



Building and Sustaining

Mr. Ed Alef, Rochester College

RESUME Edward Raymond Alef edalef@att.net WORK EXPERIENCE: ●Walsh College (Troy, Mi): Vice-President and First Dean, 1970-80 ●Derderian & Co, CPAs (Troy, Mi): Principal, 1980-84 ●General Motors Corporation (Detroit, Mi): Technical Fellow-Education and Founder of the General Motors Global Technical Education Program, 1984-08 ●Rochester College (Rochester, Mi): Adjunct Faculty; General Motors Corporation: Academic Counsel, 2008 to Present EDUCATION: ●BBA, MBA, Global Energy Graduate Certificate: University of Michigan-Ann Arbor ●BACCT: Walsh College ●MA: Wayne State University ●MSES: Rensselaer Polytechnic Institute ●MS: Indiana University ●Strategic Decision & Risk Management Graduate Certificate: Stanford University ●Directed Research in Lean and Strategic Continuing Education: Purdue University & Accelerated Testing: Iowa State University SELECTED REFERENCES: ●T. Bergquist, Director: Chalmers University (Sweden) ●D. Berg, Professor and Past President: Rensselaer Polytechnic Institute ●A. DiPaulo, Dean: Stanford University ●H. Peng, Professor and Director: University of Michigan-Ann Arbor ●M. Russo-Llopert, Professor: Carnegie Mellon University ●T. Stephens, Retired Vice-Chairman: General Motors Company PERSONAL AWARDS AND RECOGNITIONS: ●General Motors Award of Excellence (2) ●General Motors President's Award for Outstanding Performance (5) ●Recognition Awards from Foundations, Professional Societies, and Universities (23)

PUBLICATIONS: ●Quantitative Methods: Tools for More Effective Business Decisions, Rochester College, 4th Printing, 2011 ●Learning Factory, University Press, 2nd Printing, 1996 ●"Small Business Computerization", The Detroit and the Michigan Association of Certified Public Accountants (MACPA), October, 1980 ●"Certifying Senior Technical Professionals", Industry and Higher Education, August, 1997 ●"Successful University Partnerships", American Society for Engineering Education (ASEE) 1997 Conference ●"Optimizing Graduate Education for Today's Practicing Engineers", Institute of Electrical and Electronics Engineers (IEEE) 1997 Conference ●"Successful Model for Corporate-University Collaboration", International Association for Continuing Engineering education (IACEE), 2001 5th World Conference, in partnership with the University of Michigan-Ann Arbor ●"Designing Engineer Educational Partnership Model", IACEE 2001 5th World Conference, in partnership with Michigan Technological University ●"Reengineering a Successful Graduate Program", IACEE 2001 5th World Conference, in partnership with Rensselaer Polytechnic Institute ●"Developing Product and Manufacturing Integration Engineers", IACEE 2001 5th World Conference, in partnership with Purdue University ●"34 Top Global Universities with Research Aligned to the Automotive and Automotive-Related Industries World-Wide", GM Research Memorandum 220-001, 2009 ●"Building Organizational Competitive Advantages with Strategically Aligned Technical Degrees", IEEE 2010 23rd Annual Computer Science and Software Engineering Education and Training Conference, in partnership with Carnegie Mellon University ●"Enhancing Engineering Education Using Strategic Corporate-University Partnerships", Conference for Industry and Education Collaboration (CIEC), CIEC 2011 Conference, in partnership with General Motors Company CIVIC ACTIVITIES: ●Member Emeritus: Walsh College Curriculum Development Committee ●Fund-Raiser: Ashley's Friends and Ronald McDonald House Charities ●Peer Review Board Member: American Society for Engineering Education (ASEE) and Conference for Software Engineering Education and Training (CSEE&T)

Dr. Soma Chakrabarti, University of Kansas

Dr. Soma Chakrabarti is the director of the Center for Engineering and Interdisciplinary Professional Education (CEIPE) and the associate director of Continuing Education at the University of Kansas. She provides strategic direction in business development to the units of Aerospace Short Course Program, Engineering Technology Certificate Program, Engineering Management Certificate Program, engineering conferences and interdisciplinary engineering short courses, and develops and implements industry-academia-government collaborations in continuing engineering education. As an associate director of KU Continuing Education, she is responsible for co-developing and implementing strategic initiatives in



international partnerships, new program development and university-industry collaborations. She has a doctorate in biochemical engineering from the Indian Institute of Technology, Delhi.

BUILDING AND SUSTAINING A CORE VALUED TECHNICAL CONTINUING EDUCATION PROGRAM

Edward R. Alef
Adjunct Faculty, Rochester College &
Retired Technical Fellow – Education, General Motors Corporation

ABSTRACT

How would you build and sustain a technical continuing education program (TCEP) that would be positioned as a critical core value, not just an employee benefit, within an organization?

Additionally, how would you assure that this program maintained its critical core value status within that organization long after the founding innovators and champions who instilled passion and vision into it are retired from the scene? In other words, how would you imbed this program into the organization's cultural make-up?

This article outlines the mission, core values, and operating philosophy of such a program that answers these two questions with inputs and conclusions from two main sources.

The first source is the chronicled experience gained from the General Motors Technical Education Program (TEP) from inception through growth and cultural acceptance as a core value within General Motors Corporation (GM). This program captured over 30 national and international awards, realized over \$300M in cost savings, generated multiple patents, survived the GM bankruptcy, and outlived Pontiac, SAAB, Saturn, and Oldsmobile all within a twenty five year span. But it was by no means ideal and necessitated flexibility, continuous improvement and planned innovation in areas vital to sustaining strength in its core value positioning. Still, it possessed strong and admirable attributes that help comprise the TCEP model presented here.

The second source is a compilation and synthesis of the strengths of over 650 technical continuing education programs operated by other national and international organizations. These are articulated by nine universities with successful, high-quality distance learning continuing education program experiences with these same organizations.

The criterion for selection for strengths within the TCEP model are based on sound evidence that these strengths would spell the difference between survival and death in periods of sever budget cuts where core value priority rather than “favorite son” positioning is the real and only measure of the final result.

These two sources of input combine to provide the components for a TCEP model program that has greater potential for long term impact and sustainability than any individual participant

program. Some of the results presented in this paper will likely be anticipated by the reader. Some may be surprising. But all of the conclusions capsulated within the resultant model contribute to an impactful and sustainable program.

Introduction:

Let's assume that you are an organization whose technical leadership sees the necessity in establishing and maintaining a technical continuing education program (TCEP) for its workforce in order to effectively and efficiently achieve its strategic technical goals. Further, let's assume that this technical leadership also sees the necessity to assure career path plans and processes that integrate with the development and retention of a valued workforce that will benefit from the knowledge derived by such a TCEP. These two assumptions help build the foundation for the successful creation and continuation of a TCEP that will add value to the organization and the employee. Without this dual benefit to the employee and organization, the results of a sustainable, value add TCEP will never be fully realized.

So, let's delineate a recipe for success that is founded on the strengths of the General Motors (GM) Technical Education Program (TEP) and over 650 other technical education programs capsulated by nine universities who partner with the organizations that sponsor these same programs. These universities who offered insight into the strongest attributes needed by a TCEP to produce a sustainable, value-added contribution are listed below:

1. Carnegie Mellon University
2. Cornell University
3. Indiana University
4. Kansas, University of
5. Kettering University
6. Michigan – Ann Arbor, University of
7. Missouri University of Science and Technology
8. Purdue University
9. Wisconsin – Madison, University of

The process by which these universities offered input to this recipe for success is detailed in Table I.

Mission:

The first ingredient is the mission statement as this provides focus for all ensuing endeavors.

“Add value to the organization and the individual by cultivating the application of knowledge learned to improve profitability, performance, and upward mobility.”

Clearly, the concept of a dual benefit to both the organization and the individual are captured in this mission. The organization experiences improved profitability and performance through the

application of knowledge learned by the individual. The individual receives rewards for these improvements with awards, salary increases, promotions, and a technical graduate degree.

As was prevalent in the GM TEP, using university partners to deliver the curriculum within the construct of a graduate technical degree proves to be as strong a benefit to the employee as the monetary incentives.

Core Values:

The core values define the main thrust of energy to execute the mission. These are:

- 1. Tailored and Practically-Oriented Curriculum**
- 2. Persistent Value-Added Knowledge Applications**
- 3. Career Development Integration**

A tailored and practically-oriented curriculum is the single-most important first step to building a technically capable workforce that can achieve the strategic technical goals of the organization. This does not imply that the curriculum is a training manual but rather comprises a solidly based, theory-oriented content with generous sections devoted to application opportunities as these apply to the industry of the particular organization as well as the strategies embodied by that same organization. Tailoring is essential to separate applications capabilities from esoteric exercises. The organization's technical leadership has the responsibility to lead the effort for this curriculum development. And university faculty possessing consulting experience and applied research make excellent choices for partnering with the leadership to tailor and teach this curriculum. Note that the actual content, by necessity, needs to vary with the organization's technical strategies. No one common core applied across many industries or even within one industry will offer as an effective value add as an individually tailored curriculum geared to the strategic direction of the individual organization.

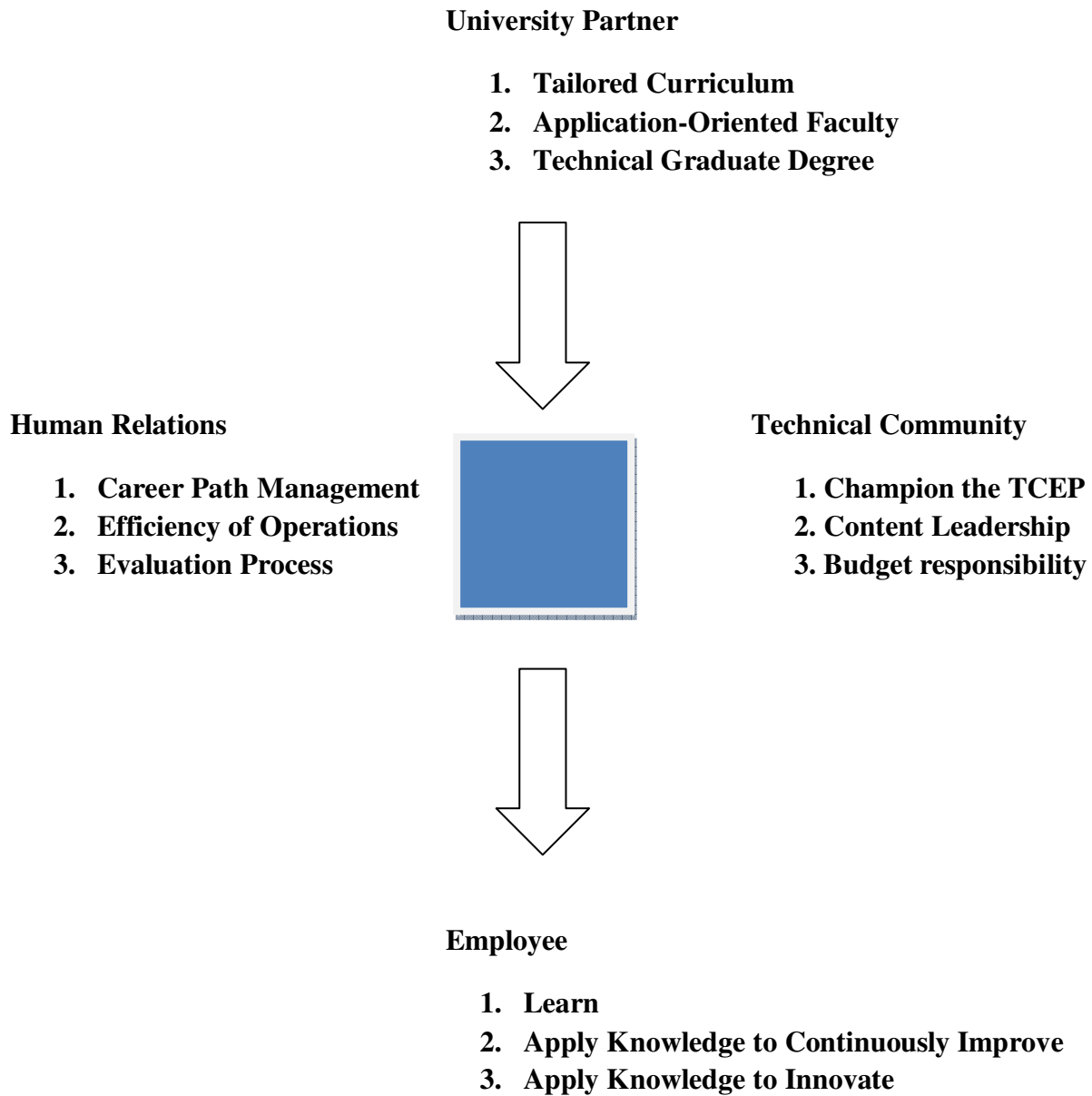
Persistent value-added knowledge applications need encouragement and cultivation by both the teaching faculty and the technical community leadership. Building formal application projects into course performance and syllabus requirements as well as organizational award and reward systems provide the atmosphere and the culture for continuous improvements and innovations. Knowledge applications are essential for building strength and justification for defining the TCEP as a high priority strategic enabler and cultural acceptance as paramount to the life of the organization. The absence of knowledge applications relegates the TCEP to simply a set of academic exercises with a much lesser value to the organization.

Career development integration addresses the benefit to the employee. Learning is work. And learning to apply is even harder work. So there needs to be a reward system in place to provide the incentive to learn. One big incentive is an advanced degree. But this alone will not realize the potential gains without integrating the learning into career path development.

Operating Philosophy:

The most efficient way to operate an effective and efficient TCEP is with teamwork. The principle players on the team are:

- 1. Technical Community Leadership
- 2. University Partner(s)
- 3. Human Resource Management
- 4. Employee



TEAM EXECUTION OF CORE VALUES

University Partner: The university plays a key role in the development and tailoring of the curriculum to the strategic needs of the organization and in integrating formal opportunities for knowledge applications through course required project assignments resulting in continuous improvements and patentable innovations. These efforts need to be integrated into the university's graduate degree school so that the ensuing degree is part of the normal portfolio of degree offerings by that university.

Admissions, registration, and graduation requirements of the tailored degree all need to align within the university structure of academic policies and procedures while affording the flexibility to accommodate the specific requirements of the organization.

The delivery of the coursework, likely within some distance-learning format, opens a communication line between the faculty and the organization that can result in enhanced curriculum content and a strengthening of research opportunities.

The resultant effort should not only accommodate the requirements of the organization but should enhance the curriculum offerings within the other degree programs offered at the university.

Technical Community: Engineering, Manufacturing, and Information Technology own the CTEP and champion its establishment, growth, curriculum direction, and budget support. This community is the principle driver and recipient of the rewards. The technical leaders steer the curriculum development in partnership with the respective university faculty, cultivate the atmosphere and conditions for knowledge applications, team with the faculty for project definition to complete course requirements while offering value add avenues for these knowledge applications, and provide the necessary budget dollars for operations.

This community assures that the TCEP output is efficient and effective in continuous improvement and innovation applications while aligning with the strategic technical direction of the organization.

This community works with the human resource management (HR) staff who manages the operations of the CTEP program effort and provides key input into the performance evaluation process for these technical employee-students.

HR Relations: The HR staff runs the operations of the CTEP. This staff coordinates the collaboration efforts between the university and the technical community, provides for a seamless delivery of the coursework, and manages the employee-university system as this relates to admissions, registration, course scheduling, graduation, and the performance review process interface.

This is the most capable staff within the organization available for this important team function as this staff can best integrate the knowledge learning and application process to the total performance review process.

Also, as HR employees, there is opportunity for those HR staff people who manage the CTEP program for the technical community to have a legitimate career path not affordable to them if this staff were reporting within the technical community itself.

Employee: The employee is the recipient of the greatest rewards and carries the greatest responsibility. The employee has an opportunity to earn a graduate technical degree, learn a tailored program of study, and offer knowledge applications that can bring great benefit to the organization and themselves.

The employee also is responsible to devote the time and energy to learn technical material and find creative ways to use the knowledge learned for continuous improvements and innovations. This takes not only hard work but the understanding that implementation is not always automatic and receptive within an organization and may need the right arguments, justification, and planning to implement the proposed changes that the knowledge applications imply.

The CTEP Team: For optimal efficiency, all four team members must work together for the common goal: execution of the mission. Each team member has a respective set of responsibilities and realm of authority. Managing the overlapping and “gray” areas is the overall responsibility of the technical community, ideally delegated to a technical manager who reports directly to a key CTEP Champion on all CTEP issues. Table II pictures this dynamic.

Conclusion:

From the entirety of the input submitted by the universities representing over 650 programs as well as the GM experience, the TCEP model presented here comprises the strengths that should result in a sustainable program that is a core value to the organization.

The mission statement and core values encompass the dual benefit to the organization and the employee. If there is no dual benefit, there is no real sustainability. The university as the knowledge deliverer and enabler for the knowledge application needs to be a full partner in this value chain, not just a degree supplier.

One key team member added to the GM TEP model is the inclusion of HR as a primary team member to:

- a) integrate the TCEP into the organization’s performance evaluation process;
- b) provide real career path opportunities for the staff who operates the CTEP on a daily basis;

- c) free the technical community from the time necessary to operate the CTEP and allocate this responsibility to the staff better equipped to execute the associated functions in a much more efficient manner; and
- d) document input for raises and promotions to the technical community encompassing all facets of the employee's performance.

Cooperation among the four team members and their determination to execute the mission will result in a sustainable CTEP that will add value to all the members as well as the organization – a sound recipe for success.

Acknowledgements:

A special thanks to the nine universities who provided valuable input and counsel to the direction of this paper.

TABLE I

Process for University Data Accumulation and Synthesis

- 1. Identify universities (22) with a history of successful partnerships with organizations with respect to successful, sustainable distance learning, continuing technical education programs.**
- 2. Ask the directors of these programs to respond by email to two open-ended questions:**
 - a) “How many companies, government agencies, non-profit institutions, and other related organizations do you represent in the response to the second question?”**
 - b) “What one characteristic would you rank the most important for a continuing technical education program to possess for a sustainable, value-added contribution to its organization? If there is more than one, please rank them in order with most important ranked number one.”**
- 3. Offer telephone communication for those universities who wish to respond verbally.**
- 4. Compile the responses into common categories to define the mission and core values of this program.**
- 5. Assure confidentiality to prevent associating a particular university response to a particular organization.**
- 6. Share the composite of the results with the participating universities (9) upon notification of publication.**

TABLE II

Program Teamwork Execution

