The purpose of this study was to identify, classify, and provide a relative measure of importance of database administration and data administration activities. An initial set of 49 activities was identified using the results of an extensive literature survey, an analysis of DA and DBA functions at a multinational company, and an expert panel. A questionnaire was developed and used to classify the activities into data, database, or both and to rank them as to importance. The questionnaire was pilot tested prior to its use. This paper reports the results of an initial study and its extension. This research was a field survey of 24 information systems executives in 16 large corporations who were identified as having a key role and interest in data management issues. Follow–up interviews were conducted either by telephone or face–to–face. Eight database administration and seven data administration activities were determined to be of major importance. Two of the activities appear in both lists suggesting an overlapping area of responsibility due to technical and organizational considerations.

Recent technological trends are having a significant impact on the continuing evolution of data management. Jacobs (1992) states that the information systems discipline is witnessing the movement of the data management function away from its primarily technical database orientation. He says that larger organizations should split the data administration and database administration functions into separate units because the complexity of these functions has reached the point where specialization is necessary. As organizations recognize the strategic importance of information resource management, they are recognizing the need to put data management functions in the hands of those with expertise in their respective areas. The complexity and rapid evolution of methodologies, theory, and DBMS products requires this high level of specialization in order to remain competitive (Goodhue, Kirsch, Quillard and Wybo, 1992).

A major stimulus for this evolution is the influx of microcomputers, along with the growth of such user–based activities as end–user computing, office automation, and decision based systems (Ahrens and Sankar, 1993). Many database administrators consider their jobs managerial, while they are asked to either perform or oversee very technical operations. This apparent functional dichotomy is evident in the evolving, but not universally accepted, split of the data management function into two parts.

The major motivation for conducting the study was to demonstrate that different views exist of the definition and function of data management activities. Understanding the function and definition of an area is a necessary and important step in ensuring the efficient and effective operation of that area. Several different authors, over the last 10 years, have offered their definitions of data management, data administration, and database administration. Consensus has yet to be obtained and confusion still exists about database administration and data administration’s functions, yet we know that data management is an indispensable part of the information systems discipline and is vital to the successful operation of a database environment (Brogan, 1991).

This paper reports the results of an extension of a prior field study (Guynes and Vanecek, 1993) conducted to study the major data management issues in information systems. Both the initial study and this expanded study used in–depth interviews and structured questionnaires. The initial study focused on only the critical success factors of data and database management functions. The results of the study were presented at a meeting of senior information systems executives. Several of these executives requested that the initial study be expanded to include important but not necessarily
critical factors. This paper classifies the identified data and database administration activities and provides a measure of their relative importance.

The first section of the paper discusses the issues concerned with data management, data administration, and database administration. The middle section describes the research methodology and discusses the data analysis. The last section of the paper examines the results of the executive interviews and presents conclusions based on the results of both the initial and expanded field survey questionnaires from those key information systems executives.

**Theoretical Background**

Many of the activities in this study were drawn from the Kahn and Garceau (1985) model of database administration. Kahn and Garceau’s study resulted in the identification of three stages in the development of database administration: initiation, transition, and stability. In the initiation stage, the database administrator (DBA) has educational activities, DBMS installation, and database standards to implement. During the transition stage, the DBA is concerned with data administration (DA) activities, hardware related planning, physical database design, software planning, and overseeing enhancements to the database systems. During the stability stage, the DBA shifts the focus to software planning and evaluation activities.

Kahn and Garceau (1985) presented an excellent developmental model of the database administration function. Their model is the result of a study of 22 organizations. In their introduction, they differentiated between DA and DBA functions, citing the DBA as being technical in nature and DA as being the manager of the company’s data. Their study focused on database administration; however, several of the issues they examined are data administration functions.

Brogan (1991) distinguished between DA and DBA functions by stating that database administrators are only responsible for the “design, implementation, security, and maintenance of physical databases.” He argued that it is the responsibility of the data administration function to establish the contents and boundaries of each database. Jacobs (1992) made a case for having the DA group develop a business systems plan specifying the proper data usage for the organization. He said that if physical database systems are created outside of the overall plan, then the databases will have redundancy, consistency, and compatibility problems. He thought that it was data administration’s task to formulate a data policy that would prevent or at least minimize the occurrence of these problems.

The previous studies provided a theoretical basis for initially classifying data and database administration activities. Using the previous studies as a base, this study collected empirical evidence to identify, classify, and rank the importance of data and database activities.

**Research Methodology**

The primary purpose of the study was to answer two research questions. The research questions were:

1. What are the key activities, ranked in order of importance, for Database Administration?

2. What are the key activities, ranked in order of importance, for Data Administration?

The answers to these questions differentiated between activities the participating organizations attributed to database administration and those they attributed to data administration. The answers defined activities that are key to the success of data management.

**Research Design**

The first part of the research design consisted of a review of the literature to establish the initial DA and DBA categories. Using the activities identified from previous research (Kahn and Garceau, 1985) as a starting point, we conducted in–depth analysis of the database and data administration functions at a major international corporation. This part of the study included both unstructured and structured interviews with five key information systems executives. The interviews were used to identify the executives’ perceptions of the vital issues associated with database and data administration. Upon completion of the interview process, the researchers developed a structured questionnaire. The questionnaire combined those activities suggested by previous research with the results of the interview process. The same executives provided the basis of a pilot test of the questionnaire. Other experts from academia and industry also provided insights as to the face validity of the instrument. The input from all the sources was used in the design of the final questionnaire.

The second phase of the research design consisted of delivering the questionnaire to 16 key information systems executives in 16 major national and international corporations. The subjects were requested to complete the questionnaire and participate in an interview process. Subjects were free to discuss the activities on the questionnaire with colleagues. Upon completion of the questionnaire, they were contacted to set up either a telephone or on–site interview to discuss their answers on the questionnaire and to answer any questions they may have had.

Based on the comments of information systems executives from companies that participated in the second phase, we extended the focus of the study to key activities. This was accomplished by increasing our sample size from 16 to 24 participants and relaxing our criteria for inclusion during the data analysis. The instrumentation was held constant during the initial and extended data gathering.