Market leaders invest aggressively and successfully in the technologies necessary to retain their current customers. But they often struggle to make the investments needed to serve the customers of the future. This is the price they pay for staying close to their existing customers.

We sometimes do not realize that customers wield extraordinary power in directing a company’s investments. Before managers decide to launch a technology, develop a product, build a plant, or establish new channels of distribution, they look at their customers first: Do their customers want it? How big will the market be? Will the investment be profitable?

Most well-managed, established companies are consistently ahead of their industries in developing and commercializing new technologies—from incremental improvements to radically new approaches—as long as those technologies address the next-generation performance needs of their customers. The processes and incentives that keep companies focused on their main customers work so well that they blind those companies to important new technologies that cater to emerging markets.

It is not the complexity or novelty of new technologies that derail established companies but two important characteristics of such technologies. First, they typically present a different package of performance attributes, that are not valued by existing customers. Second, these performance attributes improve so rapidly that the new technology can later penetrate established markets. Only at this point will mainstream customers want the technology. Unfortunately for the incumbent leaders, by then it may be too late and the disruptors have begun to dominate the market.

Senior executives of incumbent leaders must get better at spotting disruptive technologies. Next, to nurture the new technologies, managers must protect
them from the processes and incentives that are geared to serving established customers.

To understand the impact of disruptive technologies, the concept of performance trajectory, the rate at which the performance of a product improves, can be helpful. Almost every industry has a critical performance trajectory. In mechanical excavators, it is the quantity of earth moved per minute. In photocopiers, it is the number of copies per minute. In disk drives, it is storage capacity.

Sustaining technologies give customers something more or better in the attributes they already value. On the other hand, disruptive technologies introduce a very different package of attributes from the one mainstream customers historically value. When they first appear, such technologies often perform far worse along one or two dimensions that are particularly important to those customers. As a rule, mainstream customers are unwilling to use a disruptive product in applications they know and understand. So disruptive technologies tend to be first used and valued only in new markets or new applications. Once the disruptive architectures became established in their new markets, sustaining innovations improve the technology so quickly that the performance soon satisfies the needs of customers in the established markets.

A company’s revenue priorities and cost structure play a critical role in the way it evaluates proposed technological innovations. Generally, disruptive technologies look financially unattractive to established companies. The potential revenues look small, and unlikely to make a meaningful contribution to corporate growth. And the high cost structures of established companies means it is more viable to work with sustaining rather than disruptive technologies. When confronted with disruptive technologies, managers typically have two choices. One is to go down market and accept the lower profit margins of the emerging markets that the disruptive technologies will initially serve. The other is to go upmarket with sustaining technologies and enter market segments whose profit margins are very attractive. More often than not, managers tend to go upmarket rather than down.

Meanwhile, the disruptors, without the high cost structures of their established counterparts, find the emerging markets appealing. Once they have secured a foothold in the markets and improved the performance of their technologies, the established markets above them, served by high-cost suppliers, look appetizing.
When they do attack, the entrant companies find the established players to be easy and unprepared opponents.

Managing the development of a new technology is tightly linked to a company’s investment processes. Proposals to create new businesses in emerging markets are particularly challenging to assess because they depend on notoriously unreliable estimates of market size. Because managers are evaluated on their ability to place the right bets, it is not surprising that, mid-and top-level managers back projects in which the market seems assured. Risk is reduced—and careers are safeguarded—by giving known customers what they want.

There is a method to spotting and cultivating disruptive technologies.

One is to look out for internal disagreements over the development of new products or technologies. Marketing and financial managers will rarely support a disruptive technology. On the other hand, technical personnel with outstanding track records will often persist in arguing that a new market for the technology will emerge—even in the face of opposition from key customers and marketing and financial staff. Disagreement between the two groups often signals a disruptive technology that top-level managers should explore and pay more attention to.

The next step is to ask the right people the right questions about the strategic importance of the disruptive technology. Disruptive technologies tend to stall early in strategic reviews because managers either ask the wrong questions or ask the wrong people the right questions. For example, asking mainstream customers to assess the value of innovative products, can be counterproductive. Lead customers are reliably accurate when it comes to assessing the potential of sustaining technologies, but when it comes to assessing the potential of disruptive technologies, they are the wrong people to ask.

Once managers have determined that a new technology is disruptive and of strategic importance, the next step is to locate the initial markets for that technology. Market research is seldom helpful as no concrete market exists. Managers must anticipate and visualize who the customers will be, which dimensions of product performance will matter most to them and what the right price points will be. Managers can get these insights only by experimenting rapidly, iteratively, and inexpensively with both the product and the market.
To counter the threat of disruption, top executives must personally monitor the available intelligence on the progress of pioneering companies through monthly meetings with technologists, academics, venture capitalists, and other nontraditional sources of information. They cannot rely on the company’s traditional channels for tracking disruptive technologies.

When the disruptive technology has a lower profit margin than the mainstream business and must serve the unique needs of a new set of customers, it needs protection. So it makes sense to place the responsibility for building a disruptive-technology business in an independent organization.

The key to prospering at points of disruptive change is not simply to take more risks, invest for the long term, or fight bureaucracy. The key is to shape a culture where small orders create energy, where fast low-cost forays into ill-defined markets are possible, and where overhead is low enough to allow profit to be generated even in emerging markets.