

## Disruptive Technologies Part 2: How to Create a Winning Response

Disruptive technologies are transforming industries around the world. While such innovations are often the subject of hyperbole and speculation, it is safe to say that few areas of the economy remain untouched and the future will see further disruption by technologies such as robotics, artificial intelligence and the internet of things.

In industrial markets, disruptive technologies such as additive manufacturing are reshaping demand for products and services and, perhaps more critically, redefining how those products and services are delivered and by whom. Furthermore, the speed at which innovations are brought to market is always increasing.

L.E.K. Consulting's [\*Executive Insights, Disruptive Technologies Part 1: Why Disruptive Technologies Matter\*](#), discussed the need for all businesses to identify, understand and evaluate relevant technological innovations. Failure to recognize and respond to disruptive technologies, we argued, puts companies at significant risk of being left behind as competitors and markets embrace them and evolve.

Yet for every loser there is a winner, and the paper also set out L.E.K.'s framework for identifying the potential to deploy new technologies to gain competitive advantage.

In this second paper, we examine the response to disruptive technologies in more detail, discussing how companies can make the right strategic choices and turn the arrival of new technology into an opportunity.

### Shaping your response

The first step for any business is to assess the likely impact of the disruptive technology. Only after understanding both the opportunities and threats it creates can the company begin to develop a strategic response.

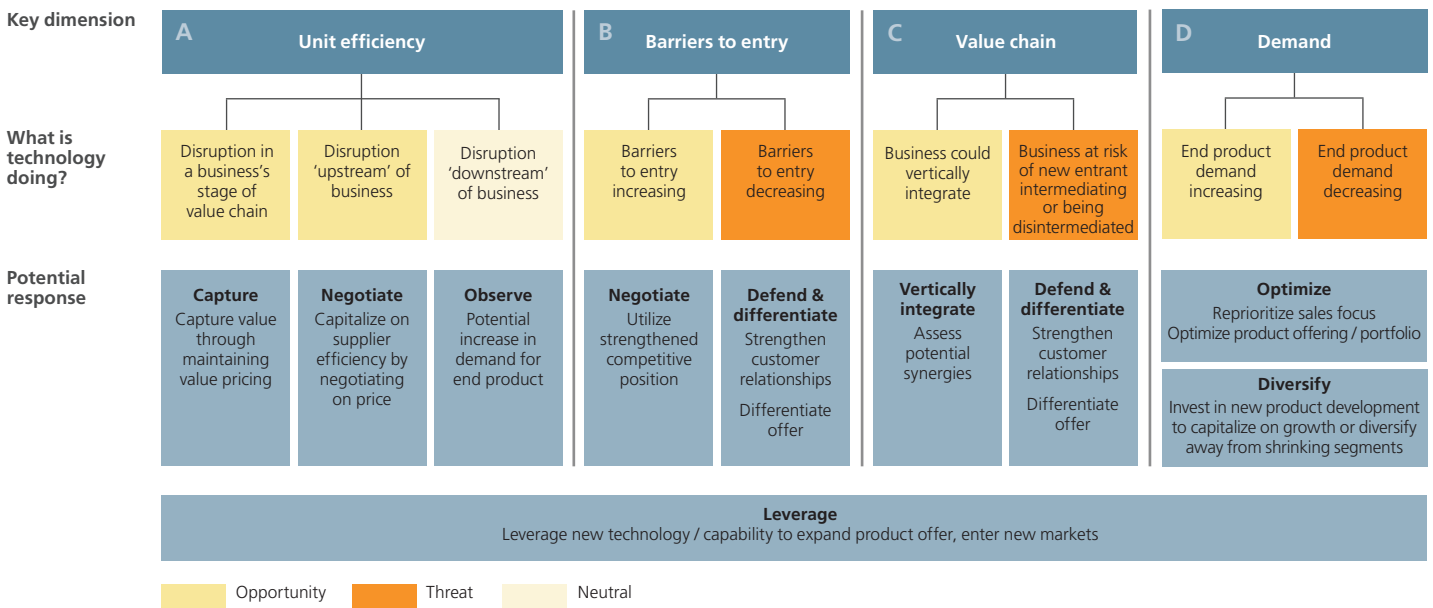
The potential effects of disruptive technologies vary widely, and they include improving efficiency, removing or creating barriers to market entry, capturing additional value through enhanced customer relationships, and altering the nature of demand.

Figure 1 summarizes potential responses to these impacts. For example, a new technology that might increase efficiency in a business's operations could be combined with a value-pricing strategy to avoid leakage of profit potential to customers. Disruption "upstream" of a business, meanwhile, could be leveraged to capture value through negotiating price reductions with the supply chain. For example, in the energy sector, low oil prices have put significant pressure on oil companies, and these companies have in turn looked to pass on pricing pressure to their supply chain in order to achieve economically viable production. New innovations (e.g., digital oilfield services) offer potential for value-added services, but the ability of supply chain

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Figure 1  
Potential responses to the impact of disruptive technology



participants to capture this value has been challenged by the relentless drive for unit cost efficiency. As oil prices return, the challenge for oilfield service providers will be to capture some of the incremental value for themselves.

A further impact of technology is disruption of the value chain, with companies building direct relationships with customers instead of via partners. For example, industrial equipment manufacturers continue to look for ways to engage directly with the users of their equipment rather than through intermediaries. However, achieving this is challenging in increasingly congested value chains where installers, aftermarket service providers and new entrants offering analytics of machine data compete for the attention of industrial end users. A company faced with this eventuality could respond by strengthening customer relationships and differentiating its product offering with the aim of adding value in areas out of reach of competitors (for example, by using its own machine data to provide value-added services to its customers).

Another common impact of disruptive technology is an increase in competition as a result of reduced barriers to entry (for example, 3-D printing reducing barriers to entry in manufacturing industries by significantly reducing upfront capital investment requirements). By contrast, if a technology looks like it will increase barriers to market entry, a company can use its existing

position in the market to consolidate competitive advantage. For example, since 2010, GE has invested \$1.5 billion in developing additive manufacturing technologies at its Global Research Center and has recently announced its acquisition of additive manufacturing companies Concept Laser and Arcam in order to develop and maintain a significant barrier to entry.

A fourth potential impact of technology is to change the nature of demand for products and services. This should lead companies to respond through optimization of product portfolios, reprioritization of sales focus and investment in new product development strategies to meet evolving customer needs.

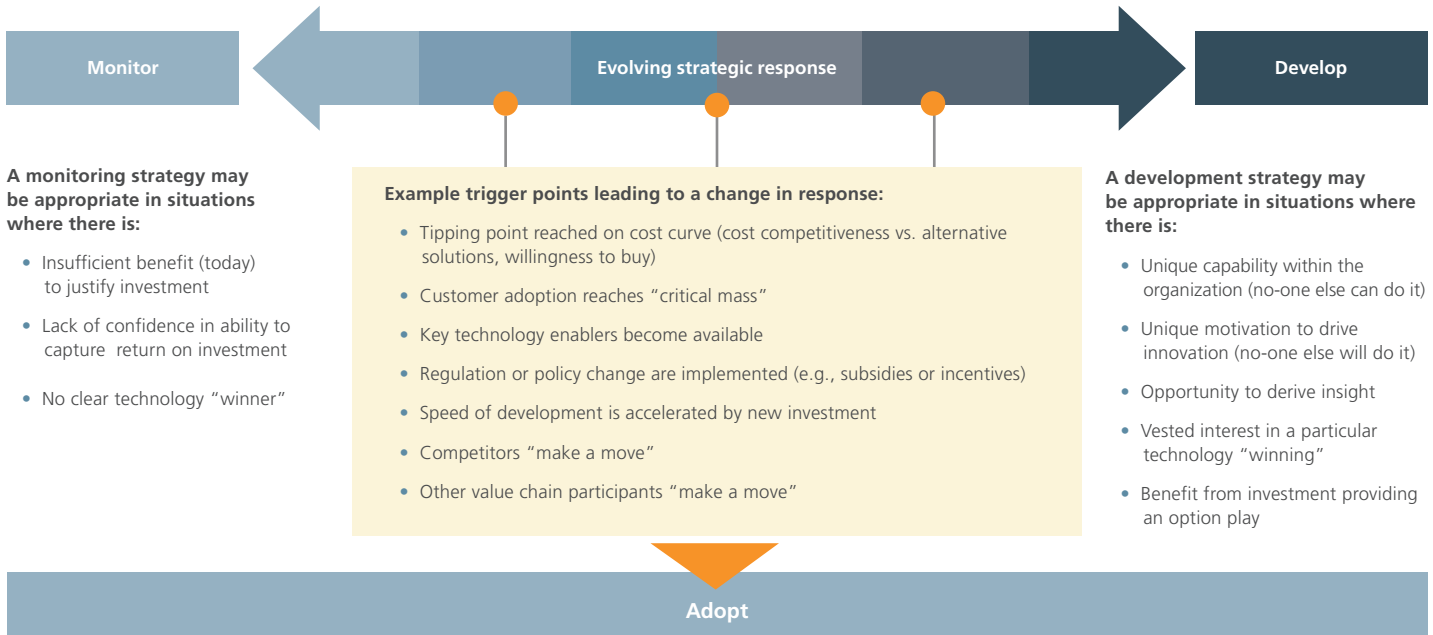
It is important to remember that the relative importance of each consideration will vary according to company and industry. However, in all cases, strategic responses to disruptive technologies will be multifunctional and interdependent. Successful responses will require coordinated activity across the business, from developing customer propositions to negotiating with the supply chain.

### To wait or to act?

A second key issue is to consider what kind of role your company wants to take in the development of a particular technology — whether you are comfortable as a “first mover” or a “fast follower.”

Figure 2

Strategic choices regarding whether to monitor or develop technology in-house



**A monitoring strategy may be appropriate in situations where there is:**

- Insufficient benefit (today) to justify investment
- Lack of confidence in ability to capture return on investment
- No clear technology “winner”

**A development strategy may be appropriate in situations where there is:**

- Unique capability within the organization (no-one else can do it)
- Unique motivation to drive innovation (no-one else will do it)
- Opportunity to derive insight
- Vested interest in a particular technology “winning”
- Benefit from investment providing an option play

With finite amounts of time, resources and management bandwidth, such choices should be made carefully. If there is insufficient benefit to justify investment, or a lack of confidence in a company's ability to capture value once the technology is developed, it may be more appropriate to wait until the technology matures before investing directly (see Figure 2).

On the other hand, if your company has a unique capability or motivation to drive the innovation or can benefit from the insight generated from participating in technology development, the right strategic response may be to invest in in-house development of the technology.

### Flexibility is essential

Given the rapid pace of innovation, any strategy for leveraging a disruptive technology must be inherently adaptive. Executives should acknowledge that the appropriate strategic response can, and should, evolve as the technology matures.

In other words, a flexible approach is crucial. An early decision to monitor must give way quickly to a decision to participate if circumstances alter. This means ensuring your strategy is under constant review.

While it is difficult to generalize, certain trigger points can indicate it is time to take action (see Figure 2). Relevant trigger

points may include the removal of barriers (technological, regulatory or economic) or changes in customer or competitor behavior (e.g., customer adoption accelerates, competitors make a move).

### Creating opportunity from disruption

It is easy to view disruptive technologies as threats to businesses and their markets, and history is littered with failures caused by executives misjudging the impact of innovation. However, the emergence of disruptive technologies can be an equal, if not more important, source of new value opportunities if given the right focus.

While it is impossible to predict with certainty how innovations will affect industrial markets, L.E.K. believes businesses can develop an effective strategy to respond to disruptive technologies as they arise and to reap the potential rewards.

The speed and breadth of disruptive technologies can be overwhelming, so it is critical to act when the moment is right. Businesses that stay abreast of technological developments, understand the implications, and respond appropriately are well-placed to realize the benefits those developments have to offer.

## Case study: Battery storage technology

Battery technology has made significant advances since the 1970s, accelerating in recent years with investment from transport and power-generation industries. One of the most common technologies being pursued is lithium-ion batteries, prices for which have halved in the past six years. Other technologies are being developed but are less mature, including using other metals (e.g., magnesium), liquid flow batteries and compressed / liquid air energy storage.

There are two main industries likely to be affected by improved battery storage technology.

**Power generation:** Energy storage solutions are seen as a key enabler of the transition to renewables by improving utility through a more stable electricity supply and by enabling development of new solutions (e.g., increased usage of distributed power). In the longer term, this could result in changes to energy distribution models and the disintermediation of the supply chain.

**Transport:** Improved energy storage technology is enabling a more commercially viable electric car market through improved relative economics and improved utility (e.g., greater mileage range), reducing demand for gasoline- or diesel-fueled cars.

Strategic responses depend on the particular market and a company's place in that value chain, as well as on the evolving technology.

- Oil and gas companies are monitoring the potential threat of renewables as a substitute for thermal power generation, and electric vehicles as a substitute for petroleum-fueled vehicles, with energy storage acting as an enabler / accelerator for both
- Energy storage creates a number of opportunities for power generation, transmission and distribution companies (e.g., stabilizing grid capacity and providing back up and off-grid solutions)
- Automotive OEMs are responding to electric vehicles in different ways; some have been investing in the technology for some time, while others have increased investment now that technology advances have created a tipping point in consumer demand

Uncertainty remains as to which technology will ultimately "win." Companies need to monitor events closely to understand the impact on their business and identify the triggers for a change in strategic response.

## About the Authors



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