Using The Baldrige Criteria To Reengineer Higher Education

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Introduction

Higher education has been the target of much criticism. Various groups have been quick to point out the failings of all educational institutions from primary schools through institutions of higher learning. State legislators have been stepping in with their own solutions to perceived problems. This "call to change" has not been limited to the educational community as various industries have carried out a variety of reorganization, downsizing and merger attempts in order to remain competitive. Some of the techniques used in the business community are now finding their way into institutions of higher education. Two of the most notable are reengineering and total quality management. Both these processes call for higher education to "go about its business" in a new and more effective way.

Reengineering

Reengineering is commonly thought of as a total "rethinking" of the organization and its processes. Hammer and Champy [(1)] in their introductory book define reengineering as "...the fundamental rethinking and radical redesign of...processes to achieve dramatic improvements in critical contemporary measures of performance such as cost, quality, service and speed." The National Academy of Public Administration expands this definition of reengineering to "...a radical improvement approach that critically examines, rethinks and redesigns mission product and service processes within a political environment. It achieves dramatic mission performance gains from multiple customer and stakeholder perspectives. It is a key part of a process management approach for optimal performance that continually evaluates, adjusts, or removes processes."

These definitions make it clear that when one speaks of reengineering, one speaks of a major overhaul of the organization. Legitimate questions follow. Does higher education need such an overhaul? Or does the institution that has served society well over the years simply need to weather the criticism currently being aimed its direction?

A Call for Change

Many studies and position papers [2,3,4,5,6,7,8,9,10] point out the challenges facing higher education. These challenges must be addressed if academic institutions are to retain their leading role in addressing the problems faced by society. These observations, many from prestigious groups, point clearly to a need for change. This need is eloquently expressed in the executive summary of a 1992 NSF report [11] emanating from a "Presidential Young Investigator Colloquium on U.S. Engineering, Mathematics, and Science Education for the Year 2010 and Beyond." This summary states:

> "Numerous reports and studies have expressed serious concerns that the U.S. educational infrastructure is ill-prepared to meet the challenges and opportunities of the next century. The low level of scientific and technological literacy in our society is deplorable, and the trickle of talent flowing into careers in engineering, mathematics, and the sciences from all segments of society is deeply disturbing. The poor condition of our educational infrastructure is not the result of a few isolated, independent, or discipline-specific problems. Its condition mandates fundamental, comprehensive, and systemic changes in the way all of us go about the business of education."

The message of this report is essentially unchanged from similar reports generated years earlier and still contained in the most recent papers referenced above. Saying that engineering education has been slow to respond to calls for change is an understatement. Suggestions, both general and specific, have been made many times to provide direction to this call.

For example, the previously referenced 1995 NSF report [10] titled "Restructuring Engineering Education: A Focus on Change" addresses the tenure system that exists in virtually all universities today. Its recommendation states: "Engineering education needs a new system of faculty rewards and incentives. Faculty perceive the present system to focus on disciplinary research and publication; this focus must be expanded to include teaching, research, advising, and service in a way that includes all faculty as valued colleagues." Other recommendations deal with the diversity of the educational experience and call for a focus on more than just technical information and also call for more rigorous assessment to judge the contributions of both individual faculty and entire university systems. Each of these areas; tenure, curriculum changes, and assessment represent difficult issues and ones that most educators find hard to address.

A 1987 report prepared for the Board on Issues Management of the American Society of Mechanical Engineers [12] makes several points that highlight the reasons behind the need to change. These can be summarized as follows:

1. The fast paced development of technological change will have a large impact on engineering education.
2. Engineers will be increasingly called on as technical consultants and advisers on public issues.
3. Society is more dependent on complex technology and those systems are more

vulnerable because their managers and the public know less about how it all works.
4. Engineering is blending with other disciplines.
5. Few problems are any longer purely technological and engineers will be working on complex issues and need to know how to handle the human aspects of technology.

These reasons can easily be expanded when one additionally considers that:

1. The resources necessary to operate an institution of higher learning are becoming increasingly hard to obtain with strong competition from programs demanding equally large amounts of capital.
2. The expectations of society are rising in terms of what is expected in return for the tax dollars which fund many institutions.
3. Industry spends large amounts of money on education and training which creates an opportunity for alternative education models to develop in competition with the existing university system. This further weakens the role traditionally enjoyed by higher education as the supplier of the country's education needs making it more difficult to compete for both funds and students.

TQM and Higher Education:

A second reform movement has been surfacing in higher education in recent years. This movement calls for the application of Total Quality Management (TQM) to higher education. Similar to reengineering, it too requires organizations to take a fresh look at the way business is conducted. However, unlike reengineering, the concept is more widely accepted and its approaches are more structured.

The start of Total Quality Management in the United States is generally credited to the work and writings of W. Edwards Deming in the early 1980's. [13] His book, Quality, Productivity, and Competitive Position, contains fourteen points for management which formed the early foundation for TQM.

TQM has since evolved into a philosophy of management. [14] The thrust of this philosophy is on continuous improvement and a focusing of organizational priorities, goals, and resources to identify and efficiently meet the needs of those served by the organization. The implications of this thrust is that systematic measurements must be conducted to assess whether or not resources are effectively allocated.

Malcolm Baldrige National Quality Award

The TQM philosophy, and the actions necessary to execute it, have been developed by the National Institute of Standards and Technology (NIST) and embodied in the criteria for the Malcolm Baldrige National Quality Award. The award criteria, first announced in 1988, have been used as a model by many leading corporations to guide their TQM implementation efforts during the last decade. These criteria are broken into seven distinct categories, covering different aspects of organizational operations. The categories have undergone changes since their inception and the criteria have been refined to reflect the experience of those participating in the process. However, the main thrust of the criteria has remained unchanged.

In addition, many states have developed their own criteria for state awards and opened the award process to educational institutions. Some of the state awards for education were copied directly from the Baldrige industrial criteria while others followed a different format. All awards, however, promote a model of TQM implementation within education. The call for educational reform coupled with the interest generated by state awards for education, prompted NIST to develop a set of criteria [(15)] for education. These criteria, shown in outline form in Table 1, were released for evaluation during a 1995 pilot study. The point values to the right of the criteria indicate the relative importance of each category. The results of this pilot study are currently under evaluation with the intent of releasing formal criteria in 1998.

A Process for Change

Two somewhat similar, yet different, approaches for bringing about needed change in higher education are seen in the concepts of reengineering and total quality management. Reengineering is sometimes associated with a “slash and burn” approach while TQM appears to be more systematic. It is the more systematic approach of TQM that seems to best suit the nature of academic institutions. This systematic approach is firmly established in the Malcolm Baldrige National Quality Award (MBNQA) criteria.

There are many specific reasons why the MBNQA criteria could profitably be used to guide change in higher education and the primary ones are quite simple. First, the criteria are flexible. They allow the institution to identify who it serves (i.e. the stakeholders or customers) and then to establish its key mission and supporting goals relative to meeting the needs of those being served. Next, while the criteria do not call for specific practices or organizational structures, they do call for strategic planning and an alignment of activities and resources to focus on the goals established. Finally, adherence to the criteria requires systematic assessment to insure that resources are being used properly and goals are being met.

1995 Categories/Items	Point Values	
1.0 Leadership		90
1.1 Senior Administration Leadership	40	
1.2 Leadership System and Organization	30	
1.3 Public Responsibility and Citizenship	20	
2.0 Information and Analysis		75
2.1 Management of Information and Data	25	
2.2 Comparisons and Benchmarking	15	
2.3 Analysis and Use of School-Level Data	35	
3.0 Strategic and Operational Planning		75
3.1 Strategy Development	45	
3.2 Strategy Deployment	30	
4.0 Human Resource Development and Management		150
4.1 Human Resource Planning and Evaluation	30	
4.2 Faculty and Staff Work Systems	30	
4.3 Faculty and Staff Development	50	
4.4 Faculty and Staff Well-Being and Satisfaction	40	
5.0 Educational and Business Process Management		150
5.1 Education Design	40	
5.2 Education Delivery	25	
5.3 Education Support Service Design and Delivery	25	
5.4 Research, Scholarship, and Service	20	
5.5 Enrollment Management	20	
5.6 Business Operations Management	20	
6.0 School Performance Results		230
6.1 Student Performance Results	100	
6.2 School Education Climate Improvement Results	50	
6.3 Research, Scholarship, and Service Results	40	
6.4 School Business Performance Results	40	
7.0 Student Focus and Student and Stakeholder Satisfaction		230
7.1 Current Student Needs and Expectations	40	
7.2 Future Student Needs and Expectations	30	
7.3 Stakeholder Relationship Management	40	
7.4 Student and Stakeholder Satisfaction Determination	30	
7.5 Student and Stakeholder Satisfaction Results	50	
7.6 Student and Stakeholder Satisfaction Comparison	40	
TOTAL POINTS		1000

TABLE 1: Baldrige 1995 Pilot Study Criteria for Education

Other benefits also accrue to institutions using these criteria. Self assessment and improvement of internal processes is required, thus insuring that they are effective. Organizations are also required to compare themselves against competing organizations and encouraged to make comparisons against world class benchmarks. This helps the institution to put its own operation in perspective and establish high standards or stretch goals to guide its future development. Other key elements address the development and satisfaction of employees and the satisfaction of external stakeholders. Throughout the entire process, the emphasis is on fact based management using information, data and analysis. The final benefit for those institutions that actually apply for an award is an extensive feedback report. This report reviews both the strengths and areas in which the institution can improve. This analysis provides a valuable outside perspective that can only help with improvement efforts if it is taken seriously.

Conclusions

The needed "reengineering" of higher education can best be accomplished by using the established framework of the Malcolm Baldrige National Quality Award. The process is not easy. Perhaps the biggest impediment to change is acceptance on the part of faculty and administrators that change is actually needed. Short of a dramatic crisis, the removal of this roadblock must come from within through a willingness to examine new approaches and new horizons that are presenting themselves. One need only look at the burgeoning field of distance education and Internet courses as symptoms of the change that is already taking place. Finally, if the myriad of issues facing higher education are not addressed by the institutions themselves, they will be addressed for them by forces from the outside.

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