

"Lucid, analytical—and scary."

—Dr. Andrew S. Grove  
Chairman and CEO, Intel Corporation



# The Innovator's Dilemma

When  
New Technologies  
Cause Great Firms  
to Fail

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## CHAPTER TEN

# The Dilemmas of Innovation: A Summary



One of the most gratifying outcomes of the research reported in this book is the finding that managing better, working harder, and not making so many dumb mistakes is not the answer to the innovator's dilemma. This discovery is gratifying because I have never met a group of people who are smarter or work harder or are as right so often as the managers I know. If finding better people than these were the answer to the problems posed by disruptive technologies, the dilemma would indeed be intractable.

We have learned in this book that in their straightforward search for profit and growth, some very capable executives in some extraordinarily successful companies, using the best managerial techniques, have led their firms toward failure. Yet companies must not throw out the capabilities, organizational structures, and decision-making processes that have made them successful in their mainstream markets just because they don't work in the face of disruptive technological change. The vast majority of the innovation challenges they will face are sustaining in character, and these are just the sorts of innovations that these capabilities are designed to tackle. Managers of these companies simply need to recognize that these capabilities, cultures, and practices are valuable only in certain conditions.

I have found that many of life's most useful insights are often quite

simple. In retrospect, many of the findings of this book fit that mold: Initially they seemed somewhat counterintuitive, but as I came to understand them, the insights were revealed as simple and sensible. I review them here, in the hope that they will prove useful to those readers who may be wrestling with the innovator's dilemmas.

*First*, the pace of progress that markets demand or can absorb may be different from the progress offered by technology. This means that products that do not appear to be useful to our customers today (that is, disruptive technologies) may squarely address their needs tomorrow. Recognizing this possibility, we cannot expect our customers to lead us toward innovations that they do not now need. Therefore, while keeping close to our customers is an important management paradigm for handling sustaining innovations, it may provide misleading data for handling disruptive ones. Trajectory maps can help to analyze conditions and to reveal which situation a company faces.

*Second*, managing innovation mirrors the resource allocation process: Innovation proposals that get the funding and manpower they require may succeed; those given lower priority, whether formally or de facto, will starve for lack of resources and have little chance of success. One major reason for the difficulty of managing innovation is the complexity of managing the resource allocation process. A company's executives may seem to make resource allocation decisions, but the implementation of those decisions is in the hands of a staff whose wisdom and intuition have been forged in the company's mainstream value network: They understand what the company should do to improve profitability. Keeping a company successful requires that employees continue to hone and exercise that wisdom and intuition. This means, however, that until other alternatives that appear to be financially more attractive have disappeared or been eliminated, managers will find it extraordinarily difficult to keep resources focused on the pursuit of a disruptive technology.

*Third*, just as there is a resource allocation side to every innovation problem, matching the market to the technology is another. Successful companies have a practiced capability in taking sustaining technologies to market, routinely giving their customers more and better versions of what they say they want. This is a valued capability for handling sustaining innovation, but it will not serve the purpose when handling disruptive technologies. If, as most successful companies try to do, a company stretches or forces a disruptive technology to fit the needs of current,

mainstream customers—as we saw happen in the disk drive, excavator, and electric vehicle industries—it is almost sure to fail. Historically, the more successful approach has been to find a new market that values the current characteristics of the disruptive technology. Disruptive technology should be framed as a marketing challenge, not a technological one.

*Fourth*, the capabilities of most organizations are far more specialized and context-specific than most managers are inclined to believe. This is because capabilities are forged within value networks. Hence, organizations have capabilities to take certain new technologies into certain markets. They have disabilities in taking technology to market in other ways. Organizations have the capability to tolerate failure along some dimensions, and an incapacity to tolerate other types of failure. They have the capability to make money when gross margins are at one level, and an inability to make money when margins are at another. They may have the capability to manufacture profitably at particular ranges of volume and order size, and be unable to make money with different volumes or sizes of customers. Typically, their product development cycle times and the steepness of the ramp to production that they can negotiate are set in the context of their value network.

All of these capabilities—of organizations and of individuals—are defined and refined by the types of problems tackled in the past, the nature of which has also been shaped by the characteristics of the value networks in which the organizations and individuals have historically competed. Very often, the new markets enabled by disruptive technologies require very different capabilities along each of these dimensions.

*Fifth*, in many instances, the information required to make large and decisive investments in the face of disruptive technology simply does not exist. It needs to be created through fast, inexpensive, and flexible forays into the market and the product. The risk is very high that any particular idea about the product attributes or market applications of a disruptive technology may not prove to be viable. Failure and iterative learning are, therefore, intrinsic to the search for success with a disruptive technology. Successful organizations, which ought not and cannot tolerate failure in sustaining innovations, find it difficult simultaneously to tolerate failure in disruptive ones.

Although the mortality rate for ideas about disruptive technologies is high, the overall business of creating new markets for disruptive technologies need not be inordinately risky. Managers who don't bet the farm on

their first idea, who leave room to try, fail, learn quickly, and try again, can succeed at developing the understanding of customers, markets, and technology needed to commercialize disruptive innovations.

*Sixth*, it is not wise to adopt a blanket technology strategy to be always a leader or always a follower. Companies need to take distinctly different postures depending on whether they are addressing a disruptive or a sustaining technology. Disruptive innovations entail significant first-mover advantages: Leadership is important. Sustaining situations, however, very often do not. The evidence is quite strong that companies whose strategy is to extend the performance of conventional technologies through consistent incremental improvements do about as well as companies whose strategy is to take big, industry-leading technological leaps.

*Seventh*, and last, the research summarized in this book suggests that there are powerful barriers to entry and mobility that differ significantly from the types defined and historically focused on by economists. Economists have extensively described barriers to entry and mobility and how they work. A characteristic of almost all of these formulations, however, is that they relate to *things*, such as assets or resources, that are difficult to obtain or replicate.<sup>1</sup> Perhaps the most powerful protection that small entrant firms enjoy as they build the emerging markets for disruptive technologies is that they are doing something that it simply does not make sense for the established leaders to do. Despite their endowments in technology, brand names, manufacturing prowess, management experience, distribution muscle, and just plain cash, successful companies populated by good managers have a genuinely hard time doing what does not fit their model for how to make money. Because disruptive technologies rarely make sense during the years when investing in them is most important, conventional managerial wisdom at established firms constitutes an entry and mobility barrier that entrepreneurs and investors can bank on. It is powerful and pervasive.

Established companies *can* surmount this barrier, however. The dilemmas posed to innovators by the conflicting demands of sustaining and disruptive technologies can be resolved. Managers must first understand what these intrinsic conflicts are. They then need to create a context in which each organization's market position, economic structure, developmental capabilities, and values are sufficiently aligned with the power of their customers that they assist, rather than impede, the very different work of sustaining and disruptive innovators. I hope this book helps them in this effort.