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## Penn State Smeal CMTOC: Forty-Ninth Meeting

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### "New Tools, Methods, And Concepts To Overcome The Limits Of Time And Location In Developing New Products"

Charles Rochester,

Director, Engineering Control Products  
Schneider Electric North American

Schneider Electric is a world leader in electrical distribution, industrial control and automation, with a presence in 130 countries and almost \$9 billion in sales that are generated mainly in North America and Europe. Square D (American) merged with Schneider Electric (French) in the late 1980s. Charles Rochester is located in Schneider Electric North America (SENA), which has \$3 billion in sales, 17,700 employees, and 31 manufacturing facilities. SENA operates in two key businesses, electrical distribution (low, medium, and high voltage switching gear), and automation & industrial control (programmable logical controllers, contractors, circuit breakers).

SENA realized that a world-class product development process required the integration of its product and process databases. It concluded that for this to happen it needed to eliminate its SBUs and centralize its organizational functions so that there would be common engineering, marketing, finance, etc. As a result of growth by mergers and acquisitions, SENA had accumulated many business that had different ERP systems, databases, etc. Previously, twelve design centers had focused on specific plants, which led to an inappropriate allocation of design, engineering and other human and capital resources. SENA wanted to transition from a "product-centric" organization to a "competency-centric organization". To do this, SENA consolidated its twelve design centers into three, each of which focused on deploying its competencies virtually throughout the organization. In this way, SENA could tap sources of talent in remote locations throughout the company. The three design centers were located in Nashville, TN, Raleigh, NC and Cedar Rapids, IA. While each center focused on a set of plants, there were some common issues that all dealt with, such as the transition from electro-mechanical devices to electronics.

SENA's consolidation strategy facilitated the development of world-class skills because of better focus and economies of scale, and prioritization of projects so that sufficient design and manufacturing resources were available where needed. Corporate finance, purchasing were able to provide better support to engineering also. Many challenges were created by this strategy. For example, there was difficulty in managing and accessing part data remotely, mainly due to the multiple MCAD platforms (Medusa, Catia, AutoCad, Computervision), change management systems (ECO/ECN), and MRP systems (inventory).

One of the first major questions concerned what product data should be carried into the new system. There was thirty years of legacy data that was not well maintained. Pro-Engineer became the new standard. Another challenge was to consolidate the component and standard parts item masters and allow quick and easy remote access. This required procedures for automatically assigning part numbers and assemblies. SENA also had to improve its EC workflow management process.

If SENA was to succeed in minimizing product development cycle time and maximizing part reuse, it needed common, fast access to all item masters in North America. In turn, procedures were required to control the addition of new parts and targets were needed for preferred parts (50%). The change control process also needed to be improved, and support was required for virtual teams so that design, manufacturing, etc. could exchange data. SENA's current systems were outmoded. They were capable of managing only purchased parts, but not fabricated parts. Their systems also had limited graphics and search capabilities. There was no company-wide basis

for parts entry, access, approvals, preferred parts identification, no metric for parts reuse, etc. Significant effort was undertaken to remedy these problems, including the selection of parts (mechanical and electrical) based on attributes, management and cross-functional teams, etc.

SENA introduced two major initiatives to help them deal with its challenges; PRIME (Parts Reuse and Information System for the Enterprise System) and PUMP (Product Update Management Process). PRIME uses Aspect Explore as the basis for a unified repository for all parts (attributes and number generation), supplier, and design reuse data. It is Web-based software with a powerful search engine, e.g., what parts have similar or different attributes). PUMP led to consolidation of SENA's multiple change management processes into a single, simple process. Parametric Technologies' Windchill software provided the model for change management, document management. In order for Windchill to work effectively, employees had to agree on what attributes were important and on a common language for parts. Aspect Explore and Windchill are linked indirectly through CAD and PDM databases

PRIME/PUMP generated \$1 million in savings from its first experiment to rationalize parts. They now have streamlined parts inventory, eliminated redundancies, reduced the cycle time of change management, etc. Now that PRIME/PUMP have given SENA the capability to manage data and develop enhancements to existing products better, the next step is to improve the innovation process by working closely with customers so that products can be "engineered-to-order."

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