LONG-RANGE STRATEGY FOR THE AIChE

Report of the Strategy Project Steering Committee
April 2008

INTRODUCTION

The Board of Directors of AIChE commissioned a major review of the Institute's long-range strategy in 2007 with a new strategic plan to be announced and rolled out as part of our centennial activities in 2008. This report presents the plan with the strategic goals that were approved by the Board of Directors.

The time horizon for this strategic plan is 5 years, by which time the goals should have advanced well towards completion. It is suggested that the plan be revisited in the 5-year timeframe.

There are compelling reasons why an update of our long-range strategy is critical as we prepare to enter our second century as a professional society.

- First, the external world is changing and we need to adapt. Globalization is changing the marketplace for chemical engineers and the nature of the work chemical engineers do. The discipline of chemical engineering is changing as academic departments embrace the application of biology and as product development becomes equal in importance to process design. And, the role of professional societies is changing as engineers rely on other sources for technical information and interaction with their peers.

- Second, the last review of our strategy, completed a few years ago, was focused on enabling AIChE to survive a financial crisis. It led to the "Essential AIChE" with a greatly reduced budget and staff. This strategy was very successful and enabled us to survive the financial crisis. Now, it is important to develop a strategy to show how to prosper and grow in the future.

- Third, a clear, consistent strategy is needed to guide the operating decisions we make. Without an agreed-upon strategy these decisions are made on an *ad hoc* basis.

Goals of the Strategy

There are two basic questions that need to be answered by a new strategy:

- What goals are we trying to achieve?

- How are we going to do it?

The major challenge of a strategy is deciding how we prioritize among conflicting goals and how we achieve the goals that we select. Some of the characteristics of a good strategy are:

- It needs to be fact-based, not opinion-based. It needs to be based on unbiased information about what our members want, about how the external world is changing, and about what changes we can realistically make in the way we operate as an organization.

- It needs to be simple, clear and concise. Ideally we would eventually like for every member of AIChE to understand and support our strategy.

- It needs to be actionable and measurable. We need to figure out from the strategy what actions we need to take to implement it. And, we need to be able to measure how successful we are at achieving our strategic goals.

If there is a clear, widely accepted strategy and everyone in the organization knows what we are trying to achieve, we can focus our efforts and achieve a much greater impact than if each individual were trying to figure out for themselves what the goals are and how to achieve them.

PROCESS FOR DEVELOPING THE STRATEGIC GOALS

We began work on the project in March 2007. Six strategic questions were identified that needed to be answered to formulate an effective strategy.

1. What do chemical engineers want?
2. How is the marketplace for chemical engineers changing?
3. How is the discipline of chemical engineering changing?
4. How are professional societies changing?
5. How can chemical engineers best impact societal issues?
6. What can we change about AIChE as a result of the strategy?

We formed a working group to address each of these questions. Each working group was supported by one or more designated member(s) of the AIChE staff. The members of each working group are listed in the table at the end of this paper.

Each working group prepared a white paper with a fact-based point-of-view on the question it was addressing. These white papers were completed in draft form and posted on the project SharePoint site. The working groups solicited a broad range of input to make sure that diverse sources of information were utilized.

A project Steering Committee, chaired by Larry Evans, was formed consisting of the chairs of each of the six working groups plus John Sofranko (Executive Director) and Rick Cain (AIChE staff supporting the overall study), John Chen (Past President) and Dale Keairns (President-Elect) and Maria Burka and Dianne Dorland as at-large members. The Steering Committee met on a regular basis to review progress and coordinate the activities of the working groups.

Building on the information developed by the working groups, a subcommittee of the Steering Committee prepared the first draft of the proposed strategic goals. The draft was reviewed and significantly revised at meetings of the Steering Committee. A draft was presented to the AIChE Board of Directors and the meeting of the operating councils in Salt Lake City in November 2007. Based on comments received further edits and revisions were made in the proposed goals.

In January 2008 discussion forums were established on the AIChE website to solicit comments and discussion from the members. The forums received a healthy level of activity. A few changes were made to the proposed goals based on these comments. On March 24 the Steering Committee met to review the results of the discussion forums and approved submitting this document describing the proposed strategic goals to the Board for approval. The Board approved the strategic goals at its April 4 meeting in New Orleans.

DEFINITIONS AND GOALS

Definition of the Profession of Chemical Engineering

The definition of the profession of chemical engineering is fundamental to our strategy. The AIChE Constitution (Article III) provides the following definition:

> "Chemical engineering is the profession in which a knowledge of mathematics, chemistry, and other natural sciences gained by study, experience, and practice is applied with judgment to develop economic ways of using materials and energy for the benefit of mankind."

We believe that it is time to broaden this definition to specifically embrace biology and encompass the concept that chemical engineering includes products, processes, equipment and applications. The proposed update is:

> "Chemical engineering is the profession in which a knowledge of mathematics, chemistry, physics, biology and other natural sciences gained by study, experience, and practice is applied with judgment to develop economic ways of using materials and energy for the benefit of humankind. The profession encompasses the spectrum from products, to the processes and equipment for making them, and to their applications."

Many people today are practicing the profession as broadly defined above without an undergraduate degree in chemical engineering. In fact many of the professors in departments of chemical engineering in the US have degrees in other fields.

The AIChE Bylaws were revised a few years ago to define the requirements for Member status as one who "…shall be engaged in an activity and possess scientific knowledge or practical experience which qualify the candidate to cooperate with engineers in the advancement of chemical engineering knowledge and practice." Despite this broad membership criteria, AIChE has not emphasized that those without a chemical engineering degree are welcome.

We believe that AIChE should be thought of as an organization of individuals who are trained in or practice the Chemical Engineering profession. This is important because a key, recurring theme of our strategy is that we need to be more inclusive and bring people with more diverse backgrounds into the AIChE tent.

Vision

Our vision is for AIChE to be one of the premier technical societies serving chemical engineers.

Mission

The broad goals of the Institute are stated in the AIChE Constitution. They are:

- To advance Chemical Engineering in theory and practice
- To maintain a high professional standard among the members
- To serve society, particularly where chemical engineering can contribute to the public interest

This three-pronged mission of serving the profession, the professional and society has served us well. We only propose to make a change in the second goal, which we would change to:

- To maintain a high professional standard among the members, and meet the needs of chemical engineers to maintain a high level of professional competency throughout their careers

The original goals of the Institute were defined when chemical engineering was first becoming established as a profession. There was a need to make AIChE an exclusive organization. Membership provided credentials as a chemical engineer. Thus there was a focus on making sure that chemical engineering was recognized as a profession and maintained high professional standards.

Today individuals receive credentials in other ways than through membership in AIChE. The primary goal of a professional society is to provide the information, knowledge, and ability to communicate that members need to be effective as professionals in their jobs. The revised wording captures this additional purpose.

Who Are We Serving?

Our three-pronged mission states that we are serving the profession, the professional and society. It is hard for anyone to serve three masters, so how do we rationalize the potential conflict? Note that we justify our existence as a 501(c)3 organization to the US Internal Revenue Service because we have a purpose to serve society.

The rationalization is as follows: We serve society by enabling individual chemical engineers to be effective. We advance the profession in order for chemical engineers to be effective. Ultimately, our goal as professionals is to serve society.

Commitment to Diversity

AIChE is committed to achieving diversity among our members and supporting programs to promote diversity in the workforce. The chemical engineering profession has been a leader in meeting goals for diversity. In some undergraduate programs in the US more than half of the students are women. We believe this commitment to diversity should receive prominent attention in the communications of AIChE and in our strategy.

The increasing globalization of the profession will require chemical engineers to work with others who come from different cultures, have diverse ethnic backgrounds, and are trained in different disciplines. An appreciation for the value of diversity, in its broadest sense, will be important to chemical engineers in the future.

STRATEGIC AND SUPPORTING GOALS

Our proposed strategy consists of five strategic goals (#1-5) and three supporting goals (A-C). Each goal is actionable and describes results that we intend to achieve. Each goal is motivated by a set of strategic issues that provide the rationale for the goal. We are currently defining a set of metrics to measure our progress in achieving the goals and an implementation plan that defines which organizations within AIChE will take the lead. These will be published in a separate document.

In the description below we first describe the rationale for the goal, and then we elaborate with more details and a discussion of the implications of the strategic goal.

<u>Strategic Goal #1:</u> Become a Global Organization of Chemical Engineering Practitioners.

<u>Rationale:</u>

Globalization is a powerful force that is affecting chemical engineers and the industries that utilize chemical engineering technology. The petroleum and chemical industries that have historically employed large numbers of chemical engineers are expanding operations much faster globally than inside the US. Chemical engineers need to communicate with their colleagues around the world and to be aware of new developments wherever they occur. Globalization represents both a challenge and an opportunity for AIChE.

<u>Discussion</u>

We propose strategically to define our three-pronged mission in a global context: to serve the profession ***as it is practiced throughout the world***; to serve the professionals ***wherever they choose to practice***; and to serve society ***internationally***. Our strategy will be to grow our international membership by cooperating and partnering with both our sister societies and individual companies in other countries. Our goal is to retain the national organizations in each country and coexist with them to provide local connections and address local issues.

The benefits to members and the profession of AIChE's becoming a more global organization are:

- Networking and connections to chemical engineers worldwide
- Information about and awareness of global opportunities
- Global adoption of best practices regardless of where they originate
- Faster identification and communication of problems
- Ability to impact societal issues globally

AIChE is already seeking to expand its global footprint by recruiting members abroad. We have established a dues structure that has lower dues in countries with lower income levels. We have entered into agreements with societies in other countries for them to offer the opportunity for their members to obtain joint membership in AIChE at discounted rates. We have already reached agreement or are proposing agreements with societies in India, Korea, and Argentina. We are expanding the activities of the Center for Chemical Process Safety (CCPS) internationally, and have provided a CCPS membership "bundled" with individual memberships to one overseas company.

If we are to be successful as a global organization, we will need to understand the needs of our international members and provide the services and benefits that are important to them. We also need to be proactive in finding ways to

leverage the connections with international members to provide benefits to our members in the US. And, we need to insure that our international activities are financially self supporting.

Strategic Goal #2: Strengthen industry and technology groups and create new groups where needed to support the diverse interests of members.

Rationale:

In the past, the majority of chemical engineers were employed by the chemical, petroleum, and pharmaceutical industries and by the engineering firms that serve these industries. Today the scope of chemical engineering is growing to encompass a broader disciplinary base and chemical engineers are increasingly employed in a more diverse set of industries. This makes it harder for one professional society to serve such a broad range of interests. Many chemical engineers identify more closely with organizations serving their specific vertical industry segment or their focused disciplinary interests rather than the broad AIChE.

Discussion:

Our strategy is to create a collection of strong industry and technology groups operating under the AIChE umbrella and focused on specific technologies, industries, or areas of practice. These strong subdisciplinary groups will be formed by strengthening existing divisions and forums and creating new groups where needed.

For want of a better term we refer to the subdisciplinary groups as *societies*, although they could have different names. The Society for Biological Engineering (SBE) is an example of such a society. Members will have a strong identity with their focused societies while retaining broad AIChE membership.

Our existing divisions and forums primarily serve the function of programming at AIChE meetings and recognizing members with awards. A society would differ from a division or forum because its members would have a stronger identification with the society. In addition to programming and awards, strong societies would offer innovative services of interest to its members; they would address concerns with jobs and careers of members; they might organize cooperative research programs; they could organize specialized conferences as part of or separate from AIChE meetings; they could conduct surveys of special interest to its members; and they would provide more focused networking opportunities among members.

Today only about 20-25% of our members belong to at least one division and, only some of these divisions are a major strength of the Institute. Our strategic

goal is to find ways to make these subdisciplinary groups stronger. Some of our existing divisions might choose to redefine themselves as "*societies*."

Subdisciplinary groups can focus on a specific industrial need or interest, and provide a vehicle to make the activities of AIChE more relevant to industrial users of technology. We could organize groups whose members are industrial users of technology in a particular area and these groups could provide information, programming, education, networking opportunities and other functions focused on the specific needs of that group. Subdisciplinary groups could also initiate corporate sponsored activities along the lines of CCPS and DIPPR where industry can pool their resources to address a specific need or issue.

We might also create subdisciplinary groups as affiliates with AIChE through alliances with other organizations. For example, we could offer joint membership in another organization such as the Society of Plastics Engineers (SPE). We might offer discounted dues for joint membership like we are doing with selected international societies. Eventually some of these affiliates might decide to merge with AIChE.

The Engineering Construction and Contracting Association is an example of a separate organization that is presently affiliated with AIChE. (Originally, it was a division of AIChE but spun off because AIChE could not easily accommodate its unique needs.) Our strategic goal would be to make AIChE better able to meet diverse needs of these organizations so they remain part of the Institute.

We will need to be flexible regarding the organizational arrangements for the subdisciplinary groups and the degree of autonomy they can have. We will need to balance the need for financial control with the need for the subgroup to control its own destiny.

Strategic Goal #3: Aggressively develop innovative new products and services for members based on web-based technologies.

Rationale

New web-based technologies are dramatically changing the way people communicate, receive information and interact with each other. The internet-driven phenomenon of social networking is becoming ever more important. Many of the services that professional societies have traditionally provided, such as access to information and networking opportunities, are now available on the internet. A generation of young engineers who have grown up with the internet has different expectations and different ways of doing work than those of a previous generation. Yet many of the ways AIChE impacts most of its members -- through meetings and publications -- have barely been touched.

AIChE presently has an excellent website that members use to pay their dues, register for meetings, find the names and addresses of other members and access a wide range of information. We create discussion forums to be used by groups of members and SharePoint sites that enable project teams to collaborate. All of our publications are online. In fact most of our revenue from publications, except for *Chemical Engineering Progress*, is from online subscriptions.

But, there are opportunities for AIChE to go beyond our existing ways of communicating to be more aggressive and innovative in finding new ways to serve members through the use of web-based technologies.

Discussion:

The purpose of utilizing any communications technology, including those that are web-based, is to serve members by providing information, knowledge, and the ability to communicate with other engineers. Our goal is to provide services that enable members to be more effective in their jobs, to work cooperatively to address societal issues, and to advance the profession.

Examples of possible new services that were generated in a meeting of the Strategy Steering Committee include:

- Short courses and seminars provided via Webcasts
- Discussion forums for industrial users to share nonproprietary information
- Blogs for young professionals to discuss early-career issues
- Blogs on societal issues
- Web-based services for job postings
- On-line or webcast job fair
- Social networking site for AIChE members
- Virtual meetings
- Electronic journals
- Lectures on demand addressing topics of interest to chemical engineers and downloaded from the web

As we consider new services, it is important to recognize that providing opportunities for personal interaction and face-to-face meetings will remain a very important function of AIChE. Our annual meeting, with 6,000 chemical engineers in one place, provides a powerful opportunity for our members to connect with other chemical engineers and a compelling event to rally the organization. Our use of web-based technologies should support rather than replace face-to-face meetings.

We need to be disciplined in developing any new product or service, because we have limited resources. Some of the principles are:

- Before developing any new product or service, conduct market research among our members or potential members to determine if it is needed and what the features should be. Research can be done using surveys, focus groups, our membership database or other means. New initiatives should be prioritized based on the results of this market research.

- Work with partners, wherever possible, to leverage their experience. In our publications, we have found partnering with John Wiley & Sons to be very effective. The same approach applies to web-based services. For example, we might partner with an existing company providing educational webinars commercially. They would have the infrastructure and we would provide the content. It may not be cost effective for AIChE to develop the infrastructure.

- We should test new ideas for new services by creating prototypes and testing them in controlled experiments before rolling them out on a large scale. It is important to discover by experience what works and what doesn't.

- As we consider new ideas for services, we should look for those that are scalable and, if successful, can be deployed on a large scale.

- Finally, any new service should be monitored and metrics established to determine how effective it is. Those that are not effective should be discontinued.

Most companies, developing a new product or service, have a stage-gate process for the development project. The project is organized into a series of stages, such as market research, prototype development, field testing, deployment, etc. At the completion of each stage there is a project review and a go/no-go decision before the project moves to the next stage. AIChE should consider a similar discipline in developing new web-based products and services.

Hank Kohlbrand in a presentation to the Board of Directors in June 2007 proposed that AIChE become the "Global Network for Chemical Engineers" and that this network could serve as the portal to the profession. This strategic goal would move the Institute in the direction of creating such a network.

Finally, the use of web-based technologies will be important to enable us to achieve several of our other strategic goals. The web will be key to becoming a global organization by enabling engineers to communicate around the world. Subdisciplinary groups will find opportunities to develop new web-based products and services to serve their focused organizations. It will also be a key aspect of any new business model for AIChE as discussed under the next goal.

Strategic Goal #4: Engage with others to improve the undergraduate curriculum in chemical engineering, and promote life-long learning.

Rationale:

The basic paradigm for the undergraduate curriculum in chemical engineering has not changed dramatically since the 1960s. Yet the world in which chemical engineers are employed is changing, the research being conducted at universities is changing, even the names of academic chemical engineering departments are changing. Some people have maintained that the discipline of chemical engineering is suffering from an identity crisis. At the same time, there is a significant controversy among other engineering disciplines as to whether four years of education are sufficient for an engineering professional to be successful in his/her career.

Discussion:

There is a growing consensus among the academic community and industrial employers that it is time for a significant renewal of the undergraduate chemical engineering curriculum. AIChE can play a valuable role in facilitating the (ongoing) conversation between academia and industry that is important for a relevant curriculum.

Some goals that have been suggested for a new curriculum are:

- Continue to hold a well-defined core that defines the discipline and provides the basis for quantification, integration, and relevance in problem solutions.
- Achieve a close, broad coupling to sciences – physics, chemistry, and biology – to enable the chemical engineer to impact across all scales – systems, processes, products, and molecules – at different levels of focus and provide interdisciplinary perspectives on technology innovation and development.
- Accomplish this within a four-year program.

It has been suggested that a new curriculum would differ from the old one because the old core does not integrate molecular concepts, the old core covers only macro to continuum physical and chemical processes, and the old core is primarily tied to large scale chemical processes. The challenge will be to provide students with the foundation that chemical engineers are known for (problem-solving, addressing uncertainties, etc.) plus give some flexibility so students can get some specialized training, as well are basic business and communication skills, all within a four-year program.

The AIChE can play a useful role in discussions on undergraduate education and curriculum review by facilitating discussions among educators (academia)

industry leaders and other entities with interest in technical education, such as ABET. If these conversations can produce guiding principles, including on such questions as:

- how to incorporate energy/sustainability in the undergraduate curriculum
- how to teach molecular-scale concepts and their associated computational tools
- how to teach the enabling science for non-equilibrium/structured materials
- how to incorporate ethical/societal topics in the undergraduate curriculum
- how to prepare/educate students for the global economy (year abroad requirement? foreign language requirement?),

then such guidelines could be extremely useful to the profession at large. Among other things, this process could nucleate the writing of the next generation of textbooks and educational materials around which a modern chemical engineering curriculum could cohere intellectually.

As another example, the AIChE could hold sessions on the curriculum at each annual meeting. Educational innovators and thought leaders could present papers at these sessions describing new approaches and ideas. The sessions could serve to identify the people who are leading new initiatives and give these initiatives visibility.

The important principle is that AIChE should work with others to facilitate an on-going process that is already being led by a group of educators in the US. AIChE should not adopt a prescriptive, one-size-fits-all approach. This would not be productive as individual departments need flexibility in developing educational themes in ways that fit local needs, conditions, and preferences.

Other engineering disciplines are looking at a similar restructuring of their education. NSF sponsored a workshop in May on the subject of “Transforming Mechanical Engineering Education and Research in the USA.” The American Society of Civil Engineers (ASCE) has created the Body of Knowledge for Civil Engineering.

Although the above discussion has been focused on the undergraduate curriculum, AIChE also needs to provide a more leading role in continuing education. In addition to keeping abreast of new developments in technology, our members seek opportunities to learn management and communication skills as they advance in their careers. As industry has cut back on internal training programs, there is an opportunity for AIChE to provide offerings that fill the gap. Our third strategic goal, to develop new web-based products, can provide additional means for innovative delivery of continuing education. Although how we best meet the needs in continuing education will require further study, it is clearly an important goal for the Institute and should be part of this strategic goal.

Strategic Goal #5: Impact societal issues by informing and educating the public and government in complex technical areas.

Rationale:

Chemical engineering is becoming even more important in addressing major technological challenges facing society such as energy, greenhouse gases, water availability, sustainability, environmental pollution, and industrial productivity. We also have concerns about diversity in the workplace, the status of our pre-university educational system, and the need to promote innovation and entrepreneurship. Our members would like for the voice of chemical engineers to have a greater influence on national policy. AIChE needs to find the best way to have an impact on these issues.

Discussion:

We believe that AIChE should focus its efforts on informing and educating the public and government policy makers rather than attempting to take an advocacy position on issues. AIChE should:

- Serve as a source of impartial information and a key resource for government
- Become the leading forum where issues are debated and discussed
- Utilize alliances with other like-minded organizations wherever possible to leverage our message
- Encourage members to speak out on societal issues at the local, state and national levels

When AIChE takes an advocacy position it should be with sound science and engineering knowledge and present unbiased and balanced viewpoints on professional issues. AIChE should not take positions lightly and only where we have extensive experience and there is a strong consensus on a matter that affects the profession and not just a smaller segment. If we are perceived as having a vested interest, we will lose our effectiveness and credibility as a source of impartial and authoritative information.

One of the ways AIChE could inform and educate the public is to establish a "speakers bureau" of qualified speakers who are available to speak on topics of public interest. By making it easier for organizations to find good speakers we get important messages to a larger audience.

Where AIChE establishes partnerships with sister societies in other parts of the world, we would look to the local organizations to take the lead in these activities.

One of the *supertrends** influencing all professional associations is that they are having a harder time making their messages heard above the noise in Washington. Yet, our members want us to inform public policy. To accomplish what our members want in the face of this supertrend, we will need to work with other, larger organizations to include our knowledge and information in their

messaging. We believe that working with other organizations should be key to our strategy of leveraging the impact of our contributions.

We believe also that AIChE should do a better job of informing our members of the issues we are tracking, the ways we are working to place AIChE's knowledge and information into the hands of decision makers and any positive impacts that we have produced.

The Institute should promote the awareness of the value of chemical engineering. It should also maintain currency on topics such as diversity in the workplace, the pre-university educational system in the US, and entrepreneurship, and it should support good practices in these areas.

It is possible that AIChE could obtain government and private funding to provide a forum for discussion and presentation of information on public issues. As such, these activities could become more financially self-supporting.

*These supertrends were reported in a recent issue of *Associations Now*, the monthly publication of the American Society of Association Executives.

SUPPORTING GOALS

In addition to the five strategic goals, there are three supporting goals that focus internally on AIChE and enable the organization to be more effective in everything that it does. Achieving the supporting goals is important for all of the strategic goals.

Supporting Goal A: Study alternative business models that rely less on membership dues, and commit the Institute to no increase in the level of dues for the next five years.

Rationale:

There are concerns about whether AIChE can continue to rely on a business model that depends heavily on dues from members to provide its financial support. Membership in AIChE is price sensitive to the level of dues. Increasing dues almost always results in a decline in membership and can be counterproductive. Furthermore, recent graduates who have become accustomed to obtaining information and networking free via the internet do not expect to pay for these services.

Discussion:

This is a controversial topic and one where we don't presently have the answers. But, as part of this strategy we need to let the members know that we appreciate the issue and are committed to doing something about it. By stating that we will

not increase dues for the next five years, we are making a strong commitment to action and not just words.

AIChE is not alone. Almost all membership-based organizations are finding that the old business models do not work. While members are willing to pay a limited amount for general support of the organization, they prefer to pay separately to purchase specific benefits (like publications and conference registrations) à la carte if and when they need them.

Some possibilities to consider are:

- If we were to develop strong subdisciplinary groups, we could charge more for membership in these groups and less for general AIChE dues.

- We could encourage greater unbundling of pricing of products and services, particularly if we develop new web-based services.

In surveys we find that one of the things that members value about their membership in AIChE is that it provides a professional home. Yet we don't promote the value of belonging to a broad organization of chemical engineers. We need to be more proactive in communicating that even if you are working in a specific industry or with a specialized technology, belonging to AIChE can open up opportunities for career change or to find a job later if circumstances change.

This enabling goal commits us to study alternative business models and alternative sources of revenue to support the Institute. We don't expect this study necessarily to come up with "the answer." Instead it should identify the financial and other criteria by which we can evaluate future proposals.

Supporting Goal B: Make Membership in AIChE More Inclusive.

Rationale:

When AIChE was established in 1908, it was an exclusive organization, in part to differentiate itself from the American Chemical Society from which the founders had separated. The initiation fee and the annual dues were both very high in terms of present dollars. A rigorous admissions process was established and individuals who were admitted obtained recognition and credentials in the new field of chemical engineering. Today, to meet our strategic goals, we need for AIChE to become a more inclusive organization.

Discussion:

The bylaws of AIChE were revised a few years ago to eliminate the requirement of an undergraduate degree in chemical engineering for membership. But this fact has not been well publicized.

We need to simplify the process for becoming a member of AIChE and facilitate ways for individuals who are practicing chemical engineering to join. We need to make it more inviting and promote the opportunity to join more widely. This is the practice of most of the other engineering societies.

We should separate *credentialization* as a chemical engineer from membership in AIChE. At some point in the future, we might decide to undertake an effort to certify the qualifications of chemical engineers, much as the Institution of Chemical Engineers in the UK does with its process of chartering chemical engineers. But, this is a separate issue from membership in AIChE.

Note: Inclusion in this goal is focused on membership requirements, where we draw the boundaries, and how we accommodate the increasing breadth of interests among our members. Inclusion in the context of diversity is included in the Societal Impact goal.

Supporting Goal C: Improve the Operational Effectiveness of AIChE.

Rationale:

As part of this strategy study, one of the working groups (Group 6) took a good look at AIChE's organizational structure, our governance, the way we nominate and elect officers, the role of the professional staff, the development, facilitation and mission of the volunteer leaders, and other aspects of our operations. They examined the best practices among other professional associations. The book, *7 Measures of Success*, published in 2006 by the American Society of Association Executives, presented the results of a study of "what remarkable associations do that others don't." Based upon this review, they identified a set of "no regrets" changes that would improve the member experience or the efficiency and effectiveness with which AIChE operates. These changes have been termed "no regrets" because they are expected to create value to the organization regardless of the strategies AIChE develops.

Discussion:

We propose that the Institute should consider the following thirteen changes or activities that would lead to change. The proposals are presented in the order in which they were developed. No priority is implied.

#1. Continuously capture data, and use that data to improve the operation of the Institute and the quality of the member experience.

- Collect data on member and non-member needs and level of satisfaction. Data collection should become ingrained in the business processes of the Institute
- Collect information from all types of "encounters." Examples: randomly selected surveys to a fraction of web site visitors and those that log in or execute transactions on the AIChE web site
- Develop benchmarks and metrics for areas in which data are collected
- Develop and maintain "Dashboards" for review of performance versus metrics
- Employment database – strive to track students and collect statistics on placement out of college, 'know our members'

From "7 Measures of Success", Measures #1 and #3.

#2. Strive to improve every contact with and communication with members and prospective members.

- Make contact points more "friendly"
- Example #1: Better customer service visibility on web. Make custserv@AIChE.org email address clearly visible on the web site – at all "levels" of the web site
- Example #2: Customer service: When dialing 1-800-AIChEME, the person answering the phone can give you phone numbers for NY office but can't transfer calls to the NY office. Can we modify our phone service so Connecticut service can actually connect callers to people in NY office? Needs exploration.
  From "7 Measures of Success", Measure #1.

#3. Manage the life cycle of activities and entities

- Encourage more experimentation (e.g., personal portals, communities of practice, ITA's)
- Develop a template for proposing new ideas
- Prototype or test activities on a smaller scale, where appropriate, before implementation
- Encourage experimentation that allows failure
  - Sunset failed activities
  - Recognize non-financial and financial impacts of sustaining versus sunsetting
- Perform periodic reviews of entity performance (at times that are scheduled and anticipated by the entity)
- Capture lessons learned from experiments, whether successful or not

- Capitalize on strengths identified during experiments, whether successful or not
- Understand and reduce barriers to the formation of new entities imposed by existing entities, such as barriers against the formation of ITAs and societies versus divisions
  From "7 Measures of Success", Measures #2 and #6.

#4. Constantly identify and reinforce the "core purpose" of AIChE

- Ensures that decisions are related to that purpose
- Provides consistency of action

"Remarkable organizations maintain a clear understanding of their core purpose, and willingly adapt how they do business to remain consistent with that core purpose." Part of "7 Measures of Success" Measure M#6.
Note: A proposed set of Core Values is appended below.
From "7 Measures of Success" Measure #6 and other measures. Pervasive comment.

#5. Form a Blue Ribbon Committee reporting to the BOD to oversee improved effectiveness of the volunteer organization, with focus on:

- Purpose of each entity (BOD, OC's, Divisions, Committees, Local Sections, etc. in priority order)
- Position descriptions
- Term of office (longer terms, if appropriate)
- Training and orientation
- Transition planning
- Measurement of success (entity, not necessarily individuals)
- Consider adaptation to virtual world
- Evaluate the creation of project-based volunteer opportunities in addition to officer and leader opportunities
  Consistent with "7 Measures of Success"

#6. Develop a more open and transparent process for nomination of officers and directors

- Open process along the lines of Neil Yeoman's recommendations
- Incorporate interview or telephone discussion with leading candidates
- Revise the nomination schedule, perhaps with a slightly earlier close for nominations, say, October 1
  Consistent with findings of the "7 Measures of Success"

#7. Provide for strategic selection of one or more board members, in addition to those elected by popular vote

- Per John Sofranko's recommendation, up to one board seat each year would not be voted on by the membership, but rather selected by the board of directors. This additional board member would be selected in an effort to move AIChE down its strategic paths
- Nominated by the Executive Committee, approved by BOD
- Length of service for these appointments could be either full 3-year terms, or reduced terms if agreed by the BOD
- Would require an amendment to the AIChE Constitution
  Consistent with "7 Measures of Success" Measure #6 – Organizational Adaptability, "The will to act"

#8. Examine the future role of local sections in a society with virtual connectivity

- Consider starting "virtual" local sections, possibly on a pilot basis to start
- Evaluate what would be the end game and what is the glide path to achieve the end point
- Evaluate whether we could use virtual connectivity to train local section members/officers
  Recommendation of the Strategy Steering Committee endorsed by Working Group #6

#9. Create value for small businesses and sole proprietors

- Ways to connect them to AIChE members and to each other
- Ways for them to get known
- Database for offerings and skills (consultants)
  Recommendation of the Strategy Steering Committee endorsed by Working Group #6.

#10. Consider the life style needs of today's members and implications for AIChE offerings

- Target ways to appeal to: spouses/partners, families, retirees, young professionals, etc. at meetings and other offerings of the Institute
- Provide leadership training for early career professionals to meet their needs and build loyalty
- Enhance AIChE's career services offerings to become more of a career hub for chemical engineers
  Consistent with "7 Measures of Success" Measure #1

#11. Evolve the business model of the Institute to be less dependent upon dues for its source of funds

- Benchmark other associations re: their sources of funds
- Consider selling advertising and sponsorships on web pages
- Increase % of speakers providing manuscripts and/or slides. Sell subscriptions to the archival of papers/slides
- Team with a service provider to open an "AIChE Mart" for logo merchandise
- Consider additional routes to corporate memberships (in addition to ITA's)
- Reduce dues for "basic" membership with up-charges for a menu of add-ons. (We already have this, for Divisions, Forums, etc. Consider unbundling more of the services covered by the current "full" dues.)
- Consider the relative return on staff and volunteer time from goods & services offered vs. fund-raising activities
- Investigate how the use of social networking can impact the value proposition for members and provide a basis for different business models
- More aggressively pursue "virtual" service models for members

Recommendation of the Steering Committee endorsed by Working Group #6

#12. Consider a subtle name change for the organization that allows for broader scope of the Institute

- Proposed: Use AIChE as more of a "logo name" than an acronym (using the acronym and not the expanded name)
- Append names for entities and activities to reflect the added value or focus of the entity.
    - Example: AIChE Society for Biological Engineering
    - Example: AIChE China (or India, or Asia)

Recommendation of the Steering Committee endorsed by Working Group #6

#13 The Institute should adopt a Statement of Core Values. The following is proposed for consideration.

As a professional organization, our purpose is to serve the profession, the professional and society. Our core values are captured in the following elements.

Core Values

Knowledge: The Institute promotes the growth, dissemination, and application of knowledge about the chemical engineering profession.

Value of Chemical Engineering: Chemical engineers make distinct and global contributions in engineering and science that are of value to society. The

Institute promotes recognition of the value of chemical engineering and serves as a core information resource to the profession.

Professionalism: The Institute promotes competence, honesty, and respect through professional and social responsibility.

Integrity: The Institute considers integrity and ethical behavior essential in all activities.

Member Driven: The Institute is led by active members who promote volunteerism and leadership.

Inclusiveness: The Institute involves a broad range of volunteers reflecting the composition of its membership.

Collegiality: We encourage a spirit of community and connectivity between professionals, enabling networks and cross-flow of information between and among members of the chemical engineering profession.

Adapted from examples provided in "7 Measures of Success"

NEXT STEPS

This document is a proposed strategy for the AIChE. It is not a detailed plan for implementing the strategy. The structure for the Implementation Plan was reviewed and approved by the AIChE Board at its July 2008 meeting. The oversight entities and lead responsibilities for developing the implementation plan for each of the strategic and enabling goals have been identified. Their roles and responsibilities can be viewed in the AIChE Strategy Implementation Structure document (available on the AIChE website).

Members of Strategy Project Steering Committee and Working Groups

TITLE	MEMBER	ORGANIZATION
STEERING COMMITTEE		
President	Larry Evans, Chair	AspenTech
Past President	John Chen	Lehigh
President-Elect	Dale Keairns	SAIC
Executive Director	John Sofranko	AIChE
Staff Liaison	Rick Cain	AIChE
Chair Group 1	Otis Shelton	Praxair
Chair Group 2	Jim Cobb	Univ. of Pittsburgh
Chair Group 3	Bob Armstrong	MIT
Chair Group 4	Bruce Finlayson	Univ. of Washington
Chair Group 5	LS Fan	Ohio State
Chair Group 6	Bill Byers	CH2M Hill
At-large Member	Maria Burka	NSF
At-large Member	Dianne Dorland	Rowan Univ.
GROUP 1. WHAT DO CHEMICAL ENGINEERS WANT?		
Chair	Otis Shelton	Praxair
Staff Liaison	Bette Lawler	AIChE
Staff Liaison	Felicia Guglielmi	AIChE
Group Member	Sandra Dudley	
Group Member	Orok Duke	BP
Group Member	Jim Hill	Iowa State Univ.
Group Member	Tom King	
Group Member	Steve Matson	
Group Member	Robert Ofoli	Michigan State Univ.
Group Member	Sid Sapakie	
Ex Officio BOD	Jim Swartz	Stanford
GROUP 2. HOW IS THE MARKETPLACE FOR CHEMICAL ENGINEERS CHANGING?		
Chair	Jim Cobb	Univ. of Pittsburgh
Staff Liaison	Scott Berger	AIChE
Staff Liaison	Cathy Diana	AIChE
Group Member	Maria Burka	NSF
Group Member	Calvin Cobb	
Group Member	Andrew Furlong	IChemE
Group Member	Gary Patterson	U. of Missouri
Group Member	Freeman Self	Bechtel
Group Member	Bill Schowalter	Princeton
Group Member	Greg Stephanopoulos	MIT
Group Member	Al Wechsler	ADL (Retired)
Group Member	Jim Wei	Princeton
Group Member	Alan Zagoria	UOP

GROUP 3. HOW IS THE DISCIPLINE OF CHEMICAL ENGINEERING CHANGING?

Chair	Bob Armstrong	MIT
Staff Liaison	Steve Smith	AIChE
Group Member	Jennifer Sinclair	Univ. of Florida
Group Member	Jeff Reimer	Univ. of California (Berkeley)
Group Member	Pablo Debenedetti	Princeton
Group Member	Mary Rezac	Kansas State Univ.
Group Member	Jim Trainham	PPG
Group Member	Susan Butts	Dow Chemical
Group Member	Joan Brennecke	Notre Dame
Ex Officio BOD	Ignacio Grossmann	Carnegie Mellon

GROUP 4. HOW ARE PROFESSIONAL SOCIETIES CHANGING?

Chair	Bruce Finlayson	Univ. of Washington
Staff Liaison	John Sofranko	AIChE
Group Member	Tom Edgar	Univ. of Texas
Group Member	Deb Grubbe	BP
Group Member	Jim Porter	DuPont
Group Member	Rob Reintjes	New England Equity
Group Member	Rex Reklaitis	Purdue
Group Member	David Missenda	

GROUP 5. HOW CAN CHEMICAL ENGINEERS BEST IMPACT SOCIETAL ISSUES?

Chair	LS Fan	Ohio State
Staff Liaison	Tim McCreight	AIChE
Group Member	Emmanuel Dada	FMC
Group Member	Pete Lederman	RF Weston / Esso (Retired)
Group Member	Norman Li	
Group Member	Judy Raper	NSF
Group Member	Darlene Schuster	AIChE
Group Member	Jeff Siirola	Eastman Chemical
Ex Officio BOD	Dale Keairns	SAIC

GROUP 6. WHAT CAN WE CHANGE ABOUT AICHE AS A RESULT OF STRATEGY?

Chair	Bill Byers	CH2M Hill
Staff Liaison	Rick Cain	AIChE
Group Member	Matt Atkins	
Group Member	Pete Belmonte	
Group Member	Brian Daly	ABB
Group Member	Dianne Dorland	Rowan Univ.
Group Member	Jud King	U. of California - Berkeley
Group Member	Kim Ogden	Arizona Univ.
Ex Officio BOD	Hank Kohlbrand	Dow