INFORMATION TRANSFER AND FLOW IN CENTRALIZED MANAGEMENT SYSTEMS

In an overabundance of optimism or enthusiasm, it might be tempting to conclude that all information pertaining to a project might be stored in a single database. This has never been achieved and is both unlikely to occur and undesirable in itself. Among the difficulties of such excessive centralization are:

• Existence of multiple firms or agencies involved in any project. Each organization must retain its own records of activities, whether or not other information is centralized. Geographic dispersion of work even within the same firm can also be advantageous. With design offices around the globe, fast track projects can have work underway by different offices 24 hours a day.

• Advantages of distributed processing. Current computer technology suggests that using a number of computers at the various points that work is performed is more cost effective than using a single, centralized mainframe computer. Personal computers not only have cost and access advantages, they also provide a degree of desired redundancy and increased reliability.

• Dynamic changes in information needs. As a project evolves, the level of detail and the types of information required will vary greatly.

• Database diseconomies of scale. As any database gets larger, it becomes less and less efficient to find desired information.

• Incompatible user perspectives. Defining a single data organization involves trade-offs between different groups of users and application systems. A good organization for one group may be poor for another.

In addition to these problems, there will always be a set of untidy information which cannot be easily defined or formalized to the extent necessary for storage in a database.

While a single database may be undesirable, it is also apparent that it is desirable to structure independent application systems or databases so that measurement information need only be manually recorded once and communication between the database might exist. Consider the following examples illustrating the desirability of communication between independent application systems or databases. While some progress has occurred, the level of integration and existing mechanisms for information flow in project management is fairly primitive. By and large, information flow relies primarily on talking, written texts of reports and specifications and drawings.

Application of an Input Pre-processor

Final Cost Estimation, Scheduling and Monitoring

Many firms maintain essentially independent systems for final cost estimation and project activity scheduling and monitoring. As a result, the detailed breakdown of the project into specific job related activities must be completely re-done for scheduling and monitoring. By providing a means of rolling-over or transferring the final cost estimate, some of this expensive and time-consuming planning effort could be avoided.

Design Representation

In many areas of engineering design, the use of computer analysis tools applied to facility models has become prevalent and remarkably effective. However, these computer-based facility models are often separately developed or encoded by each firm involved in the design process. Thus, the architect, structural engineer, mechanical engineer, steel fabricator, construction manager and others might all have separate computer-based representations of a facility. Communication by means of reproduced facility plans and prose specifications is traditional among these groups. While transfer of this information in a form suitable for direct computer processing is difficult, it offers obvious advantages in avoiding repetition of work, delays and transcription errors.