Almost twenty years ago, an old database friend of mine, Bill Kent, published a book entitled, *Data and Reality*. I’ve always thought that this book represented the first (and maybe only) attempt by anybody at a treatise on the philosophy of data. The book began with a quote from Metaxides, “Entities are a state of mind. No two people agree on what the real world view is.” After describing a wide variety of conflicts, ambiguities, and semantic problems, the book ended with a chapter actually entitled, *Philosophy*.

I think of Bill’s book every once in awhile when I find myself feeling philosophical about Database and its relationship to the field of Information Systems. Which brings me to the title of this piece: “Information Systems: Which Came First, The Information or the Systems?” Did you ever notice that half of the term *Information Systems* is *Information*, just as half of the older term *Data Processing* was *Data*? As we look back upon the forty or so years of history of modern information systems based upon electronic calculating devices and look towards the future, it is instructive to consider which really came first, the information or the systems, and what the implications to the database world are for the future.

My first awareness of this issue came when I was a graduate student in computer science at Ohio State. The point is that the official name of the Department, which was in the College of Engineering, was (and still is) the Department of Computer and *Information* Science. I remember the founding department chairman, Marshall Yovits, saying that the choice of this name was deliberate and important; that there was more to it than computers; that information needed to have equal billing.

But long before my first awareness of this issue, there was a great deal of history to support the notion that information or data, not computing devices, has been the driving force behind Information Systems. Admittedly, there is other evidence to indicate that it has not been all one–sided. A few well–known examples: When Blaise Pascal invented an adding and subtracting machine (the forerunner of today’s automobile odometers) in France in the 1640s, it was because his father, a tax commissioner, was having trouble keeping up with all of his data (i.e. taxes). When Joseph Marie Jacquard invented a loom in 1805, based on punched cards to repetitively produce patterns in woven fabric, the impetus was the pattern itself, an early form of graphical data! And, when Herman Hollerith brought the punched card concept to the U.S. Census Bureau in the 1890s, it was because the massive population growth of the U.S. at that time meant that the 1890 census, if done by hand as before, would have taken more than ten years, i.e. beyond the date of the next census, to compile. Once again, the data was the driving force behind the development of the computing devices.

On the other hand, Charles Babbage’s famous work on his Difference Engine and Analytical Engine in the 1820s and 1830s seems to have focused more on the elements of computing than on data. I can remember in the 1960s, before the advent of multi–megabyte main memories on desktops or of sophisticated operating systems, people having to put most of their energy into writing complex Assembly Language Code so that
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