Searching for Models

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The traditional role for many APICS members has been manager responsible for determining the optimal levels of inventory and service. In this role, APICS members have made significant contributions to company profits through the effective application of knowledge and techniques. The certification programs, CPIM and CIRM, have become a proven means to educate practitioners and to propagate knowledge in a structured manner that preserves the integrity of the profession.

Through the years, the certification programs have adapted to many new technological innovations such as MPR, MRPII, ERP, JIT, and APS. These innovations are roughly classified into two groups, technique –oriented or systems-oriented. In the past, the society has done a good job in balancing resources to develop each of these two areas. However, recent developments in information technology have the potential to shift emphasis toward systems-oriented solutions. In most cases, this means the application of sophisticated mathematical models to achieve better control and coordination of the complex supply chains of the future.

Historically, systems based solutions were implemented using packaged computer software. The hope was that propriety computer packages would be able to deal with a set of standard business processes common to many firms. Although this approach proved to be better than writing custom computer programs, there remained many flexibility issues involving modifications, new releases, and fundamental changes in business processes.

New developments in information technology offer the promise of overcoming the limitations of packaged software. For some time, computer scientists have pondered how to achieve *user centric* computing. In this case, a manager or analyst would formulate a specific problem and allow a computing system to design the solution automatically. As business processes change, and new types of problems arise, managers would go through a re-definition procedure resulting in a new automatic solution. With this scenario, the search time to find models that apply them to a specific problem would decrease dramatically becoming an automatic process.

The move to open standards in many areas of computer science will accelerate the development of automated solution methods. This will lead to greater integration in business. Such projects as Auto-ID Labs at MIT strive to link the physical world using open standards. Other projects, currently being organized, will go a step further and link the world of abstractions, including mathematical models.

Major computer companies have recognized this trend by making important announcements on the future development of automated solutions. Recently *The Financial Times* (Simon London, 10/10/03) reported that Sam Palmisano of IBM "laid out his vision for computer systems that are self-healing or 'autonomic,' linked in giant 'grids' and available 'on demand,' like water or electric utilities."

In this bold new environment of computing power, the traditional role of APICS members will change substantially. Former jobs that emphasized hands-on operational leadership and day-to-day oversight will be supplanted by jobs with an orientation toward problem definition, employee training, and the implementation of automatically generated solutions.

With the search cost for models likely to decrease, APICS members will have a wealth of computing power to solve a wide range of practical problems. No longer will mathematical models be a mystery, or inaccessible to the practitioner. To take advantage of these opportunities, APICS members will need to consider how to organize the efforts of volunteers in the face of information technology advances that will radically change the jobs of production and inventory management professionals.

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