

Business First of Columbus - May 14, 2007

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Super Technology

Supercomputing can help U.S. to be supercompeting nation

Business First of Columbus - May 11, 2007 by [Stanley Ahalt](#) For Business First

Industrial companies are suffering tough economic times because of ever-increasing global competition. Since January, Ohio-based companies Hoover, Goodyear Tire and Owens Corning have announced layoffs or plant closures. They aren't alone.

Businesses nationwide struggle to remain competitive in the face of higher labor overhead, rising production costs and outdated technology. Since 2000, more than 3.2 million factory jobs have been cut. Ford Motor Company alone announced last year it would cut 25,000 to 30,000 jobs by 2012 at its North American auto operations.

During the industrial revolution, manufacturing companies adopted bold innovations to build better products, cut costs of production, solve assembly line problems and streamline overall efficiency.

To reverse the current economic trend, manufacturers must take their cue from the leaders of the industrial revolution and begin implementing today's version of result-yielding innovations.

Smarter, Faster, Cheaper

While manufacturing often conjures images of workers toiling at assembly lines, the next industrial revolution will feature supercomputers handling time-consuming, labor-intensive or expensive tasks leaving workers free to do less repetitive work.

Computer modeling and simulations made possible by supercomputing were once technologies exclusive to corporate giants with robust research and development budgets. They are becoming increasingly scalable to companies of all sizes with a limitless spectrum of uses, much like personal computers have become smaller, sleeker and more affordable to consumers.

Where desktop computers once were considered the primary workhorses for initial industrial productivity gains, today's workhorses are supercomputers, using scientific and engineering computing to dramatically increase productivity.

Supercomputing applications can produce virtual prototypes of parts and products, reducing the time and effort to bring a product to market. Better analysis and documentation of capabilities helps with efficiency, and improved factory and workflow layouts increase productivity. All of these factors can dramatically improve a company's bottom line and increase its competitive edge in the global marketplace.

Need proof? The same technology the automobile industry uses to simulate car crashes is being applied to plastic detergent bottles to determine if the containers can survive a 5-foot free fall. At the manufacturing plant for Pringles, the concave potato chips were flying off of the assembly line. P&G found a solution by using the same computer simulation technology the airline industry uses for its aerodynamic studies.

Supercomputing can breathe life into small and medium-sized companies whose technologies are prehistoric by today's standards. The National Science Foundation cites numerous studies that have concluded that computer modeling and simulation are the key elements to achieve progress in engineering and science.

Blue Collar Computing

Nationally, the Blue Collar Computing and Business Assistance Act has been added to the U.S. Senate competitiveness bill. This bill would authorize up to \$25 million per year for the U.S. Department of Commerce to create up to five new supercomputer centers across the country. Modeled after the Ohio Supercomputer Center's successful program, these centers would help businesses find areas where supercomputing would enhance their competitiveness, and then link them with existing supercomputing labs to do the research.

Company leaders value the benefits of supercomputing. But perhaps the best assessment on the future of supercomputing is offered by the Washington-based Council on Competitiveness. In its words, "The country that out-computes will be the one that out-competes."

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