# Robert L. Alworth

## 2009 to 2019 – University of Notre dame
## College of Engineering and College of Science

### '09 to '11 Associate Dean – Entrepreneurship and Innovation Program

Responsible for the development and implementation of the Master of Science Program in Engineering, Science and Technology Entrepreneurship. This innovative program provides STEM graduates the opportunity to learn the skills required to commercialize new scientific and engineering inventions. The curriculum is structured to address the unique challenges of science and engineering based innovation and business development.

### '09 to '19 Director – Integrated Engineering and Business Practices Curriculum

The curriculum provides the engineering students the opportunity to learn how engineers function in the world of business and offers a multi-course sequence. The courses increase the effectiveness of engineering graduates by developing an understanding of the dynamics of business operations.

## 1989 to 2009 S&C Electric Company - Chicago, IL

S&C is a privately held designer and manufacturer of high-voltage electrical switchgear, electric utility automation controls, and power quality products with revenues of $600 million and over 2300 employees. A primary area of focus is developing technologies for the emerging Electrical Smart Grid. With ten primary locations in five countries, S&C's core technologies are complex electro-mechanical and electronic equipment marketed through global channels. Factories utilize diverse manufacturing technologies including CNC machining, automated sheet metal fabrication, automated painting, automated plating, thermoset molding and a diverse array of equipment assembly lines.

### '08 to '09 Senior Vice President – International Operations and Global Sourcing

With both a major opportunity to grow market share outside the U.S. and an increased need to globalize S&C's manufacturing and supply-chain operations, the CEO and I agreed that S&C needed to increase focus and leadership in developing global markets. An in-depth understanding of our customers, product development, manufacturing capabilities and business goals was considered required for this task. I assumed responsibility for all operations outside the U.S. and Canada. These responsibilities include leading S&C subsidiaries in Mexico, Brazil, China and the United Kingdom; leading all sales and marketing activities outside the U.S. and Canada; and leading S&C's internal component manufacturing and global supply chain operations both within and outside the U.S.

### '97 to '08 Senior Vice President – Product Divisions

I was promoted to lead all of S&C's U.S.-based businesses and effectively served as chief operating officer. Following several acquisitions, this responsibility grew to encompass six businesses generating over $500 million in revenues with five locations in the U.S.

- Grew revenues by 93% and profitability by over 200% from 1997 through 2007.
- Co-led design team to introduce revolutionary high-voltage testing and protection equipment. This technology uses proprietary fault testing technology to prevent automated circuit restoration devices from closing into faulted circuits. Customer reaction to the IntelliRupter PulseCloser® was the most successful in the history of S&C.
- Utilized new product technologies and customer alliances to increase market share during both strong and weak economic periods. Technologies developed included a revolutionary distributed intelligence system for the Smart Grid, which automatically reconfigures utility distribution systems in response to short circuits and

other disturbances. Sales of products for automating the electric grid have enjoyed double-digit growth year-over-year since 1997.

- Acquired four businesses with unique technologies and integrated these acquisitions into S&C, establishing S&C as a leader in the $300 million market for large-scale power quality and reliability solutions. These businesses also provided the technology for S&C products that enable the connection of renewable energy sources, such as wind power and large-scale electrical energy storage, to the electric grid.
- Spearheaded S&C's drive into sophisticated power-electronics and controls technology to expand both served markets as well as core competencies. Technologies developed include the world's largest single-unit uninterruptible power supply (UPS) for whole-site power-quality protection, electric grid support devices for interconnection of renewable generation sources such as wind power, and large scale storage systems for electrical energy. Power-electronics capability also was a primary enabler of the IntelliRupter PulseCloser fault identification technology.
- Revamped manufacturing operations in our vertically integrated factories. The implementation of focused factories in component fabrication operations and continuing improvements in lean manufacturing techniques resulted in reduced operation cycle times, improved on-time performance, and reduced inventories with improvements of over 70% in key metrics.
- Initiated and developed internal training curriculum for technical professionals. Courses include training in products, customer applications, electric utility design practices, manufacturing processes, and cost accounting. Courses range from ½ day to three weeks in duration with a current curriculum of 14 classes.
- Created and led a group to facilitate the assimilation of new technical professionals into S&C and to aid employee retention. This team provides such professionals with opportunities to build relationships with other S&Cers, programs to learn more about S&C's business (ranging from customer needs to the competitive environment), and help with general acclimation to the S&C culture.
- Created a development program for high-potential professional employees. The program incorporates internal assignments and training, professional educational opportunities, and executive coaching with frequent input from key S&C leaders.

## '95 to '97 Vice President – MEG Products Division

In 1995 we restructured S&C, converting the functional organization into a business-unit structure. The reorganization was undertaken to create a company more responsive to customer needs by moving key decision makers, with full authority for critical functions, closer to the customer. I assumed the general management responsibility for one of the three core businesses reporting to the CEO. Its products were metal-enclosed and pad-mounted switchgear for the electric utility and non-utility markets.

- Grew revenues by 36% in a flat market by reducing lead-times over 50%, providing customer–driven special products, and implementing market-driven pricing strategies. Led development program to bring to market a new concept in underground switchgear (Vista®) which has grown to be a $70 Million business.
- Introduced the first S&C power quality product (PureWave® Source-Transfer System), establishing the S&C power quality business. This product was the first application of power-electronics technology at S&C. This effort was the foundation for three acquisitions in succeeding years to position S&C as a broad-based provider of large-scale power quality solutions.
- Exceeded operational targets, with above 95% on-time shipping performance, tight expense control, and 100% improvement in key quality metrics.
- Created a marketing program to increase penetration of the non-utility switchgear market. Growth in the non-utility market continues as a primary source of revenue and profitability growth.
- Led the construction of an $8 million facility to expand and upgrade polymer molding capacity.

## '89 to '95 Vice President – Manufacturing Division

I was recruited to S&C to replace the retiring leader of manufacturing. Key attractions of S&C were the opportunity to assist in the leadership of a business of its size with an industry-leading reputation, along with the environment of private ownership. Another primary factor was the opportunity to provide a stable geographic environment for my family as my daughters entered high school. Led all manufacturing operations for a 46-acre, 1,000,000 sq. ft. facility with a 900-person, non-union workforce.

- Defined and implemented concurrent engineering to accelerate product development while applying continuous-flow manufacturing technology.
- Radically improved all manufacturing operations in the large, heavily vertically integrated job shop. Implementation on one major product segment resulted in 50% lead-time reduction, manufacturing cycle time reductions of 70%, doubling of first pass yield, productivity improvements of over 10%, and WIP inventory reductions up to 80%.
- While maintaining full support and engagement of the production team, eliminated plant-wide, piecework incentive system to facilitate team building essential to the implementation of lean manufacturing concepts.
- Increased customer responsiveness and moved on-time shipping performance to over 95% from historical levels of 30-50%.
- Directed the design and installation of major capital equipment to improve quality and productivity as well as assure compliance with environmental imperatives. These projects included automated painting systems, automated sheet metal fabrication, machining centers, and flexible manufacturing systems.

## 1974 - 1989 GENERAL ELECTRIC CO.

**'88 – '89** **GE Plastics,** Pittsfield, MA
**General Manager – Crystalline Polymers**

Assumed product management position with matrixed responsibility for manufacturing, sales, marketing and R & D of the crystalline polymers business (Valox, Xenoy, Lomod). On a global revenue base of $500 million, sales increased 35% due to new product introductions and share increase.

**'86 – '88** **GE Plastics,** Mt. Vernon, IN
**General Manager & Site Manager**

Recruited by GE Plastics to take responsibility for all manufacturing activities for three businesses – Lexan, Valox/Zenoy and Ultem – with sales of over $800 million and 1600 employees on a non-union plant site. Site responsibilities included 12 independent plants on 1000 acres. Record production rates achieved with double digit productivity gains while implementing industry-leading zero toxic gas emissions strategy.

**'83 – '86** **GE Electromaterials,** Coshocton, OH

Manufacturer of copper-clad laminates for use as printed circuit board substrates with revenues of $100 to $150 million. Primary focus was helping to lead business through major business downturn while recovering market share and initiating advanced product development program.

’85 Manager – Marketing, Sales & Technology *(R&D)*
’83 Manager – Manufacturing & Technology *(R&D)*

**’76 – ’83 GE Superabrasives,** Columbus, OH

Supplier of manufactured diamond, cubic boron nitride (CBN), and polycrystalline products with revenues over $100 million. Co-led design, construction and start-up of major capacity expansions in Columbus and a grassroots factory in Ireland. Co-led the introduction of new products and manufacturing technology.

’82 Manager – Production Operations
‘80 Manager – Manufacturing Engineering
’78 Manager – Recovery and Classification Engineering
’76 Manufacturing Engineer, Pressure Vessels

**’74 – ’76 GE Chem-Met Management Program**
Columbus, OH and Detroit, MI

## Education and Training

- M.S. Materials Science & Engineering, Cornell University, Ithaca, NY, 1974
  Thesis: Investigation of Technique with Which to Perform Capacitance Measurements at Ultra-High Pressure
- B.S. Mechanical Engineering, University of Notre Dame, South Bend, IN, 1972
- University of Chicago Executive Leadership Course, 2001
- University of Chicago Executive Marketing Course, 1995
- GE Executive Development Course, 1985
- GE Manager of Manufacturing Course (IMPACT), 1982
- GE Manufacturing Engineering Operations Course, 1978
- GE Management Practices, 1977
- GE Introduction to Finance, 1974

## Honors

- John McMullen Graduate Fellowship, Cornell University
- Magna Cum Laude, University of Notre Dame
- Pi Tau Sigma Honor Society, President of the Sigma Beta Chapter at Notre Dame, 1971-72

## Associations and Licenses

- Held Professional Engineer’s license in Ohio for over 30 years
- IEEE Membership
  - Power and Energy Society
  - Industrial Applications Society
- The Executives’ Club of Chicago
- NEMA Power Equipment Division
- The Chicago Council on Global Affairs
- Advisory Committee - Northwestern University Manufacturing Engineering Program - 1994-2001
- Board of Directors - Indiana Chamber of Commerce 1988
- Board of Directors - Indiana Manufacturing Association 1987-88
- Board of Directors - University of Southern Indiana Foundation 1988
- Board of Directors - Peoples Bank and Trust Company - 1987-88