technologies through technical meetings, publications, and member interest activities.

The newly proposed vision and mission statements for the division are:

New Vision Statement:

To be an agile and engaged division of the Society that keeps abreast with rapid changes in knowledge, technology, and global and societal needs in the field of design engineering.

New Mission Statement:

To lead in fostering and promoting the art, science and application of Design Engineering as well as the professional careers of Design Engineers in Education, Research, and Engineering Practice.

The key elements of these new vision and mission statements are that they require the division to be an ***agile*** and an ***engaged*** organization that fosters not only ***education*** and ***research*** but also ***engineering practice*** of design engineering. It should also enhance not only the field of design engineering but also the ***careers*** of those involved in this field.

It is believed that these new vision and mission statements would focus division activities to a point of achieving its long range goals. In addition, they will help the division to evolve with changes in the engineering science base and practice as well as societal needs.

Plans for Achieving the Long Range Vision

In achieving the Long Range Vision of the division in terms of the requirements of the new vision and mission statements, the very first step is updating the bylaws to incorporate these new statements.

It is then proposed to achieve each element of this new mission statement as follows:

To achieve ***agility***, ***strategic retreats*** are proposed at the division level on a biannual basis. A critical element of the retreats is to review the bylaws and make modifications that would enhance the division's agility. The immediate plan for the next year is to develop an outline and structure for the retreats.
In terms of ***engagement,*** the DED is already engaged with academics and some industrial and governmental members through its technical conferences. However, the division needs to become engaged with Engineering Accreditation Organizations such as ***ABET, EIT,*** and ***Professional Engineering*** certification programs***.*** The division also needs to extend its societal engagements at the national and local levels. The division has co-sponsored the IDETC with the Computers and Information in Engineering Division since 1994. The division has initiated an association with the local chapters by co-sponsoring a joint dinner event with the Chicago area section in conjunction with National Manufacturing Week. This began in 2002 and will be repeated in 2003. The immediate plan for the next year is to develop the architectures and mechanisms for further involvements with the implementations to follow in the subsequent years.

The division has an established base of fostering ***education*** and ***research*** as well as ***careers*** in design engineering through its conferences, and publication of proceedings, tutorials and journals. It also provides valuable networking opportunities to its members that can enhance their careers. It needs to develop, however, more formalized plans for ***continued education*** and ***life long learning*** for its members and enhancement of student participation. The plans for the next year are to develop plans that would enable the division to leverage its long-time sponsorship of the Student Design Competition. New opportunities to participate in the education of both professional and student members will also be explored.

The division will explore improving its engagement with its journals by sharing in their profits and risks. Sharing financial risk encourages the division to ensure that all of its journal associations remain vital and profitable.

In terms of fostering the ***practice of design engineering***, the division will be developing plans to develop a ***certification program*** for ***certified design engineers***, a code of ***ethical practices*** for design engineers and potentially developing plans for involvements with ***EIT,*** and ***Professional Engineering*** examinations.

In order to engage its own technical committees in developing its long range vision in bottom-up fashion, the DED is asking and will work with each of its technical committees over the next year to develop a short one or two page Strategic Plan that would include the following:

1. ***Awards and plans for endowing them***
2. ***Conferences intending to participate in 2004***
3. ***Succession Plan 2004***
4. ***Journal Involvement***
5. ***Financial Status (last five years)***

6. Involvements in education, research, practice, and careers in design engineering and societal impact of the field.

The table below provided a summary of the desired objectives and action items for achieving them.

Objective/Issue	**Keys to Success**	**Actions**
	Provide a mechanism for periodic review and update of bylaws and activities	Start Strategic retreats on a biannual basis
	High level management and steering of conferences, technical publications, and other activities to minimize waste and losses	Continue revenue sharing with committees & activities producing them Provide accountability & transparency both top down as well as bottom up
	Address needs of industrial members	Develop strategic partnership with other divisions and conferences Develop plans for conferences to enhance careers of industrial members
	Address education at all levels including, students, long life learning, and accreditation, and registration	Develop annual student design competitions, become active in ABET as well as PE registration and develop certification programs

In working toward achieving the accountability and transparency goals of the Long Range Vision, the DED is continuing to request increased accountability from ASME headquarters. This request is consistent with the headquarters' desires for accountability from each operating group. It is important for the division to track all DED business transactions at ASME Headquarters. Examples include making changes in DED accounts and processing awards funds and certificates. We request that the Engineering Programs and Accounting Departments establish tracking numbers for all important transactions with the DED to ensure timely follow through on all division transactions. This can be easily achieved by the Headquarters initiating B-1 forms for internal transfers of DED funds, such as transfers for certificates service charges, graphics services charges, IMECE services and meetings revenues. Internal B-1 forms will be approved by the DED chair and treasurer, as is done currently with external payments. This will help reduce errors in the General Ledger for the DED and provides the information needed for planning and management of DED as an enterprise.

Competitive Landscape That Threatens the Plan

A key concern of the division, at this time, is the future of our Spring National Design Engineering Conference that was held at the National Manufacturing Week in Chicago. This event is a key to maintaining the visibility of the division to its large industrial constituency and recruiting additional industrial members. For the last several years, the accessibility and association of the division sponsored Spring National Design Engineering Conference with the National Manufacturing Week event in Chicago has not been known until shortly before the Conference. In 2002, the DED independently sponsored a small conference at NMW. In 2003, the mode of operation will change again, as ASME sponsors the ASME Technical Conference at NMW. The DED feels it is important to improve the long-term security of this event.

The DED has also had loss of revenues from this event due to a breakdown of ASME's arrangements with the organizers of the National Manufacturing Week. It is therefore very important that a long term arrangement be developed that would assure proper integration of the division activities with those of the organizers of the National Manufacturing Week.

Another concern of the division is loss of revenues from poor performance of the investments of the division funds due to the losses of financial markets in recent years. The only source of revenue for the division in 2002 was its DETC. The division is therefore planning to participate in more of its technical activities as an enterprise, sharing the risks and potential revenues. This includes publications associated with the technical activities of the division. It is envisioned that proper management of all these operations can enhance not only the technical aspects of such operations but also their fiscal well beings. This will benefit the ASME headquarters, the division, and the members by keeping prices at low and competitive levels while reducing the slacks resulting in producing a profit.

SWOT Table

Internal

External

Strengths	Opportunities
Experienced ASME Staff Technical Diversity of staff and volunteers ASME brand name Goal Oriented Strategic Plan Sound Financial Status Being a very large division	Joint ventures/partnerships Increased membership Increased industry participation Enhancement of the Profession Increased revenue due to managing the enterprise of the technical operations
Weaknesses	**Threats**
Risk Averse Lack of agility Not addressing the practice of design engineering Time constraints of volunteers ASME services sometimes not price competitive Internal competition Not directly addressing careers of industrial members	Internal competition External competition Members not seeing the direct benefits of membership Shortcomings in accountability and transparency from the ASME Headquarters Shortcomings in industrial participation