



State of the College Address

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“The best way to predict the future is to invent it”. I am quoting Alan Kay, the computer pioneer. Let me repeat that, “The best way to predict the future is to invent it”. This axiom applies as much to the future of an organization, such as Fenn College of Engineering, as it does to our own personal lives. I am told, by hearsay, that years ago during a television show, a bar of steel was shown to have a retail price of a few dollars. Then, it was shown what could be done with that bar of steel to add value to it. You could make thousands of paper clips with it, the announcer proclaimed, for a total nominal price of no more than a few hundred dollars or you could use it to make handcrafted Swiss watches for a few hundred thousand dollars. The initial substrate is the same, what you carve out of it is up to you.

Each one of us is endowed with a beautiful mind, what we do with it is entirely up to us. So before I start to talk about the state of the College, let me stress this point to our students, those seniors who are here participating in the The Order of the Engineer Induction Ceremony this evening. You have now reached the end of the road in your undergraduate studies.

Metaphorically speaking, the substrate of your mind is molded and polished. Now, it is up to you to decide what you wish to make out of it. It is up to you to invent your future. I recommend that you make Swiss watches, not paper clips.

Now, to use this analogy with respect to the Fenn College of Engineering, I would have to refer to the December of 2006 when enrollment had fallen to perhaps an all-time low, faculty morale was low, as reported by external reviewers, there was a change in the administration of the College and literally committee after committee and task force group after task force group, composed of well-meaning internal groups, external groups and individuals were trying to determine what was wrong with our Engineering College. The result was many reports,

sometimes with opposing or contradictory recommendations. An internal university comprehensive audit of the entire college also reported 22 unsatisfactory items touched upon computer issues, business operations, admissions, registration, staffing and the co-op program. At that time, there was also talk of merger with another college and, as one might imagine, a limitless number of rumors and speculations were spreading which continuously added to the anxiety level of all Fenn College stakeholders and supporters.

This was the circumstance at the time of my start as the eighth dean of Fenn College since the inception of CSU. In fact, the circumstances appeared so bleak back then that one of my senior colleagues predicted that I would be known as the last dean of Fenn College. But, I knew that the substrate was good and therefore I had confidence in the faculty, staff and students of Fenn College. They had the knowledge, the ability and the willingness to work hard in order to make substantive changes. Were they disappointed because of all the negative publicity and unusual circumstances that had surrounded them? Yes, they were. Were they disheartened that their efforts and contributions were not always fully appreciated? Yes, they were. Did they also recognize that we had some issues that we needed to address and improvements that we needed to make? Yes, I believe they did. So we set the course to predict the future by inventing it.

Someone said: "A crisis is a terrible thing to waste". The time was right and the iron was hot. Some forty new programs and initiatives were implemented over a two-year period. Change was deep-rooted, such as almost the entire administration of the College changed. And change was visible, such as the upgrade of the interiors of Stilwell Hall. New programs were added and some programs were suspended or merged with others. We began to change course.

But, change does not always come easy. Often one pays a price as the organization goes through a transformation. My colleague, Dr. Washington, Dean of Engineering at The Ohio State University has a passage at the end of his e-mails by D. Kimbro that states: "At the counter of success, there are no bargains. A price must always be paid, in advance, and in full." But, one pays a price recognizing that the price of inaction is greater. We almost experienced the entire classic Change Curve Theory: anxiety, denial, resistance, exploration, acceptance, hope and commitment. I said, we almost experienced the entire phenomenon. Change Theory also predicts an initial decline in performance. If that occurred, it was not very visible.

We began to see an increase in enrollment, but not at the expense of quality as the mean GPA of entering freshmen increased to 3.55 and retention rate increased. The College's image improved both internally and externally and media took notice of our accomplishments with articles in The Plain Dealer, Business Week, Reuters, CNBC and segments on the CBS Evening News and others.

Faculty received prestigious awards, such as endowments and NSF Career Award, Fulbright Awards and were recognized by their peers on the national level as several became Fellows of their professional societies and editors of prestigious journals. Research and scholarly activities continued with greater noticeable success as a Fenn College faculty became a member of a U.S.

team that recently placed an experiment on the NASA Space Shuttle Discovery. The Shuttle Discovery payload was delivered to the International Space Station for low gravity experiments and the sample was brought back to CSU for micro-structural examinations and evaluation. I will talk more about this a bit later.

Fenn College students had their own share of success in winning prestigious competitions and recognitions, such as the Baja Car Competition against rivals Case Western Reserve and The Ohio State Universities. Some travelled to Belize as part of Engineers Without Borders program to provide help and assistance to an impoverished village, others joined Habitats for Humanities in a rowing adventure that took them from Cleveland to Key West, Florida, volunteering at Habitat for Humanity homebuilding projects along the way.

Members of SWE brought to CSU a signature conference of the Society of Women Engineers and our graduate students attended national conferences to present their research papers.

And behind all these successes were the unsung heroes, the dedicated staff of Fenn College who took part in recruitment, advising, technical support, such as the technicians who helped prepare the Space Station experiment sample and the office secretaries and assistants who provided general support for various faculty and student activities and of course the efforts of our dedicated Fenn Academy staff who showed that with passion and commitment so much can be done with so little available resources.

In my first State of the College Address in 2007, I stated the following: “The question that remains then is how are we to define and prioritize our functions, focus, and activities including the teaching of undergraduate and graduate students, cooperative education, basic versus applied research and university and community service? Clearly to define our priorities, we need to begin by reaching out to all of our stakeholders (faculty, students and, staff) and then develop a flexible and agile roadmap.” Reaching out to our stakeholders, we did as we started to construct a strategic plan that began in 2008 with a two day retreat and continued for the following eight months until we produced a five-year strategic plan that we are presently implementing. In other words, we chose to invent our future, at least until 2015.

So, what are the results of all of these efforts by faculty, staff and students of Fenn College thus far? Let me briefly summarize them:

- ✓ 110% increase in new freshman enrollment since the inception of Fenn Academy, making Fenn College one of the fastest growing engineering programs
- ✓ Rise in the entering freshman mean GPA to 3.55
- ✓ 10% increase in retention of new full-time students
- ✓ Almost doubling of the number of engineering students participating in the Honors program

Clearly the above statistics show that we have increased enrollment while maintaining or even improving the outstanding quality of our students

- ✓ A second endowed chair established with a private one million dollar gift to the College
- ✓ Increase in external grant funding

- ✓ Increase in cash gifts to the College will soon bring our overall cumulative Fenn College endowments close to \$5,000,000 (highest ever) in spite of heavy principal losses in the stock market in recent years
- ✓ Establishment of 7 new academic programs including a new MS in Biomedical Engineering, a four-year technology program, four accelerated BS/MS programs and an entrepreneurship certificate in collaboration with the colleges of Business and Science
- ✓ First American engineering college to receive accreditation for their co-op program by the Canadian Association for Co-operative Education just as in 1970 we became the first American school to establish The Order of the Engineer which is also of Canadian origin – now celebrated by over 260 links nationwide
- ✓ Many new local, national and international partnerships
- ✓ Successful accreditation visits of our programs as well as successful internal and external reviews
- ✓ A complete satisfactory internal audit which took about three years to accomplish and cleared all of the 22 items that were cited
- ✓ Completion of a five-year strategic plan and its successful first year implementation
- ✓ Expansion of Fenn Academy to now 34 schools in five Northeast Ohio counties and 10 partner corporations
- ✓ Establishment of 14 off-campus branch offices
- ✓ Formation of Fenn Research & Development Institute (FRDI) to develop closer ties with local industry
- ✓ Improvement of faculty morale as noted by external reviewers through independent interviews
- ✓ Cost cutting measures that have put the College on a good financial footing
- ✓ Establishment of two new research centers
- ✓ Remodeling, renovation and security measures of our facilities

Back in the late 2006 and early 2007, we invented this 2010 future and made it happen. And we made it happen in spite of these recent years of economic turmoil which resulted in year-after-year budget cuts, loss of faculty and staff positions as well as other adverse conditions that the College faced. As a result of our collective efforts we have realized notable and measurable success on many fronts. No matter what set of statistics you use, you can reach that conclusion. We also defined a roadmap via our strategic plan to invent our future. The fact is that even when you clearly define where you want to go, you may still never get there. Getting there, more often than not, calls for hard work, persistence, creativity, agility and discipline to focus on your goals and not to waiver or get distracted by lesser important issues.

Constructing a strategic plan involving all internal and external stakeholders is an accomplishment by itself. However, implementing it requires hard work on the part of everyone involved. I meet on a regular basis with my staff and on a monthly basis with department chairs just to discuss each department's progress based on our plan and I am delighted to report that significant progress has already been made toward achieving our five-year goals.

In the area of enhancing the curriculum, several departments have made momentous and substantive changes to their existing curriculum, notable among them are the Civil and Environmental Engineering and Electrical and Computer engineering departments. Moreover,

the Engineering Technology department established a complete four-year Engineering Technology program, Chemical and Biomedical Engineering department constructed the curriculum for a Master's program in Biomedical Engineering and all engineering programs established the curriculum for accelerated 4+1 BS/MS programs.

In the area of research productivity, since my last year's State of the College Address, faculty have received additional grant funding from Ohio Plant Biotech Consortium, Algaeventure, NASA- Ohio Space Grant Consortium, NASA Glenn Research Center, National Science Foundation, American Society of Nondestructive Testing, Department of Energy, Department of Transportation, National Superconducting Cyclotron Laboratory at Michigan State University, Ohio Board of Regents, Rockwell Automation Corporation, Ohio Third Frontier, NASA (through Naval Academy), Ohio Department of Transportation, US Army General Technical Services, private endowments, Orbital Research, NASA (via University of Arizona) and American Diabetes Association. Several of these awards and endowments were at the level of about \$500,000 and more. The Wind Tower Project was completed and installed. Transportation Center received additional funding. Scholarly work in the area of engineering education continued through the Transportation Center, the Design and Innovation Center and Pathway to Engineering programs as well as through the Fenn Academy which received its own corporate funding. Our newly established Center for Advancements in Renewable Energy will also take part in the engineering education and outreach activities.

In the area of Relations with Industry, we continued to build a solid foundation for the newly formed Fenn Research & Development Institute (FRDI) by receiving university approval for a set of policies jointly developed by engineering faculty, University Office of General Counsel and Office of Sponsored Research Programs in order to facilitate the interactions among the faculty members and local industry. Moreover, we received funding from Rockwell Automation Corporation and started the participation of two graduate students at that company.

In the area of Marketing and Capital Fundraising, we have continued to receive endowments from private donors as well as major gifts from our alumni and supporters. The College has now experienced a five-year increase of 29% in total cash gifts which includes alumni, corporations, foundations and individuals. Particularly, individual giving has increased significantly in 2009. According to the latest report, i.e. July 1, 2009 to March 31, 2010, compared to the same period a year ago, the pledges received for the Fenn College of Engineering has increased by 45% - a significant increase by any measure. As our administrative structure has now taken roots, new programs are in place and as the mode of operations and procedures are established, I have shifted a greater portion of my time and attention to the College's external affairs, such as: fundraising, cultivating our relationship with our industry partners and establishing new ties with the region's corporations, our alumni and supporters.

Finally, in the area of Enrollment and Student Support, we have all worked as one team and consequently have shown superb results, surpassing anyone's expectations including our own. The enrollment figures speak for themselves. Just to share with you the latest figures, as of March 11, 2010 compared to the same period last year:

- Headcount (actual number of students) – up by 17.3% - the highest percentage gain among all CSU colleges
- Total Student Credit Hour Generation (SCH) – up by 16.3 % - the highest percentage gain among all CSU colleges
- Graduate Student Credit Hour Generation – up by 23.6% - the second highest percentage gain among all CSU colleges
- Undergraduate Student Credit Hour Generation – up by 13.6% - the highest percentage gain among all CSU colleges

These impressive figures come on top of consecutive semesters of earlier undergraduate gains which has more than doubled our new freshman enrollment since 2005 when we established the Fenn academy. Furthermore, as mentioned earlier, the mean grade point average of our incoming new freshman, to my recollection, has reached an all-time high and our retention rate has also increased. While we are jubilant and proud of these achievements of Fenn family, I must say that we also feel the stresses that inevitably result from such sudden growth. Therefore, we constantly look for additional resources to invest in our academic programs, not only to maintain their high quality standards and significant achievements, but also to help them grow.

While, I have summarized for you the collective efforts of our Fenn family, this year we have constructed a booklet that you received along with your program, as you entered this hall, which highlights the achievements of our individual departments with additional and more specific information. This booklet will also be available on our web site.

Now, looking forward, I think my signature ink is still not completely dried on the proposal that establishes the Center for Advancements in Renewable Energy. I look forward to the Center's accomplishments under the supervision of our newest endowed chair. We also look forward to working in that area as well as other areas, such as Fenn Research & Development Institute activities, with other CSU colleges. Clearly, we are in an age that not many significant achievements can take shape in isolation. Interdisciplinary collaboration is in fact a necessity in taking an idea from its theoretical and formative stage to a practical level. Let me share with you a fascinating story from one of our outstanding researchers whose experimental sample was recently taken to the International Space Station for further experimentation. He wrote to me regarding the difficult journey that his experimental sample travelled: "After being grown at CSU, [the sample travelled] to France for machining and integration, [then] to European Space Agency (Germany) for further integration with thermocouples and sealing into one of ESA Sample Cartridge Assembly (SCA), [then travelled] back to Houston for pay-load integration (as part of ESA-Low gradient Furnace and the NASA- Materials Science Research Rack), and then [went] to the Kennedy Space Center for launch by Columbia to the International Space Station only to be re-melted and directionally solidified in low gravity, [it was then] brought back to [earth to] the Kennedy Space Center by [Shuttle] Endeavor, [and was] taken to Marshall Space Flight center (Huntsville) for decoupling the sample from the SCA, and finally brought back to CSU."

Difficult journey – indeed. After the title of a Hollywood movie, we could call this one: Planes, Trains, Automobiles and Shuttles. A fascinating story that well illustrates the point that we must, more than ever, remain cognizant of the value of working in collaboration with others to achieve

impressive results. And working in collaboration with others is the name of the game at the Fenn Academy where we plan to continue building upon the success of our last year's summer camp and work with our partner high schools and corporate supporters to expand the summer camp program to locations in three counties, namely Cuyahoga (main campus), Geauga and Lorain.

Another example of collaboration is our newly established Center for STEMM Education which was recently funded by Provost Mearns and will bring together the expertise among three CSU colleges, namely: Engineering, Science and Education. This new center will serve as a coordinating body to encourage innovative Science, Technology, Engineering, Mathematics and Medicine education programs, strengthen community partnerships and the K-12 student pipeline, increase grant activity and support promising programs related to STEMM.

Taking collaboration to a different dimension, I have proposed the establishment of Fenn International Programs which is at its early stages of formation and can potentially include a study abroad program, on-line courses, faculty and scholar exchange and an international co-op program. Presently, we are conducting a survey to determine the level of student interest and potential participation. As a result of our recent partnership with Bachceshir University in Istanbul, we are anticipating a cohort of students interested in our Biomedical Engineering program and potentially other programs and our new partnership with Heidenheim University in Germany can open the door for our international co-op program.

In describing the state of the College, I have looked at the recent past, present statistics and results of various program implementations and have looked forward – at least the next few years. We are on the right course - a path that we collectively developed and one that has already shown impressive results. Not an easy path mind you – to be sure we have had our share of bumps and bruises. Change is not easy. In time, we all find our comfort zones and show a tendency to resist change. In fact, I believe a recent study showed that some 80% of our daily actions are repetitions. As I stated earlier, we only accept change when we recognize that the price of stagnation is steep particularly when the world around us is changing ever so rapidly. Someone said that one's character is not developed during a crisis, it is simply displayed. I think this can be said about a collection of people as well and we, the Fenn College family, have displayed our character. There is still much to be done, but we have taken the tough confidence-building steps and in occasions such as this, we should celebrate these achievements, remind ourselves of the journey ahead and reaffirm our determination to make Fenn College an even more outstanding engineering school – one capable of making significant contributions to the regional and national economic development. And it is for me, in occasions like this, to thank the faculty, staff, students and supporters of Fenn who have collectively made these achievements possible. Thank you.

