CRITICAL LAN SUCCESS FACTORS: AN IMPLEMENTATION MODEL

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The Local Area Network (LAN) Implementation Project Life Cycle Model presented in this paper integrates various checklists of LAN specific implementation considerations with the critical success factors (CSFs) associated with the various stages of the project life cycle. This model addresses the sequence and the timing of various implementation tasks based on the project CSFs over the various implementation life cycle stages. This model provides a superior model for practitioners to implement their local area networks, as it provides focus in addressing the factors critical for success. This model also provides a superior basis for approaching research work in comparison with the current checklists, as it highlights the tasks associated with the CSFs over each phase of the LAN implementation project life cycle.

The implementation of Local Area Networks (LANs) are expected to require the allocation of significant and increasing amounts of U.S. business resources in the next few years. Models for implementing LANs are currently little more than checklists of reminders, and do not properly address the sequence of implementation or the relative importance of the factors critical for implementation success over the implementation life cycle. Many authors (Brandt, 1989; Gallegos, 1987; Fireworker & Stewart, 1988; Mirsa & Belistos, 1987) have been written articles concerning the factors needed to achieve a successful LAN implementation.

This paper organizes the issues highlighted in several of these LAN specific checklists, and combines these issues with existing research-backed theory concerning critical success factors (CSFs) related to project implementation over the various stages of the project life cycle. This work results in the LAN Implementation Project Life Cycle Model. This model is justified because of the size of the expenditures expected for LANs over the next few years, the potential for organizational change associated with LANs, the high probability that personnel in charge of LAN implementation and maintenance may have minimal skill in dealing with the interpersonal and organizational aspects of this emerging technology, and because a consolidated perspective on LAN implementation would provide a stepping stone for further research. No original research will be done, as this paper will rely
upon and consolidate research previously performed relating to this topic.

Local area networks have recently come into wide popularity. As of June of 1989, approximately 6,015,000 (15% of 40.1 million) personal computers in U.S. businesses were connected by some form of network, and by 1992, approximately 28,247,000 (47% of 60.1 million) of the U.S. business personal computers will be included in networks (Brandt, June 5, 1989). “Worldwide sales of network hardware and software jumped 85% in 1988, to $4.8 billion, according to market researcher Dataquest Inc.” (Brandt, June 5, 1989). See Figure 1. The large increase in connectivity will require the expenditure of many billions of dollars in the next few years.

Implementation of a LAN is often the responsibility of the technical personnel responsible for the business’s micro computers. Laudon (1988, p. 615) contends that technical personnel may not have the ability to successfully handle the organizational and interpersonal aspects of the implementation process. The organizational needs of the users must be the driving force behind the LAN project, not the technical aspects of the technology. Thus, communication on a LAN can alter the message routing, summarization, delay, and modification process of the organization’s information system which can have significant changes on the organization’s tasks, structure, people, and culture. The technically-oriented individuals responsible for micro computers and LANs probably do not have the experience or training to deal with all of the sweeping changes which can be created by the implementation of a LAN.

Local Area Networks

LANs in the Telecommunications System

“A Local Area Network (LAN) offers reliable, high speed communications channels for connecting information processing equipment in a limited graphic area” (Fireworker & Stewart, 1988, p. 36). Jacobsen (1990) indicates that in the near future, a Local Area Network will define a logical work group entity, even if the work group is geographically disbursed. Interoperability through naming and directory services, transparent navigation and devices which work together will facilitate logical work group connections (Jacobsen, 1990). LANs are becoming an integral part of an organization’s overall telecommunications infrastructure. LANs enable the organization to create synergies by allowing lower level employees greater access to information and greater coordination of their activities, as well as increased access to and communication with the six levels of the organization.

LAN Design Considerations

When designing the LAN, the organization must consider how the LAN fits into its overall telecommunications network, and how the overall telecommunications network fits into the six (6) main levels of an organization. Starting at the top of the organization, these six levels are:

1. Corporate headquarters;
2. Divisions, regions, or countries;
3. Sites;
4. Departments;
5. Work groups;

Sprague and McNurlin (1986) propose three guidelines for the design of an organization’s telecommunications network:

1. [Telecommunication] Networks should
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