

Backgrounder

Moore's Law Spurs Economic Growth in the Trillions of Dollars

Intel Co-Founder Gordon Moore to Speak Tonight: Next 50 Years of Scientific Exploration at Risk without Increased Funding for Basic Research, STEM Education

NEWS HIGHLIGHTS

- Analyst firm IHS reports that Moore's Law has played a critical role in generating a minimum estimated \$3 trillion in incremental GDP over the past 20 years.
- MIT report finds that shrinking R&D investments threaten U.S. innovation competitiveness.
- In a live rare appearance tonight celebrating the 50th anniversary of Moore's Law, Gordon Moore expected to discuss why future U.S. innovation competitiveness is at risk.

May 11, 2015 – A new report finds that Moore's Law has played a critical role in generating a minimum estimated \$3 trillion in incremental GDP over the past 20 years¹. Commissioned by Intel and developed by business information provider IHS, the "Moore's Law Impact Report" highlights the profound economic, technological and societal impact of Moore's Law and how its exponential nature may have even greater implications for the future.

At an event this evening, Intel co-founder Gordon Moore is expected to highlight the need to increase funding for basic research and increase the focus on science, technology, engineering and math (STEM) education. Without these investments, advancements such as Moore's Law may not happen in the future, potentially hobbling economic growth and increases in living standards, according to Moore.

The IHS report uncovers that technological innovation enabled directly and indirectly by Moore's Law continues to drive gains in productivity. As productivity improves, costs decrease and new opportunities emerge that spur economic growth. The report estimates that the impact of Moore's Law could be as high as \$11 trillion in incremental GDP over the past 20 years.

This dynamic was set in motion in 1965 when Moore observed that transistors decrease in cost at an exponential rate as their number on each silicon chip doubles each year. This observation became the cornerstone on which much of today's innovation is built, helping industries tackle seemingly intractable problems and turning brilliant ideas into profitable business ventures.

"Moore's Law has proven to be the most effective predictive tool of the last half-century of technological innovation, economic advancement, and by association, social and cultural change," said Dale Ford, vice president, Semiconductors & Components at IHS, an independent global leader in information, insight and analytics.

In honor of this milestone, the Gordon and Betty Moore Foundation and Intel are hosting an event tonight at the Exploratorium in San Francisco. During the event, Moore will have a conversation with Pulitzer Prize-winning New York Times columnist Thomas Friedman about what is required to ensure the next 50 years are marked by significant technological and scientific discovery that enable U.S. competitiveness.

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“The good ideas often come from the young engineers and that’s going to continue to be the case. They’re the ones often willing to make the real leaps that result in qualitatively different products and processes. Those of us who have been around too long think we’ve seen everything,” said Moore.

Moore’s Law likely will remain a foundational force into the next decade. But declining support and enablement of engineers, creators and makers has the potential to stymie the development of new technologies that will make new experiences feasible.

A recent [report](#) from MIT, “The Future Postponed: Why Declining Investment in Basic Research Threatens a U.S. Innovation Deficit,” reports that R&D investment has declined from 10 percent to less than 4 percent as a total of the U.S. federal budget since 1968². While the United States continues to dominate in areas such as semiconductors, advanced electronics devices and Internet businesses, MIT says American leadership is at risk in sectors such as supercomputing, cybersecurity, space exploration, energy and healthcare.

Though Moore’s Law may have the potential to improve lives – from the changing nature of how humans communicate and the delivery of healthcare and classroom learning, to the changing modes of transportation and energy sources in cities of the future – without support for exploratory research, many of these ideas may remain locked inside the minds of future innovators.

For more information about the 50th anniversary of Moore’s Law, visit www.intel.com/newsroom/ML50.

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¹ The Moore’s Law Impact Report was prepared by IHS during March-April 2015. The primary source of data and insights comes from ongoing research and analysis conducted by IHS in the areas of economics, automotive, chemicals, energy, healthcare, manufacturing, and electronics and semiconductors. In addition, some data was sourced from government and industry organizations, including the International Telecommunication Union (ITU), National Highway Traffic Safety Administration (NHTSA) and other public sources.

² The Future Postponed: Why Declining Investment in Basic Research Threatens a U.S. Innovation Deficit, MIT, April 27, 2015. http://dc.mit.edu/sites/default/files/innovation_deficit/Future%20Postponed.pdf

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