A Brief History

In late 1950's computers had become cost effective for companies and storage of information, in the form of data, was becoming a predominant use of the new found technology. In the beginning companies tried to mirror their current paperwork systems and wrote bespoke software specific for their business needs. These were inherently complex, inflexible and very costly forcing the pace of change as academics and researchers strived for a better data storage model.

During the space race in the 1960's the Apollo moon-landing program were gathering huge amounts of data and under the strains of needing a new model to deal with such unprecedented volumes, commissioned IBM and North American Aviation (Rockwell International) to come up with, what turned out to be, IBM's Information Management System (IMS). The architecture was based on a parent record being linked to one or more child records in a hierarchical structure and was known as the **Hierarchical Database Model**. Data could now be linked on a one-to-many basis but had the disadvantage of record access only via the root record. As a result, the data held on records further down the hierarchy were slow to access.

In the late 1960 Charles Bachman, a part of the Database Task Group (DBTG), working with General Electrical produced the Integrated Data Store (IDS) which was based on a refinement of the hierarchical model where rather than only supporting a one-to-many relationship between records, a network-like structure allowed children records to have many parent records. This was known as the **Network Database Model** and was the first database model to be standardised in 1971 though the Conference on Data Systems Languages (CODASYL). The Network Database model was never fully embraced mainly due to the reluctance of IBM to move from their original hierarchical database model and in the end because superseded.

At this time IBM's research lab in San Jose, California were working on alternative approaches to data management. A researcher named Dr Edgar.F.Codd, introduced the term **Relational Database Model** in his seminal paper "A Relational Model of Data for Large Shared Data Banks" published in 1970. By the end of the 1970's the first Relational Database Management Systems (RDBMS) were starting to appear commercially from where they became the predominant choice they are today.

In recent times we have seen the growth of the **Object Database Model**, to deal with the shift in Design and implementation strategies and methodologies towards object based disciplines. With the predominance of object code, RDBMS connectivity has mean developers having to convert object code into 2 dimensional tables and back again but due to the massive investments made in Relational Database System, including related tools, supporting software and staff skill sets, the transition to an Object Model has proven cost restrictive. This has lead to the advent of the **Object-Relational Database Model** allowing current RDBMS to store data objects. Nowadays we are starting to see latest releases of Oracle and Informix having object data types as part of their syntax.