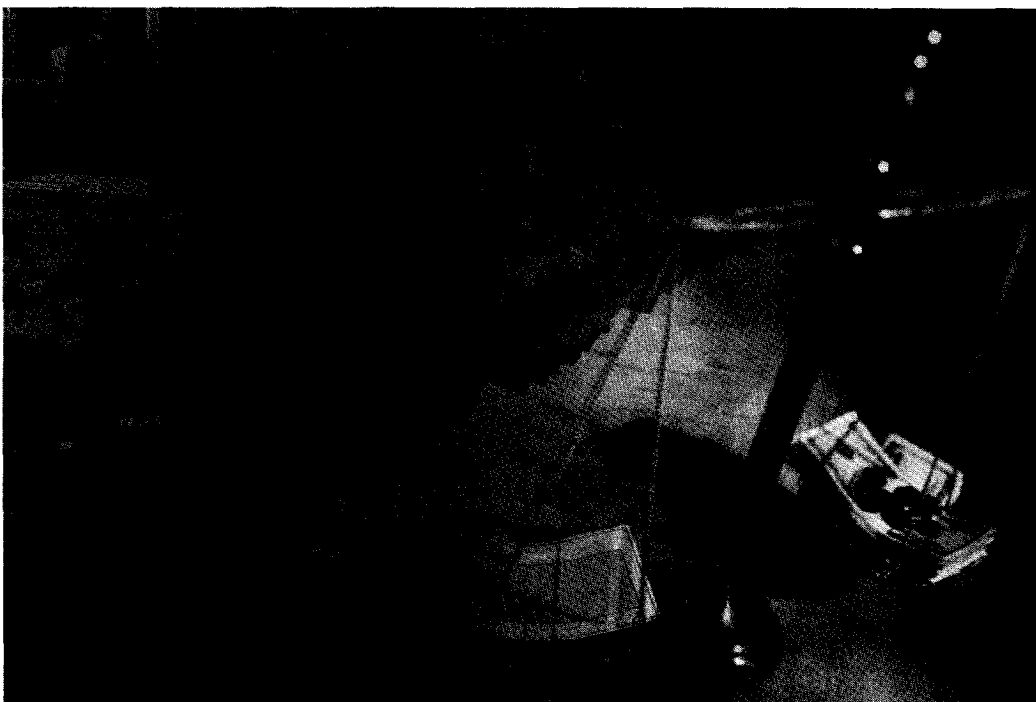


# Successful Strategies for Product Rollovers

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*After calculating the risks of introducing a new product, companies must choose a primary strategy, monitor market conditions, and adopt a contingency strategy if necessary.*

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In a dynamic marketplace, shortening the new product development process can be a competitive weapon.<sup>1</sup> Xerox, for example, reduced its product development time from seven to two years and recaptured its lead in the copier market. GE shortened the product development time for its circuit breaker line and regained its market share.<sup>2</sup> Fast product introduction helps companies be first to market, acquire additional market share, and establish industry leadership.

We are currently witnessing shorter and shorter product life cycles. The life cycles of most electronics, for example, are now well under one year.<sup>3</sup> As new products

appear on the market, old products may become obsolete and need to be phased out. Short product life cycles increase the frequency of "product rollovers," the introduction of new and the eventual displacement of old products. The displacement of an old product by a new one does not have to happen instantaneously, however, and the product life cycles of old and new products often overlap, with both products coexisting in the marketplace.

In an ideal product rollover, the old product is sold out at the planned introduction date of the new product, and the new product is readily available. Whatever the

pattern with a product, a successful product rollover requires careful planning and coordination. Apple's Mac Classic replacing the Mac Plus and Mac SE<sup>4</sup> and Kodak's Royal Gold replacing Ektar film<sup>5</sup> are good examples.

Unfortunately, most companies experience less than successful product rollovers. Consider these failures:

- Technical problems can delay a new product's introduction. In 1987, Ashton-Tate announced its new product, dBase IV. The product was intended to replace its leading database software, dBase III. Due to technical problems, however, dBase IV was introduced in late 1988, but the early version had many technical problems and customers were disappointed with it. The sales of dBase IV plunged, the stock price of the company fell, and Ashton-Tate was eventually acquired by Borland in 1991.<sup>6</sup> In a similar example of delay due to technical problems, Microsoft encountered difficulties developing Windows 95 as the replacement for Windows 3.11. Consequently, Windows 95 was introduced one year late, leading to some market confusion and customer dissatisfaction.
- Excess product inventory can hold up a new product as well. In 1983, Ford Europe introduced Cortina to replace the older model Sierra. Due to the slow sales of Sierra, however, the inventory had piled up at the dealers. To clear the pipeline of Sierras, Ford decided to delay the shipment of Cortina by a few months.<sup>7</sup> In another example, due to the excess inventory of its to-be-replaced 308X series, IBM decided to postpone shipment of its new 3090 Sierra mainframe computers.<sup>8</sup>
- New product announcements can be timed badly. A well-known example is the introduction of Osborne II as the replacement of Osborne I, the first portable personal computer on the market, with \$100 million in sales in 1982. Despite the fact that there was still a lot of Osborne I inventory in the pipeline, founder Adam Osborne announced the new product, Osborne II, in late 1982. The market responded by canceling orders of Osborne I, and, consequently, its inventory level remained high. In 1983, the company experienced technical problems in the development of Osborne II, and its delivery schedule kept slipping. The slow sales of Osborne I, along with the late introduction of Osborne II, led to severe cash flow problems, and Osborne filed for Chapter 11 in September 1983.<sup>9</sup> Other companies have faltered in their preannouncement strategy when planning a product rollover.<sup>10</sup>

- Overly optimistic sales forecasts can also be villains. A well-known example is the introduction of IBM PC Junior in 1984, after the successful introduction of IBM PC in 1981.<sup>11</sup> To ensure adequate inventory to meet demand during introduction, IBM stockpiled IBM PC Juniors prior to the introduction date. However, due to technical problems and the limited number of software applications, sales of IBM PC Junior failed to reach expectations. The product's inventory level remained high despite price cuts, and IBM PC Junior died in 1985.

Clearly, companies' financial strength and market position depend on successful new product introductions, which, in turn, depend on successful product rollovers. A study of 126 U.S. durable goods companies showed that 40 percent of new products failed after being introduced to the market.<sup>12</sup> Given the low success rate of product rollovers, companies need a better process to reduce the financial and/or market risks associated with them.

Recognizing the significance of product rollovers, many companies have formed cross-functional teams to develop formal processes to manage them. Hewlett-Packard's (HP) Computer Products Operation, for example, formed a product rollover team that consists of senior managers from different departments: research and development, finance, manufacturing, materials purchasing, marketing, information systems, and distribution. A large disk-drive manufacturer in California formed a similar team to discuss ways to prevent the difficulties associated with rollovers.

In our discussions with these two teams, we saw a pattern emerge. Specifically, both teams raised the following strategic questions related to product rollovers: Should we sell out the old product before we introduce the new one? Should we sell the old product and the new product simultaneously? If so, should we sell them at different prices? In different geographical regions? Through different channels? Despite the importance of product rollovers, there is no formal process to help managers deal with these crucial questions.

To manage product rollovers efficiently, it is critical to plan the introduction of new products and the displacement of old products *jointly*. Most of the literature treats the two processes *separately*.<sup>13</sup> Moreover, the execution of an effective plan also calls for coordination among different departments.

Most U.S. and U.K. companies seem to have no formal process for deciding whether to launch a new product and/or to displace an old product.<sup>14</sup> They do realize the need for coordinating new product introductions and old product displacements, however. In their empirical study of U.K. and U.S. companies, Saunders and Jobber concluded that the selection of product rollover strategies is not random and that the nature of the markets for the old and the new products played a role in the selection of strategy.<sup>15</sup> Their study, along with the gaps in the literature, motivated us to develop a process for managing product rollovers, to define various rollover strategies (along with their pros and cons), and to identify opportunities for improving rollovers.

## Managing the Process

After launching a new product development process, and before introducing the product to the market, companies should devise the product's rollover plan. We propose these steps:

1. Choose the risk posture and the rollover strategy. Risk posture refers to the uncertainties associated with manufacturing and delivery, as well as with the product's market potential. Assessment of the magnitude of uncertainties and their potential impacts is critical to selecting the appropriate product strategy. Such a strategy comprises the timing, production and inventory plan, pricing, market targets, and penetration rates of both the new and old product. Later, we describe the most common risk postures and rollover strategies.
2. Monitor the situation and change the strategy if necessary. After selecting and implementing a strategy, managers should collect market information continually, update the product's risk posture, and modify the strategy. Different types of modifications will be possible, depending on the original strategy and the updated situation.
3. Execute the final strategy. Once everyone agrees on the final strategy, the different functional groups need to coordinate their activities to execute it and to introduce the new product as planned.

### Risk Posture

While many factors can affect the success of a product rollover — financial risks associated with cash flows, for example, or amount of accounts payable or accounts receivable — we focus on two factors: *product risk* and *market risk*.

Product risk is an aggregated measure of the risks associated with the ability to manufacture and deliver the right quantities of the old and new product; market risk is an aggregated measure of the risks associated with the demand for the two products. As such, product and market risks can be viewed as the supply and demand risks of the two products. (For the relative contribution to risk of various factors, see *Tables 1* and *2*.)

For any given product rollover, companies can represent the risk posture by mapping the product and market risks (see *Figure 1*). Such a representation is similar to Pearson's map for the evaluation of uncertainties about the means and ends of a research and development project.<sup>16</sup>

Consider the product rollover of HP's DeskJet 510 over DeskJet 500. Product risk was considered to be low, because DeskJet 510 utilized the same inkjet technology as DeskJet 500; the DeskJet supply chain could be flexible in meeting the different product mix demands of DeskJet 500 and DeskJet 510; and DeskJet 510 shared many components — the inkjet cartridge, paper trays, motors, and so on — with DeskJet 500. Market risk was considered to be relatively low, too, because DeskJet 500 and DeskJet 510 were targeted for the same market segment, i.e., low-cost product for the home office; the market diffusion process for DeskJet 510 would be fast, as customers were familiar with the product; and DeskJet 510 was superior to all competitive products and was reasonably priced.

In another example — Intel's Pentium chips replacing Intel's DX-486 chips — both had high product and high market uncertainty. They had high product risk because Pentium chips were based on a different architecture than that of the DX-486 chips; and Pentium chips required a different fabrication process, which initially had low and unreliable process yield. Market uncertainty was high also because the market diffusion rate of the Pentium chips was low. Most software developers and computer users were unfamiliar with the chips' capabilities, and major competitive products — Digital's alpha chip, for example — already existed on the market.

## Choosing the Best Strategy

We classify product rollover strategies into two types: primary and contingency. A *primary* strategy

Table 1  
**Product Risk Factors**

Risk Factor	Operational Measure	Contribution to Risk
Technology change	• Time-to-market pressure	+
	• Technology gap between products	+
	• Continuity of design teams across product generations	—
	• Need for new process technology	+
Supply chain responsiveness	• Number of levels of supply chain	+
	• Proximity to demand or supply base	—
	• Number of suppliers	+
	• Partnership relationships with supplier and customers	—
	• Number of new suppliers	+
Product design of new product	• Number of common parts across product generations	—
	• Modularity of design	—
	• Number of new parts	+
	• Possibility of delayed product differentiation, i.e., postponement	+
	• Product option variety	+

Table 2  
**Market Risk Factors**

Risk Factor	Operational Measure	Contribution to Risk
Customer base characteristics	• Overlap of new product market segment with existing customer base	—
	• Familiarity of new technology by new customer base	—
	• New channel outlets	+
	• Uncertainties of perceived value/quality of new product by customers	+
	• Low diffusion rate of new product (slow adoption of new product by customers)	+
Accessibility of information	• Availability of timely sales information	—
	• Availability of inventory status of old product	—
Market competitiveness	• Likelihood of new products by competitors	+
	• Likelihood of price cuts by competitors of existing products	+
	• Degree of brand loyalty	—

is a “planned” strategy that the company selects at the beginning of the product rollover process, based on the risk posture, with inputs from projected information about the product and the market. As time goes on, with additional information about the product and market, the risk posture may change, and the company might adopt a *contin-gency* strategy.

### Primary Strategies

There are two primary strategies: *solo-product roll* and *dual-product roll*. Solo-product roll is a “single-product” strategy that aims to have all the old product sold out, worldwide, at the planned new product introduction date; HP’s DeskJet 510 replacing the DeskJet 500 is an example. Dual-product roll is a “dual-product” strategy that plans to sell both old and

new products simultaneously for a period of time — say, during the introduction phase of the new product. The replacement of Intel's DX-486 chips by Pentium chips is a good example.

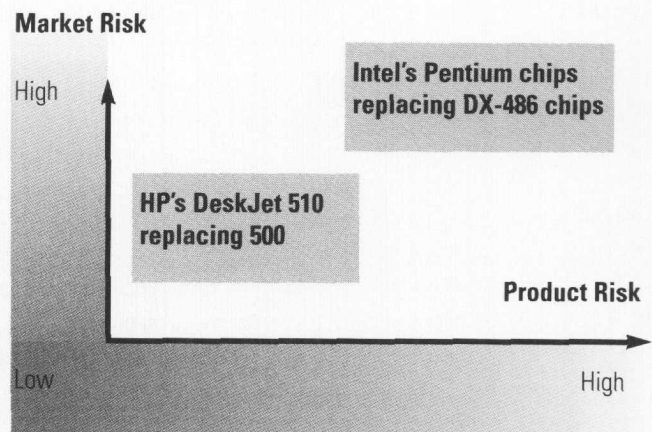
Solo-product roll is considered a high-risk, high-return strategy. When market conditions turn out as planned, and the solo-product-roll strategy is executed perfectly, this strategy provides a very effective launch with low rollover costs. However, that may be too much to hope for. Lots of things can go wrong. Often it is difficult to manage supply-chain operations or the sales of the old product so it is sold out when the new product is introduced. If the old product is out of stock before the new product's introduction, and/or the schedule of the new product slips, the company risks losing market share and shelfspace. If the inventory level of the old product is too high when the new one comes out, the disposal costs of fire sales, of dismantling products for spare parts, or of write-offs can result in a very expensive rollover.

While less risky than the solo-product-roll strategy, a dual-product roll requires efficient coordination and flexibility in the manufacturing, distribution, and marketing of both the old and the new product. Moreover, customers may be confused by the existence of both an old and a new product in the marketplace.

When implementing a dual-product-roll strategy, companies have four choices:

- They can introduce the new product in one or more geographical regions, usually a month or more before introducing it in other regions. Hence, there could be multiple introduction dates of the new product, each taking place in different regions. This strategy can greatly reduce rollover risks, as companies can adjust production plans and ship excess products across regions. Examples of regional dual-product rolls include the introduction of Mercedes' 190C series first in Europe, then in North America,<sup>17</sup> and of Gillette's Sensor Excel razor blades, first in the United States and Europe, then in Asia.<sup>18</sup>
- The new product can also be introduced first in a few targeted channels, with delayed entry into other channels, which the company uses to sell off the old product. This strategy is generally used in geographical regions that have direct distribution as well as two-tiered channels, and is usually used in conjunction with the "dual-pricing" strategy that we discuss next. Nike's product rollovers are a good example.

Figure 1  
Product Rollover Risk Map



The company displays its latest shoe models first at premium retailers like Footlocker or Niketown and sells its older shoe models at discounters and outlets.<sup>19</sup>

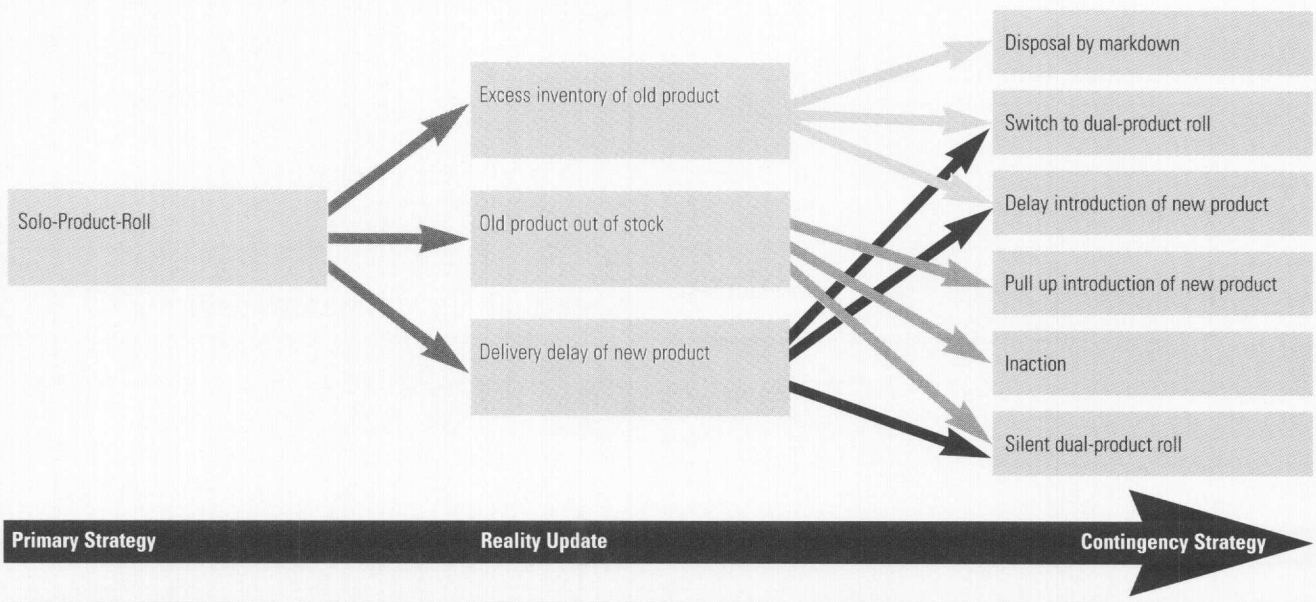
- In a dual-pricing strategy, after the new product's introduction, the company sells off the rest of the old product at a lower price corresponding to its relative market values. This strategy can be used on either a worldwide or a limited geographical basis and should almost always be used if the dual-product-roll-by-channel strategy is used and the perceived relative market values of the two products are significantly different. Intel's aggressive pricing strategy to clear the market of DX-486 chips to stimulate increased adoption of Pentium chips is an example of this strategy.<sup>20</sup>
- In a fourth strategy, the new product is "leaked" slowly into a geographical region or a channel without any formal announcement. Both old and new products coexist in the marketplace. Called a "silent" dual-product roll, this strategy can be used in conjunction with the other types of dual-product rolls and is often used when there is a problem delivering high volumes of the new product during ramp-up. Sony, for example, has rarely made formal announcements about its new television models, although its screen sizes have grown with each generation.<sup>21</sup>

### Contingency Strategies

When altered product or market conditions change a product's risk posture, companies can choose from among four types of contingency strategies.

- First, they can sell the old product at significant markdowns. The intent is to get rid of excess inven-

Figure 2

**The Dynamics of Solo-Product-Roll Strategy over Time**

tory of the old product when a solo-product roll is the primary strategy and the sale of the old product has been unexpectedly sluggish by the time the new product is launched. This strategy is good when the old product's salvage value is small.

- Second, they can postpone the introduction date of the new product, a strategy usually used when they encounter problems with delivering a high volume of the new product at ramp-up.
- A third strategy calls for introducing the new product earlier than originally planned. Companies usually do this when the old product is out of stock before the planned new product introduction date.
- Fourth, companies can combine two or more dual-product-roll strategies, something they consider usually when they have excessive inventory of the old product or when they have a problem delivering the new product at sufficiently high volume at ramp-up.

**Dynamics of Strategy Execution**

Once companies have initiated a primary strategy, they need to continually monitor external events to update the product roll's risk posture and to devise a contingency strategy if necessary. Companies must decide on the following factors: the events to be monitored, the frequency of the reviews or check-points, and the conditions for executing particular contingency strategies. For instance, a company might monitor the inventory levels of the old product, the sales of the old product, the updated delivery

schedule, and/or the new product's ramp-up manufacturing capability. It might want to monitor other external events as well, like competitive movements or prices.

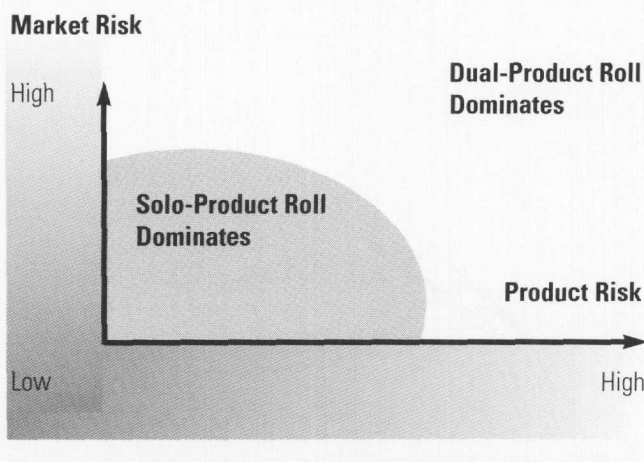
Depending on the primary strategy and on what happens in a particular situation, different contingency strategies may be available. In some cases, more strategies may be available; in others, only a limited set will be. The number of alternative options under different realizations determines the "robustness" of the primary strategy. (For a solo-product-roll strategy, with possible realization of events and the associated contingency strategies, see Figure 2.)

**Matching Rollover Strategies with Risk Posture**

In general, the choice of primary strategy depends on performance measures such as:

- Rollover cost — inventory cost of the old product, markdowns, manufacturing cost of the new product, etc.
- Customer service — on-time shipments for both old and new products.
- Market position — phase-in of new product and phase-out of old product as planned; maintenance of market share for both old and new product, etc.
- Return on asset — revenue minus rollover cost, divided by asset utilization.

Figure 3

**The Product Rollover Strategy Map**

Generally speaking, the solo-product roll is a high-risk, high-return strategy, while the dual-product-roll strategy is less risky. Hence, a solo-product-roll strategy is appropriate when the risk posture associated with the roll has low product and low market risk. A dual-product-roll strategy is more appropriate when the risk posture has significant product or market risk (see Figure 3). The high-risk region can be further divided into multiple segments, with a specific sub-

strategy of dual-product roll dominant in each segment.

Since the risk posture for the replacement of the DeskJet 500 by DeskJet 510 was low, HP executed this solo-product-roll strategy very successfully. On the other hand, the high-risk posture of the Pentium replacing the DX-486 chips — due to potential insufficient ramp-up capability to meet worldwide demand — led Intel to choose a dual-product-roll strategy. It sold DX-486 and Pentium chips simultaneously at different prices.<sup>22</sup>

## Opportunities for Improvement

Although contingency strategies enable companies to modify their primary strategies when updated information is available, they can improve their product rollovers significantly if they reduce the basic risk posture of each new product in the first place. The ability to successfully roll products over can be a significant competitive advantage in a dynamic market, and the recipe is simple. Companies need to exploit the opportunities for reducing product and market risks (see Tables 3 and 4). Then, when planning a product rollover, they should first determine the best primary strategy, monitor and update the product and market conditions continually, and be prepared with contingency plans if necessary.

Table 3

**Opportunities for Reducing Product Risk**

Risk Factor	Opportunities
Technology change	<ul style="list-style-type: none"> <li>• Multifunctional product development team</li> <li>• Concurrent engineering</li> <li>• Increased organization learning between product development teams</li> <li>• Long-term and stable product development team</li> <li>• Appropriate trade-off of nervousness introduced by new process technology vs. its efficiency improvement</li> </ul>
Supply chain responsiveness	<ul style="list-style-type: none"> <li>• Shorter supplier lead time</li> <li>• Locating customization sites close to customers</li> <li>• Colocation of key design and manufacturing sites with strategic suppliers</li> <li>• Consolidation of supply base</li> <li>• Long-term strategic alliance relationship with key suppliers and customers</li> <li>• Existing supply base to improve technical capability to support new products</li> </ul>
Product design of new product	<ul style="list-style-type: none"> <li>• Product commonality across product generations</li> <li>• Modular product design</li> <li>• Postpone product differentiation</li> <li>• Proven new parts used where appropriate</li> <li>• Product line structuring to offer only critical options in the introduction phase</li> </ul>



Table 4  
**Opportunities for Reducing Market Risk**

Risk Factor	Opportunities
Customer base characteristics	<ul style="list-style-type: none"> <li>• Develop easily customized products to serve different market segments</li> <li>• Educate potential customers about new products or technology before product introduction</li> <li>• Engage and educate channel partners in new product introduction</li> <li>• Develop marketing programs (e.g., advertising, free demonstration, free samples, etc.) to reduce customers' uncertainties about perceived value/quality of new products</li> </ul>
Accessibility of information	<ul style="list-style-type: none"> <li>• Develop information system to obtain up-to-date sales information (e.g., sell-through, point-of-sales data)</li> <li>• Share inventory information across the supply chain</li> <li>• Create incentives for channel partners to increase information sharing and lessen the magnitude of information distortion.</li> <li>• Establish common data warehouse for products and parts across the supply chain</li> </ul>
Market competitiveness	<ul style="list-style-type: none"> <li>• Cultivate customer loyalty through excellent service, continual communication, reliable after-sales service, and superior product support</li> <li>• Evaluate and develop contingency strategies to respond to competitors' threats</li> </ul>

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