Chapter II

The Road to ERP — Has Industry Learned or Revolved Back to the Start?

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ABSTRACT

Current thinking and usage of materials management is not to view any individual materials management technique singularly as a panacea in itself, but rather to view the merits of using combinations of these techniques in an effective integrated manner: for example use MRPII at the top level MPS planning stage, JIT at the next level and Kanban (which utilises stock replenishment technique) at the operations level, while at the same time using EOQ and ABC analysis to control the cost of expensive component usage. This chapter traces the development of materials management techniques from the time of the industrial revolution to present day ERP systems. It examines the role and function of the more significant materials and inventory control techniques and explains how each has emerged and has been used as the basis for the development of successive improved techniques. This chapter also comments on the stand-alone nature of each of the techniques. The chapter however concludes with the suggestion that it is only by focusing on an enterprise
as a complete system, and not as series of independent sub-systems, and to plan accordingly, that will lead organisations to the next higher level of materials management—Enterprise Resource Planning (ERP).

INTRODUCTION

Explored in this chapter is the evolution of materials and inventory control from the time of the Industrial Revolution to the present-day usage of MRPII and JIT (just in time), as found at the cores of many ERP packages. In this chapter, the need for material and inventory control is examined, and the major developments in this field that provide today’s businesses with the basic tools for controlling material and its usage are assessed. Greiner (1998) developed a model of the evolution and revolution of organizations from a management perspective. In this chapter, it is suggested that the same principles apply to the evolution and revolution of materials control within an organization.

Thus, in this chapter, the progression from perceived lack of controls to the reduction of inventory costs and the increase of control over usage, through JIT, is demonstrated. Also, promoted in this chapter is the understanding of a range of issues, including the following:

- The contribution of materials and inventory control to business performance.
- The history of materials and inventory control from the Industrial Revolution to the start of the 21st century.
- The development of materials control techniques from Stock Replenishment to SCM.
- The way the use and development of inventory control techniques leads to SCM and ERP.
- The various inventory control techniques are not mutually exclusive, and some of these techniques complement each other.
- The effective use of these techniques can lead to a more holistic, integrated materials management system for organizations.

BACKGROUND — THE NEED FOR MATERIALS CONTROL

When considering the term “materials control,” the narrower term “inventory control” can also be used. The significant importance of material/inventory control is that for most organizations providing products or services to
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