Projecting Computer System Capability: Moore's Law and Amdahl's Constant

In some fields, there are rules of thumb that allow a practitioner or engineer to predict the pace of development. In the semiconductor industry, Moore's Law predicts that the number of transistors on a chip of a given size will double every one to one and a half years. This predictor has been approximately valid for over forty years, an unprecedented run for such a "law." For example, one could describe the number of bits of storage on a RAM chip as 2^{y-1964}, where y = this year.

Similarly, Amdahl's Constant says that in a well-balanced computer system, for every 1 MIPS (million instructions per second) of processing power, there needs to be 1 megabyte of memory and 1 megabit per second of input/output activity.

Because a balanced system is predictable in this way, each of the following parameters is a reasonably accurate measure of the computing power of a system at a particular point in time: cost, weight, volume, power consumption, memory size, processor speed, and input/output speed.

Keep searching for the rules of thumb that help predict the trends in your industry.

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How to Manage Development
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