

Welcome to the Siliconomy

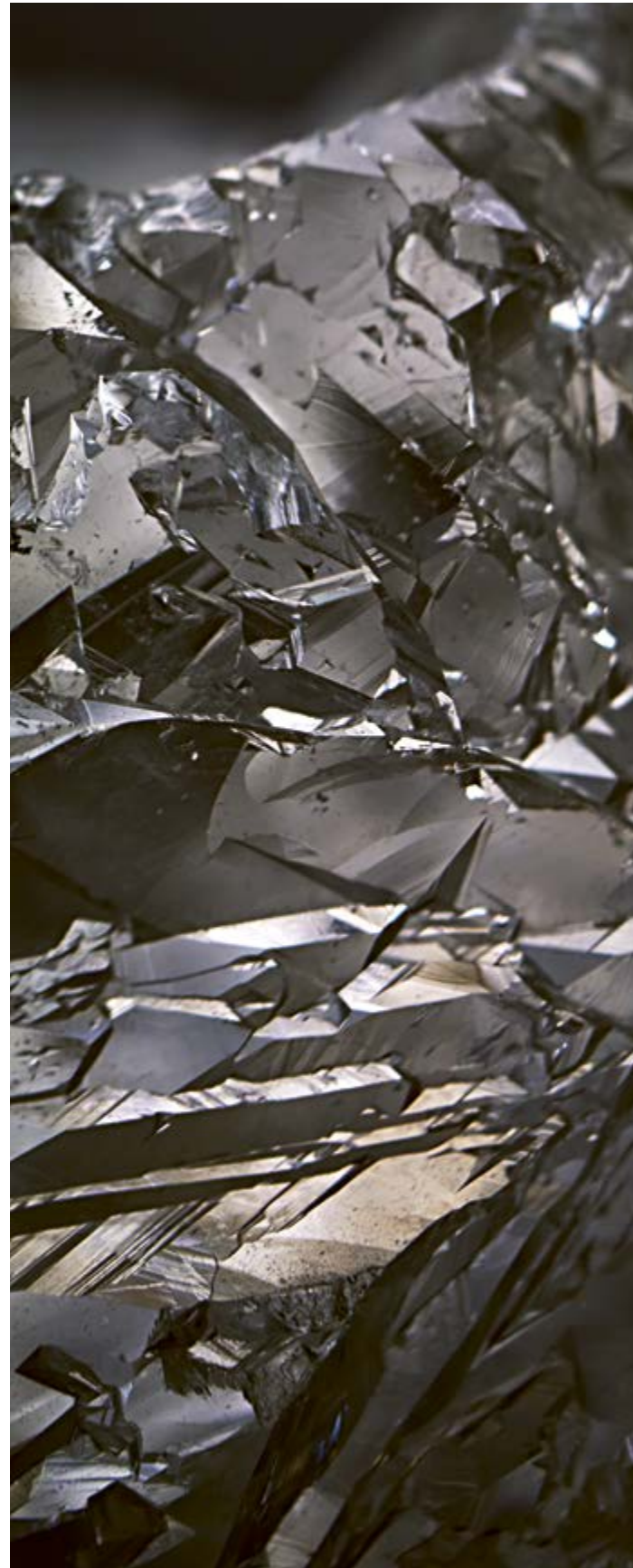
Siliconomy:

noun [sil·i·con·o·my]

- 1) The structure or conditions of life in a new era of global expansion where computing is foundational to a bigger opportunity and better future for every person on the planet.
- 2) An evolving economy enabled by the magic of silicon where semiconductors are essential to maintaining and enabling modern economies.



Pat Gelsinger
CEO
Intel



Humans have an insatiable desire to continuously push forward with discovery and disruption. Our ability to learn from one another, integrating and building upon ideas that came before, makes our present world what it is – a place once considered impossible to imagine.

The more we advance, the more technology we need.

Humanity and technology are now interconnected, reflecting the impact of compute in modern life. Computing has thus far served as a source of information, a venue for productivity and a home for entertainment. Yet, the role of computing is undergoing a fundamental shift foundational to all aspects of the economy and our human existence. It is expanding into a new era where systems powered by artificial intelligence (AI) will be imbued with autonomy and agency, assisting us across both knowledge- and physical-based tasks, and will become part of our ambient environment. Investment is required to advance novel and more energy-efficient, domain-specific architectures, such as in-memory, neuromorphic and quantum computing.

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Welcome to what I’ve dubbed, “the siliconomy!”

I used to broadly proclaim that every company is a tech company. But in this new era, technology is a standard baseline for success. As we look ahead to the decades yet to come, we will continue to see a move toward digital for everything – the way we work, learn, connect, worship, care for and evolve.

As advanced semiconductors enable new levels of human achievement, the world’s need for compute exponentially increases at an inverse ratio of size, cost and power. That’s Moore’s Law in a nutshell. (Moore’s Law is the observation that the transistor count of semiconductors doubles every two years.)

Technology is a tool, typically developed in service to our present challenges or desires – be that productivity, efficiency or ease. At the dawn of the information age, enterprise, academia and government worked together, building upon one another’s discoveries of personal computing, internet and networks that enabled us to become a global society, to launch our world into today. We must again work together to shape our technological future while advancements are in early development by coming together to create new possibilities that bring out the best in our human selves.

We must embrace the democratization of design, allowing rapid innovation built from heterogeneous building blocks over standardized interfaces. The diversity of an open ecosystem lends itself to resilience during challenging times – not perfect, but far better at finding balance among disruption. As adoption increases, additional ideas begin to appear alongside to drive further adoption and innovation. Yet we must also ensure technology advances responsibly. And that comes from both development and application. For example, AI is already performing human tasks that used to be difficult to achieve with traditional computing. Machines will soon make more decisions than humans. We need to make sure human oversight and alignment is incorporated by design.

Technology superpowers drive the creation of the siliconomy

Our drive to innovate and improve created the siliconomy and every one of us is a part of it – all participating in an evolving economy enabled by the magic of silicon.

I have often talked about the five technology superpowers shaping the world and thereby driving the creation of the siliconomy:

Compute:

Every thing is a computer and computing now defines how we experience the world.

Connectivity:

Everyone and everything is connected.

Infrastructure:

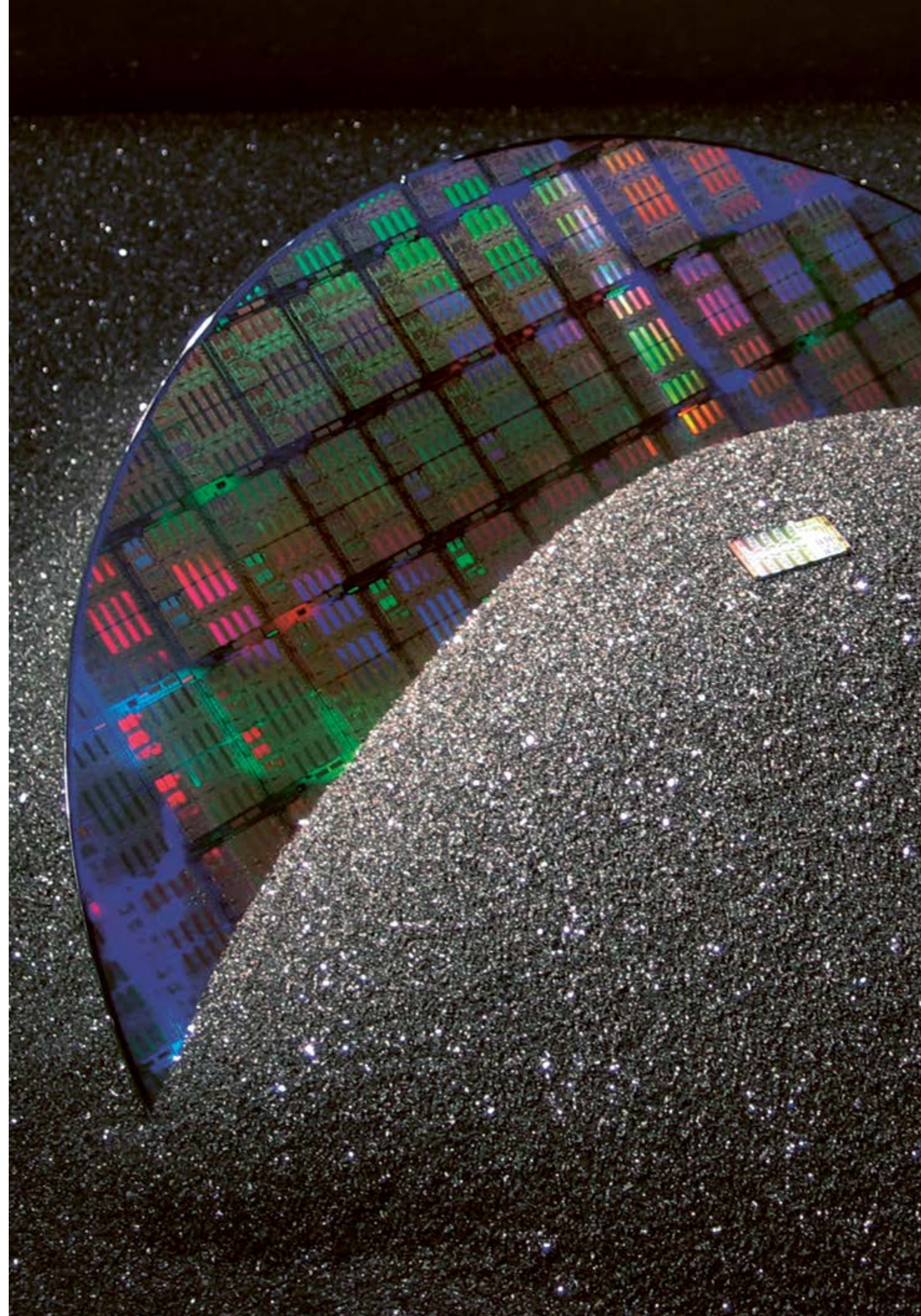
We are creating a dynamic reliable path for data storage and connected compute – combining unlimited scale with unlimited reach, while simultaneously addressing the need for lower latency and higher bandwidth.

Sensing:

Breakthroughs in low-cost, high-resolution sensors creating massive amounts of data from smart devices at the edge – converging with advances in automation, processing, inference and software – give machines human-centric abilities. Our weaknesses become digital enhanced strengths.

AI:

With intelligence everywhere, artificial intelligence turns infinite data into actionable insights. Data and compute enable greater refinement of AI algorithms to predict and create.



“For the past half-century, the location of oil reserves defined geopolitics. The location of technology supply chains and where semiconductors are built will be more important across the next five decades.”

These foundational technologies profoundly shape how we experience the world by creating the bridge from the analog age to the digital age.

And now an economic system is emerging via highly distributed edge-to-cloud compute platforms where semiconductors power essential technologies in a world that is becoming increasingly digital. Even as the current economic headwinds present challenges globally, the siliconomy clearly demonstrates that these tiny chips are essential to maintaining and enabling our modern economies.

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We must work together to meet the next surge of demand. It will take continued private-public partnership as well as new funding models with financial flexibility to maintain a thriving siliconomy – one supported by a sustainable and highly secure supply of exceptionally engineered processing power, delivered by globally balanced, resilient supply chains. ■