

# Competition at the digital edge: ‘Hyperscale’ businesses

Michael Chui and James Manyika

Digitization is giving rise to a new form, with a scale and complexity that challenge managerial conventions.

**Digitization is upending** many core tenets of competition among industries by lowering the cost of entering markets and providing high-speed passing lanes to scale up enterprises. At the extreme are hyperscale businesses that are pushing the new rules of digitization so radically that they are challenging conventional management intuition about scale and complexity. These businesses have users, customers, devices, or interactions numbered in the hundreds of millions, billions, or more. Billions of interactions and data points, in turn, mean that events with only a one-in-a-million probability are happening many times a day.

Taken individually, each of these businesses seems like a special case. After all, how many companies can be like Google, which processes around four billion searches a day; Twitter, handling 500 million tweets a day; or Alibaba, the world’s largest e-commerce market, which facilitated 254 million orders in one day?<sup>1</sup> (For more on Alibaba, see “China’s rising Internet wave: Wired companies,” on [mckinsey.com](http://mckinsey.com).)

Yet the existence of even a small but growing number of such businesses represents a new and potent competitive force. Digital powerhouses already are flexing their hyperscale muscles to move

<sup>1</sup> See Alibaba Group Holding Limited, Form F-1, filed May 6, 2014, [sec.gov](http://sec.gov). On November 11, 2013, Alibaba set a record for online sales during Singles Day, a Chinese holiday whose shopping promotions resemble those on Cyber Monday.

from search and social networking into new sectors, like banking and retailing. Furthermore, hyperscaling will probably touch more areas as cheaper computer power, sensors, and communications accelerate the pace at which businesses adopt digital technologies. Already, the number of subscribers to China Mobile's digital and voice services has grown to over 760 million; payments networks such as Visa process billions of transactions; and new hyperscale segments are emerging in manufacturing industries thanks to the Internet of Things, which creates massive data flows from machine-to-machine interactions. For example, the GE twin-jet engines on a Boeing 787 Dreamliner generate a terabyte of information a day.<sup>2</sup>

In the face of these developments, senior leaders and boards will need not only to focus on their current digitization strategies but also to consider which hyperscale businesses could threaten their existing or emerging digital models. Alternatively, as established businesses become more fully digitized, they may find they have opportunities to compete at hyperscale in some segments. Large retail businesses can exploit immense data troves that enable hyperscaling. New business models may emerge from exploiting machine-to-machine data, making it possible for companies that draw revenues from sales of physical assets, such as vehicles or factory machines, to evolve into service businesses based on usage charges. Clearly, the game is still in its early innings. This article seeks to provide leaders with a closer view of the new terrain at the frontiers of digital competition.

### Disruption hits at high speed . . .

Hyperscale competitors can rise up and disrupt traditional businesses at speeds that surprise the unprepared. Digitization catalyzes rapid growth by creating network effects and evaporating marginal costs; the cost of storing, transporting, and replicating data is almost zero. WeChat, the mobile text and voice-messaging communication service developed by China's Tencent, is an example of this digitally enhanced growth. It added 300 million users in two years—more than the entire adult population of the United States.

Sustaining such growth often means investing ahead of the adoption curve in people, technology, and processes, to build platforms that can quickly reach massive scale. In doing so, hyperscale businesses can

<sup>2</sup> Jon Gertner, "Behind GE's vision for the industrial Internet of Things," *Fast Company*, June 18, 2014, [fastcompany.com](http://fastcompany.com).

take advantage of the doubling of computing power every couple of years. This in turn means that the marginal cost of adding additional interactions, devices, sensors, or users tends toward zero.

### . . . because operating leverage is massive

Almost by definition, hyperscale companies achieve tremendous operating leverage, with process automation driven by algorithms. That allows companies such as Amazon and Google to manage billions of transactions and to upsell and cross-sell products and services without human intervention. This, in turn, gives such companies powerful operating and financial advantages as revenue, profit, and market capitalization per employee soar above the levels of traditional businesses and even other digital players. In 1990, the top three automakers in Detroit had among them nominal revenues of \$250 billion, a market capitalization of \$36 billion, and 1.2 million employees. The top three companies in Silicon Valley in 2014 had nominal revenues of \$247 billion, a market capitalization of over \$1 trillion, and only 137,000 employees.

### Business models are networked and flexible

The insignificant marginal costs and towering operating leverage of hyperscale businesses fuel their competitive thrusts into adjacent spaces. Think of how digitizing the book business armed Amazon for its move into other retail categories and eventually into Web services via the cloud.

As hyperscale businesses morph and grow, they find themselves at the center of huge webs of connected users, devices, and organizations—all of which in turn creates new business opportunities. Social-media players, for example, mine the massive volumes of data that flow to their sites from users and then charge advertisers and marketers for access to that data for insights into user preferences and spending patterns. Hyperscale ecosystems range from large corporations to individual users or app developers. And those ecosystems can be extremely global: 97 percent of eBay's commercial sellers export

goods to customers in foreign countries, compared with less than 4 percent of nonwired businesses.<sup>3</sup>

### Companies can experiment on a massive scale . . .

Digital platforms can instantly conduct experiments across a base of millions of interactions. They may, for instance, test different bundles of new products or new marketing approaches and very quickly determine what produces higher revenues or greater customer engagement. At the same time, the size, speed, and interconnectedness of hyperscale businesses are self-reinforcing and provide a way to gather rapid feedback for even greater growth. Google, for example, analyzes the increasing number of searches on its platform to make future searches even more relevant, thus encouraging even more use.

### . . . and big data is a new asset class

Every hyperscale business is a big data business. Online companies with large numbers of users can determine a great deal from clickstreams and then use that information. Telecommunications companies can access rich seams of understanding from location data on mobile phones. The insights of payments companies into customer preferences and spending have led them to create new business lines that use the data to generate revenues.



Hyperscale businesses are already part of the daily lives of hundreds of millions of users and are beginning to reshape patches of business ecosystems. Now is the time to start understanding these businesses. ○

<sup>3</sup> See *The story of an online marketplace: Enabling traders to enter and grow on the global stage*, eBay, 2012, ebayinc.com.

**Michael Chui** is a partner with the McKinsey Global Institute, where **James Manyika** is a director. Both are based in McKinsey's San Francisco office.