

# Polaroid and the Family-Imaging Market

*Don't do anything that someone else can do. Don't undertake a project unless it is manifestly important and nearly impossible.*

Edwin Land  
Founder, Polaroid Corporation

## INTRODUCTION

At precisely 7:30 A.M. on a cold, blustery, New England day in January 1992, Roger Clapp, project manager for the Joshua Project, walked into the conference room near his office in Polaroid's Cambridge, Massachusetts, office complex known as Technology Square. The Joshua team leaders were already present: Vicki Thomas and Nick Ward from marketing; Rick Kirkendall, division vice president for Consumer Imaging; Roy Baessler, camera engineering; Howard Fortner, camera manufacturing; Ron Klay, film assembly manufacturing; Roger Borghesani, film assembly engineering; John Sturgis, film systems; Louise Reimenschneider, photographic systems; Bob Ruckstuhl, film programs; Harry Korotkin, finance; and Bob McCune, who served as the group's organizational development/team building facilitator. The group had been meeting every Tuesday morning since 1988 when Roger had assumed leadership of the Joshua Project, the code name for Polaroid's newest camera for the instant photography market.

Roger and Hal Page, the Joshua leader before Roger, used the meetings as a way to coordinate the many disparate efforts that went into the development of any high-technology product. Each person

at the meeting discussed what was going on in his or her area and what problems were being encountered. Roger believed that if everyone had lots of information about all project areas and the project's overall direction, they would align their area's activities with that direction. The meeting would produce a self-aligning process.

As Roger said good morning, he glanced around the room. He could tell the group members were tired. The group had been working hard on Joshua for a long time. They had learned that he expected a lot from them. Five-day, 55-hour weeks were not enough. Most team members worked 6-day weeks, often working into the night. However, Roger was always there, too. He didn't ask them to do anything he didn't do.

From his previous work with project teams, Roger had realized that groups went through three stages. Initially, a group felt excited as it kicked off a multimillion-dollar development project and faced the technological, marketing and business challenges. Toward the project's end, groups experienced the exhilaration of seeing their work come to fruition. However, the middle stage, when it seemed that every problem or delay brought more problems and delays, was the hardest. Group members were likely to go through an emotional dip, feeling that the project would never be completed. There would be much frustration.

The Joshua Project was in the middle stage, and Roger and Bob McCune faced the challenge of keeping the group moving through this difficult period. Although even Roger sometimes felt that the project was "impossible," he knew that it was

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This case was prepared by Lew G. Brown and David R. Vestal, the University of North Carolina at Greensboro. The authors express their appreciation to Polaroid Corporation for its cooperation in developing this case and to Morgan Stanley and the Photo Marketing Association for providing data. This case was written solely for the purpose of stimulating student discussion. All individuals and all incidents are real.

“manifestly important” for revitalizing Polaroid’s instant camera sales.

“Well, let’s get started,” Roger began as he glanced at the countdown clock. During 1990, Roger realized that he needed to create a sense of urgency in the team. The team had a target date of late 1992 for introduction of the camera, but Roger worried that team members might slide into thinking that they had plenty of time or that deadlines were flexible. Therefore, he ordered the construction of a “countdown clock,” which counted down the number of days and hours to “zero day”—the target date when everything had to be ready to meet the market introduction schedule. The clock ran on electricity, but had a battery backup. The group agreed to let Roger start the clock in late 1990, and, once started, it could not be stopped. The clock was Roger’s way of making clear to the group that there would be no on-again, off-again deadlines. It hung on the wall in the conference room, looming over their meeting and reminding them that time did not stand still.

Roger outlined the day’s agenda:

Besides our usual reports from each area, we have a meeting in three weeks with the corporate officers. We need to make a presentation on Joshua’s status, so we need to begin to prepare for that today. But most importantly, we need to begin to develop our marketing strategy for the U.S. market. Therefore, we’ll conclude today’s meeting with a presentation from the marketing folks that will serve as background for their recommended strategy, which they will present also in three weeks. First, however, let’s start with reports of good news.

## POLAROID’S HISTORY

Edwin Land started Polaroid Corporation in 1937 in a Cambridge garage and developed the polarization process. In 1943, while on vacation with his family in Santa Fe, New Mexico, his 3-year-old daughter asked why she could not see right away the picture of her he had just taken. Within an hour, Land had developed a mental picture of the camera, the film, and the chemistry that would

allow him to solve the puzzle his daughter had presented.

In 1948, Land introduced the first Polaroid instant camera. By the time he stepped down as the company’s chief executive officer in 1980, at age 70, he had built Polaroid into a \$1.4 billion company. When he died in 1991, he left behind 537 patents, second only to Thomas A. Edison. (See **Exhibits 1 and 2** for Polaroid’s financial data.)

Land’s single-minded pursuit of technology led to many successes, but also to his career’s major failure. Convinced that he needed to take his instant photography concept from the portrait camera to the movie camera, Land and his engineers developed the Polavision instant movie system, launching it in 1977. Although Polavision met Land’s criteria of being nearly impossible, it was not quite manifestly important. Polavision was too late—other companies had already invented videotape recording. Within two years, Polaroid had to write off the project at a cost of \$68.5 million.

William McCune, Jr., Polaroid’s president, felt that the company needed to move away from its dependence on amateur instant photography. Rather than stand in the way, Land resigned in 1980. McCune became chairman, and led Polaroid’s diversification efforts, moving into disk drives, fiber-optics, video recorders, inkjet printers, and floppy disks.

By the mid-1980s, some observers argued that the diversification effort was not paying off. However, sales to amateur photographers and sales of instant cameras for business use were going strong. By 1986, these sales accounted for 55 percent of Polaroid’s revenues. Consumers were still interested in instant cameras. To stimulate that demand, Polaroid introduced the Spectra camera in 1986, its first major new camera since the SX-70 in 1972. Observers who predicted that Spectra, priced at \$150 to \$225, was too expensive and would not sell turned out to be wrong.

Edwin Land probably felt vindicated that Polaroid was refocusing on its core business, amateur instant photography. Polaroid had no direct competition in the U.S. instant photography market.

## EXHIBIT 1

**POLAROID CORPORATION**  
**Statement of Earnings**  
**Years Ended December 31**  
(Dollar Figures in Millions)

	1991	1990	1989
Net sales			
United States	\$1,113.6	\$1,058.3	\$1,091.8
International	957.0	913.4	812.9
Total net sales	<u>2,070.6</u>	<u>1,971.7</u>	<u>1,904.7</u>
Cost of goods sold	1,082.5	1,011.8	966.0
Marketing, research, engineering, and administrative expenses	741.5	675.6	634.5
Restructuring and other expense	<u>—</u>	<u>—</u>	<u>40.5</u>
Total costs	<u>1,824.0</u>	<u>1,687.4</u>	<u>1,641.0</u>
Profit from operations	<u>246.6</u>	<u>284.3</u>	<u>263.7</u>
Other income/(expense)			
Litigation settlement, net of employee incentives	871.6	—	—
Interest income	25.6	19.7	37.2
Other	<u>(2.2)</u>	<u>(4.7)</u>	<u>(2.1)</u>
Total other income	895.0	15.0	35.1
Interest expense	<u>58.4</u>	<u>81.3</u>	<u>86.2</u>
Earnings before income taxes	1,083.2	218.0	212.6
Federal, state and foreign income taxes	<u>399.5</u>	<u>67.0</u>	<u>67.6</u>
Net earnings	<u>\$ 683.7</u>	<u>\$ 151.0</u>	<u>\$ 145.0</u>
Primary earnings per common share	\$ 12.54	\$ 2.2	\$ 1.96
Fully diluted earnings per common share	\$ 10.88		
Cash dividends per common share	\$ .60	\$ .60	\$ .60
Weighted average common shares outstanding (000s)	49,943	51,519	57,568
Stock price			
High	\$ 28 <sup>1</sup> / <sub>8</sub>	\$ 48 <sup>1</sup> / <sub>8</sub>	\$ 50 <sup>3</sup> / <sub>8</sub>
Low	\$ 19 <sup>5</sup> / <sub>8</sub>	\$ 20 <sup>1</sup> / <sub>4</sub>	\$ 27 <sup>7</sup> / <sub>8</sub>

Source: Polaroid Corporation 1991 Annual Report.

## EXHIBIT 1 (continued)

**POLAROID CORPORATION AND SUBSIDIARY COMPANIES**  
**Consolidated Balance Sheet**  
**Years Ended December 31**  
(Dollar Figures in Millions)

	1991	1990	1989
<b>Assets</b>			
Current assets			
Cash and cash equivalents	\$ 162.9	\$ 83.8	\$ 131.2
Short-term investments	82.3	114.2	148.1
Receivables, less allowances	476.1	441.6	459.5
Inventories	524.3	519.0	529.9
Other assets	94.3	81.7	77.1
Total current assets	<u>1,339.9</u>	<u>1,240.3</u>	<u>1,345.8</u>
Property, plant, and equipment			
Total property, plant, and equipment	1,598.9	1,440.0	1,326.7
Less accumulated depreciation	1,049.5	979.0	895.8
Net property, plant, and equipment	<u>549.4</u>	<u>461.0</u>	<u>430.9</u>
Total assets	<u>\$1,889.3</u>	<u>\$1,701.3</u>	<u>\$1,776.7</u>
<b>Liabilities and Stockholder's Equity</b>			
Current liabilities			
Short-term debt	\$ 145.9	\$ 168.6	\$ 299.0
Current portion of long-term	26.7	79.4	70.4
Payables and accruals	237.4	218.4	216.2
Compensation and benefits	131.8	123.8	143.9
Federal, state, and foreign income taxes	102.8	41.0	44.7
Total current liabilities	<u>644.6</u>	<u>631.2</u>	<u>774.2</u>
Long-term debt	<u>471.8</u>	<u>513.8</u>	<u>531.8</u>
Redeemable preferred stock equity	<u>—</u>	<u>348.6</u>	<u>321.9</u>
Preferred stock	<u>—</u>	<u>—</u>	<u>—</u>
Common stockholders' equity			
Common stock, \$1 par value, authorized 150,000,000 shares	75.4	75.4	75.4
Additional paid-in capital	379.5	379.5	379.5
Retained earnings	1,609.9	1,038.3	955.8
Less: Treasury stock, at cost	1,083.7	1,053.1	997.5
Deferred compensation—ESOP	208.2	232.4	264.4
Total common stockholders' equity	<u>772.9</u>	<u>207.7</u>	<u>148.8</u>
Total liabilities and stockholders' equity	<u>\$1,889.3</u>	<u>\$1,701.3</u>	<u>\$1,776.7</u>

Source: Polaroid Corporation 1991 Annual Report.

## EXHIBIT 2

**POLAROID CORPORATION**  
**Income Assets by Geographic Area**  
**Years Ended December 31**  
(Dollar Figures in Millions)

	1991	1990	1989
<b>Sales</b>			
United States			
Customers	\$1,113.6	\$1,058.3	\$1,091.8
Intercompany	438.5	421.4	407.7
	<u>1,552.1</u>	<u>1,479.7</u>	<u>1,499.5</u>
Europe			
Customers	624.6	598.5	504.5
Intercompany	287.3	159.6	167.4
	<u>911.9</u>	<u>758.1</u>	<u>671.9</u>
Asia/Pacific and Western Hemisphere			
Customers	332.4	314.9	308.4
Intercompany	51.0	11.0	9.1
	<u>383.4</u>	<u>325.9</u>	<u>317.5</u>
Eliminations	(776.8)	(592.0)	(584.2)
Net Sales	<u>\$2,070.6</u>	<u>\$1,971.7</u>	<u>\$1,904.7</u>
<b>Profits</b>			
United States	\$ 120.9	\$ 179.9	\$ 150.2
Europe	94.4	97.7	115.0
Asia/Pacific and Western Hemisphere	40.3	23.8	31.5
General corporate expense	(18.0)	(13.4)	(13.0)
Eliminations	9.0	(3.7)	(20.0)
Profit from operations	246.6	284.3	263.7
Other income less interest expense	836.6	(66.3)	(51.1)
Earnings before income taxes	<u>\$1,083.2</u>	<u>\$ 218.0</u>	<u>\$ 212.6</u>
<b>Assets</b>			
United States	\$1,153.9	\$1,055.0	\$1,054.2
Europe	548.7	507.3	475.7
Asia/Pacific and Western Hemisphere	165.8	160.2	168.1
Corporate assets (cash, cash equivalents, and short-term investments)	245.2	198.0	279.3
Eliminations	(224.2)	(219.2)	(200.6)
Total assets	<u>\$1,889.4</u>	<u>\$1,701.3</u>	<u>\$1,776.7</u>

Source: Polaroid Corporation 1991 Annual Report.

The company won a patent infringement suit against Kodak in 1985. The court ruling required Kodak to exit the instant photography business and pay Polaroid approximately \$1 billion.

However, Land and Polaroid knew that the company faced severe competition in the broader photography market. Video camcorders, easy-to-use 35mm point-and-shoot cameras (often called 35mm rangefinders), and 1-hour film developing were cutting deeply into Polaroid's market. Worldwide sales of instant cameras had fallen from a peak of 13 million units in 1978 to about 4 million in 1991. The new 35mm cameras were outselling instant cameras 5 to 1. Polaroid realized that it had to do something to reinvigorate the amateur photography market and to expand its base.

#### HOW INSTANT CAMERAS WORK

In black-and-white instant photography's early dates, the camera user had to pull the exposed instant picture from the camera, wait about one minute, peel off a piece of paper, and use a small sponge to apply a chemical coating to the picture to stop its development. Then, the picture had to dry before someone could safely handle it.

When Polaroid introduced color instant photography in 1963, the technology had advanced to the point that, although users still had to time the picture's development and remove the print from the film sheet, they did not have to apply any chemicals. The film remained sticky for several minutes.

In 1972, Polaroid introduced the SX-70 instant camera, which used what the company called "integral film." As the name implied, the new film was an integrated structure that did not require the user to do any timing or other treatment. There were no excess pieces of the film or paper to discard. The one-piece unit contained all the chemicals necessary for development of the picture. The user still had to wait several minutes for the exposed picture to develop fully.

With integral film, within four-tenths of a second after the user pushed the shutter release button and exposed the film, the camera partially ejected the

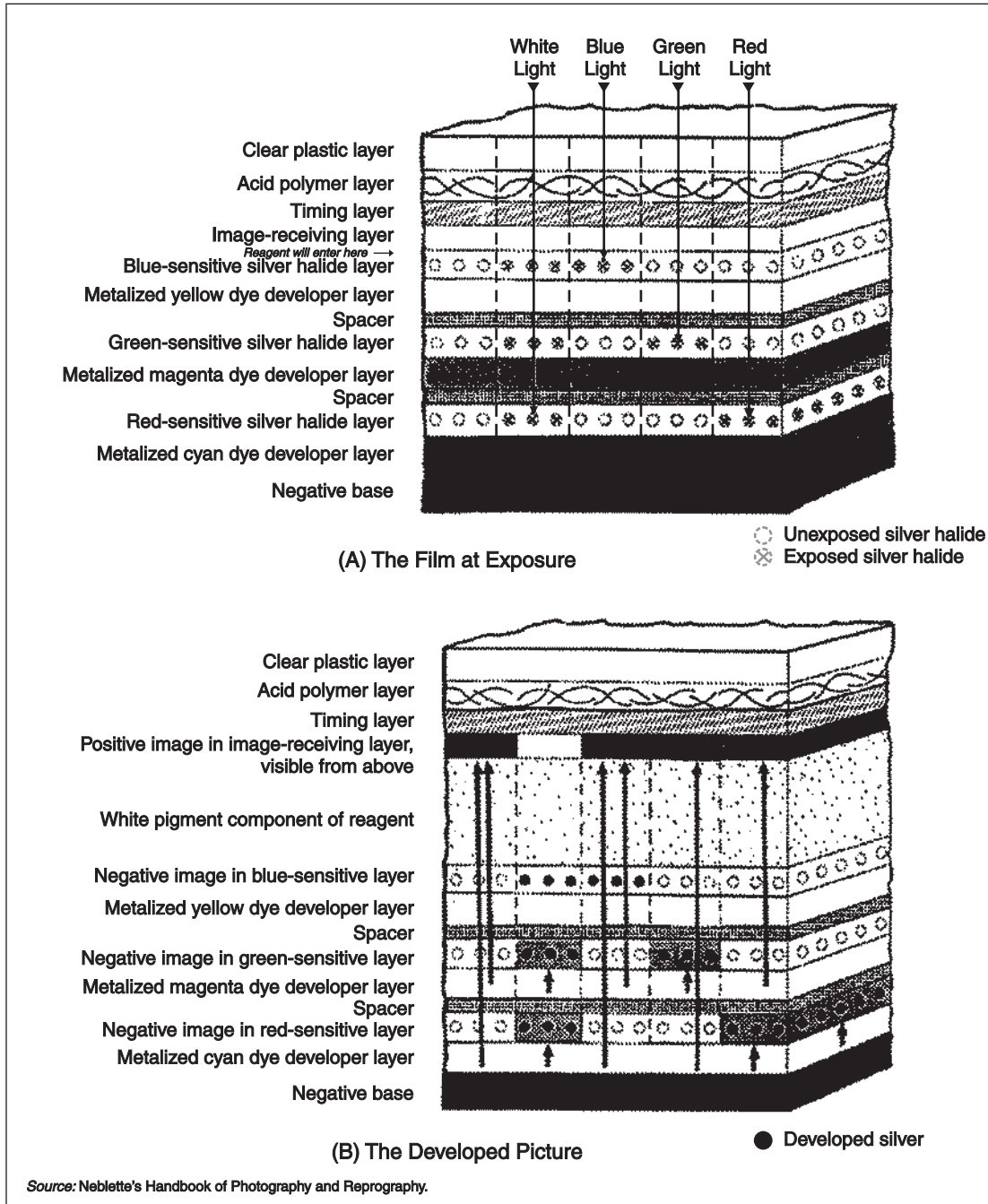
exposed film unit. A battery contained in the film cartridge powered the camera and the motor that ejected the film. As the camera ejected the picture, the film passed between two metal rollers. These rollers squeezed the film, bursting a small pod at the leading edge of the film. This pod contained chemical reagents that spread between the film unit's receiving and negative layers. The chemicals reacted with the negative layers based on the nature of the layer and the amount of each layer's exposure to light during the exposure process (see **Exhibit 3**). These reactions determined the lightness, darkness, and color of each area of the final picture. This chemical process was what users saw as they watched the film develop from the plain, grayish-green initial film color to the finished picture. All of this development took place outside the camera in full light. Opacifying dyes in the reagent layer blocked additional light from entering the light-sensitive layers once the film exited the camera.

Because users did not have to peel anything from the film unit or apply chemicals, they were technically able to take another picture immediately. However, because the camera only partially ejected the picture, the user had to take the exposed picture from the camera and find a place to put it, usually a pocket or nearby table. If the user took a second picture before removing the first, the second film unit would simply push the first out of the camera, causing it to fall to the floor. (See **Exhibit 4** for a description of Polaroid's camera line.)

#### THE BIRTH OF A NEW PRODUCT

In the 1940s and 1950s, a product development process called "skunkworks" sprung to life at Polaroid. This process allowed maverick individuals or groups to pursue new product design ideas unofficially. These individuals or groups frequently generated technology-driven new product designs, giving little, if any, consideration to marketing or business strategy. Further, operating managers often had only limited influence over the design of machinery. Film and camera development followed parallel paths. Development of the film pack

**EXHIBIT 3**  
*How Polaroid Instant Film Works*



**EXHIBIT 4****Guide to Polaroid Instant Cameras**

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**OneStep Flash**

Built-in electronic flash folds down when not in use.  
Flash range 4–10 feet.  
Autofocus. Range 4 feet to infinity.  
Used 600 PLUS film.  
Easy to use, just point and shoot.  
Suggested retail \$27–33. Dealer Price \$27.

**Cool Cam**

Built-in electronic flash folds down when not in use.  
Flash range 4–10 feet.  
Autofocus. Range 4 feet to infinity.  
Uses 600 PLUS film.  
Easy to use, just point and shoot.  
Free matching camera bag with return of camera registration card.  
Suggested retail \$30–35. Dealer Price \$27.

**Impulse Cameras****Impulse:**

Focus range 2 feet to infinity.  
Manual dual lens for close-up shots 2–4 feet.  
Pop-up flash, range 4–10 feet.  
Uses 600 PLUS instant film.  
Easy to use, just point and shoot.  
Suggested retail \$40–45. Dealer Price \$36.

**Impulse AF:**

Has same features as Impulse plus:  
Autofocus.  
Self-timer  
Flash range 2–14 feet.  
Suggested retail \$80–85. Dealer price \$71.50.

**Spectra Cameras****Spectra 2 AF:**

Autofocus, range 2 feet to infinity.  
Auto exposure, flash range 2–15 feet.  
Uses spectra instant color film.  
Pictures guaranteed for one full year after camera purchase (up to a limit of 10 packs of film).  
Camera folds to fit neatly in a briefcase.  
Easy to use, just point and shoot.  
Suggested retail \$79–85. Dealer Price \$74.

**Spectra AF:**

Has same features as Spectra 2 AF plus:  
Self-timer.  
Control Panel allows user to turn off automatic features.  
Viewfinder displays symbols to help get best pictures.  
Suggested retail \$100–110. Dealer Price \$85.

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Source: Polaroid Corporation.

occurred after development of the film components. Through the 1970s, this development process had invariably resulted in major problems when managers tried to get all the parts to work together.

In 1984, a skunkworks team from camera engineering began discussing Polaroid's next camera, and a team from film research began to work on possibilities for a new film. The two groups met unofficially to share ideas. These "blue sky" meetings focused on the problems of picture quality, film cost, and camera size. The groups soon narrowed their discussions to a film that would fit a smaller camera.

Unlike some skunkworks groups, these two groups sought marketing's participation. In 1984 and 1985, Polaroid's internal market research group conducted focus groups to get consumer reactions to small, medium, and standard-sized instant cameras with picture-storage features. The results from these focus groups suggested that some consumers would be interested in the smaller camera and its smaller pictures. Polaroid president I. MacAllister Booth asked his assistant, Roger Clapp, to develop the idea.

**THE JOSHUA STORY**

Enter Joshua. Even as Polaroid introduced the Spectra camera in 1986, Booth, who had just become CEO, realized that the company had to continue work on its next new camera. He appointed Peter Kliem as director of research and engineering, combining two departments that traditionally had separate new product development responsibilities. Clapp took responsibility for camera engineering. Booth also asked Hal Page, Polaroid's vice president for quality, to become program manager for the next consumer camera. For the first time, Polaroid had a single, high-level program manager responsible for all aspects of new product development—for film as well as camera, for manufacturing as well as marketing.

Page began a year-long process of reexamination to generate ideas for a new camera. He started brainstorming sessions by showing a training film



that featured a cartoon character named Joshua. In the film, Joshua finds himself trapped in a box and tries all the obvious ways to escape. Finally, in frustration, Joshua gently taps his finger against the box's wall and unexpectedly finds that his finger has poked a hole in the wall. He struggles to make the hole bigger and escapes.

Joshua sent a message to the hundreds of people from many functional groups who attended Page's brainstorming sessions. To generate truly innovative ideas for a new camera, the employees would have to attack new problems with new ways of thinking—"out-of-the-box" approaches. To create something other than an extension of Polaroid's existing cameras, people would have to think creatively and give up old prejudices, including, perhaps, their prejudice against smaller cameras. The brainstorming sessions also helped participants face head-on the question of whether new products should be technology-driven or market-driven. Participants soon learned the answer: they had to be both.

Hal Page also showed the groups a film that dramatically illustrated the value of internal picture storage for the new camera. The film showed tourists at Disney World using 35mm automatic cameras to take picture after picture. Other tourists, however, stood around watching their one Polaroid picture develop and searching for a place to put it. Page and others thought consumers would take more pictures if they did not have to stop after each one to find a place to put it while it developed. Further, consumers would damage and lose fewer pictures.

A practical storage feature, however, would require that the camera's film bend around a chute after exposure to enter the storage compartment. Engineers told Larry Swensen, a member of the marketing department, that Polaroid's standard film would not bend without breaking or coming apart. Swensen, however, refused to accept this conventional wisdom. He made a working model of a camera that allowed standard film to make a 180-degree U-turn during processing. The camera released the photographs into a built-in storage

chamber where the user could view them as they developed. No longer would the user need to interrupt picture taking to find a safe place for each picture. Out-of-the-box thinking had begun to work.

Page also used outside marketing consultants. On the basis of studies of small cameras, conducted by Polaroid between 1984 and 1986, the consultants concluded that there would be a market for a smaller instant camera and that the camera would not cannibalize Polaroid's existing lines. Additional outside studies in 1987 and 1988 examined consumer preferences regarding camera size, camera price, and film price. Another study estimated the sales volume that Polaroid could expect from various feature combinations.

Polaroid had based these studies on the assumption that it would set the retail price of the new camera at \$150. As the studies progressed, however, management concluded that the market at the \$150 retail price would be too small and that it should price the camera at about \$100. This change required more market studies.

In 1988, Hal Page left Polaroid and Roger Clapp took over what employees had by now dubbed the "Joshua program." Roger had been with Polaroid 22 years, having earned a B.S. in chemical engineering at Northeastern University and an M.B.A. from Harvard. Although Page and his groups had made much progress, many technical and marketing hurdles remained. Design engineers faced tradeoffs between size and other features, such as performance and cost. As a result, the planned camera had become too large. Roger Clapp remarked that it looked like a "brick." Clapp stopped the design process and ordered the developers to reconsider all tradeoffs. This planned 4-week pause, however, turned into an 8-month interruption, as it opened the door for reconsideration of many still-unresolved issues.

As Clapp's managers reviewed the Joshua Project, they realized that they needed to clarify the camera's market potential at a \$100 price and conduct new research to bring marketing fully behind the program. The managers agreed that the last market research hurdle would be an "assessor test"

conducted by Professor Glenn Urban of MIT's Sloan School of Management.

The assessor test involved setting up mock stores at six geographically diverse sites in the United States. These "stores" offered 25 different cameras (both Polaroid's and competing models), with prices ranging from inexpensive to expensive. Each store had a real counter, a film rack, feature cards, and sales clerks to answer questions. As a part of the interview process, Polaroid's advertising agency created full-color sheets of print advertising for the new camera. Polaroid also developed realistic Joshua camera models. Over a 1-month period, 2,400 people participated in market interviews and testing at the six sites. Researchers carefully screened participants on factors such as age, sex, race, and economic status to make sure the group represented demographics of the U.S. population as a whole.

During this time, another camera design emerged from a one-man skunkworks. Although the Joshua Project was well under way, Larry Douglas had continued to work on his idea. Douglas's camera offered an ingenious design for a camera that popped open to take a picture, then closed automatically. Polaroid ordered market research on Douglas's camera.

The two studies provided convincing evidence that there was a market for a smaller instant camera and that Joshua would be the preferred product. Polaroid's board of directors gave Joshua the go-ahead in late 1989.

### FROM VISION TO REALITY

Although Polaroid had devoted an extraordinary amount of time and energy to the Joshua Project before its final approval, the camera and the film were still in the development stage. Polaroid employees throughout the company still had to solve many problems.

Manufacturing had to install a new computer-aided design (CAD) system and select a new material and design for the camera's mainframe. The camera would employ through-the-lens viewing,

the same viewing system found on millions of 35mm cameras. The picture storage compartment would have to be able to hold all ten of the pictures in a film package. And the camera would have to pass Polaroid's 4-foot drop test and meet other aggressive quality goals.

Polaroid created a cross-functional steering committee to manage the film manufacturing process. This team addressed issues such as how to include the battery in the smaller film pack and how to design the film manufacturing process itself. Like Polaroid's other instant film, Joshua's film would come in a package of ten exposures and would cost the consumer about \$1.00 per picture, as compared to about \$0.40 for a conventional 35mm picture. The picture would be about 2<sup>1</sup>/<sub>8</sub> by 2<sup>7</sup>/<sub>8</sub> inches, a pocket-sized format that was smaller than conventional 35mm prints.

At the heart of the Joshua camera was a new microcontroller designed by electronics engineers to solve many longstanding technical and manufacturing problems. Using software, it provided "track and hold," "trim and speed," and "wink" features to measure the light available for the picture, set the exposure, and find the distance from the camera to the subject. In other words, like many 35mm cameras on the market, Joshua would have "automatic everything." In all these processes, managers insisted on meeting the highest quality and reliability standards.

By Labor Day 1991, the Joshua team produced 24 Joshua prototype cameras for testing by Polaroid employees over the holiday weekend. Twenty-three cameras worked. The team continued to produce cameras for weekend tests and made a concentrated assault on any problems the tests identified. For Christmas 1991, the team produced 300 Joshua cameras for non-Polaroid employees from coast to coast to test. This test represented the earliest time in a product's development that Polaroid had ever placed cameras with outside users. Managers believed that they were making a new camera that met real customer needs, but they wanted to base their decisions on market research, not on instinct.

Analysis of the pictures taken in the field tests suggested that Joshua users took more vertical pictures and more close-ups than did users of other Polaroid cameras. Engineers adjusted the camera's exposure system, accordingly to perform optimally in vertical format or close-up situations. Polaroid also conducted market tests in foreign countries. Polaroid calculated that by the time it announced the camera, more than 2,000 Polaroid and non-Polaroid consumers would have made more than 55,000 images for picture analysis.

### **BACK AT THE MEETING: THE U.S. FAMILY-IMAGING MARKET**

After all team members made their initial status reports, Roger turned to Vicki Thomas, senior marketing manager. Vicki had recently joined Polaroid from GTE. She had an undergraduate degree in political science from the University of Vermont and an M.B.A. from the American Graduate School of International Management (Thunderbird).

"As you know, we have been focusing on camera and film manufacturing and on market research. It is now time for us to begin to develop our marketing strategy for the U.S. consumer market. At our last meeting we asked Vicki to prepare an overview of the market so we would have a background for the marketing plans she, Nick, and Rick will present later. Vicki."

Thanks, Roger. I have prepared a series of overheads that summarize the U.S. market that I want to share with you now. This first overhead [Exhibit 5] presents a U.S. economic overview. We feel that the recession is over and that economic conditions will improve slowly during 1992 and into 1993. Disposable income will increase about 2 percent over 1991 while the prime rate and inflation will remain relatively low. We also believe the unemployment rate will continue in the low 7 percent range and that consumer confidence will remain relatively unchanged at about 65 on a 0 to 100 scale. There may be some higher taxes on individuals and corporations due to the federal government's budgetary problems. In summary, we feel that consumers remain cautious and that they are

increasingly searching for value in the products and services they purchase. This concern with value puts pressure on instant photography because many consumers feel that instant film's price is very high compared with standard 35mm film.

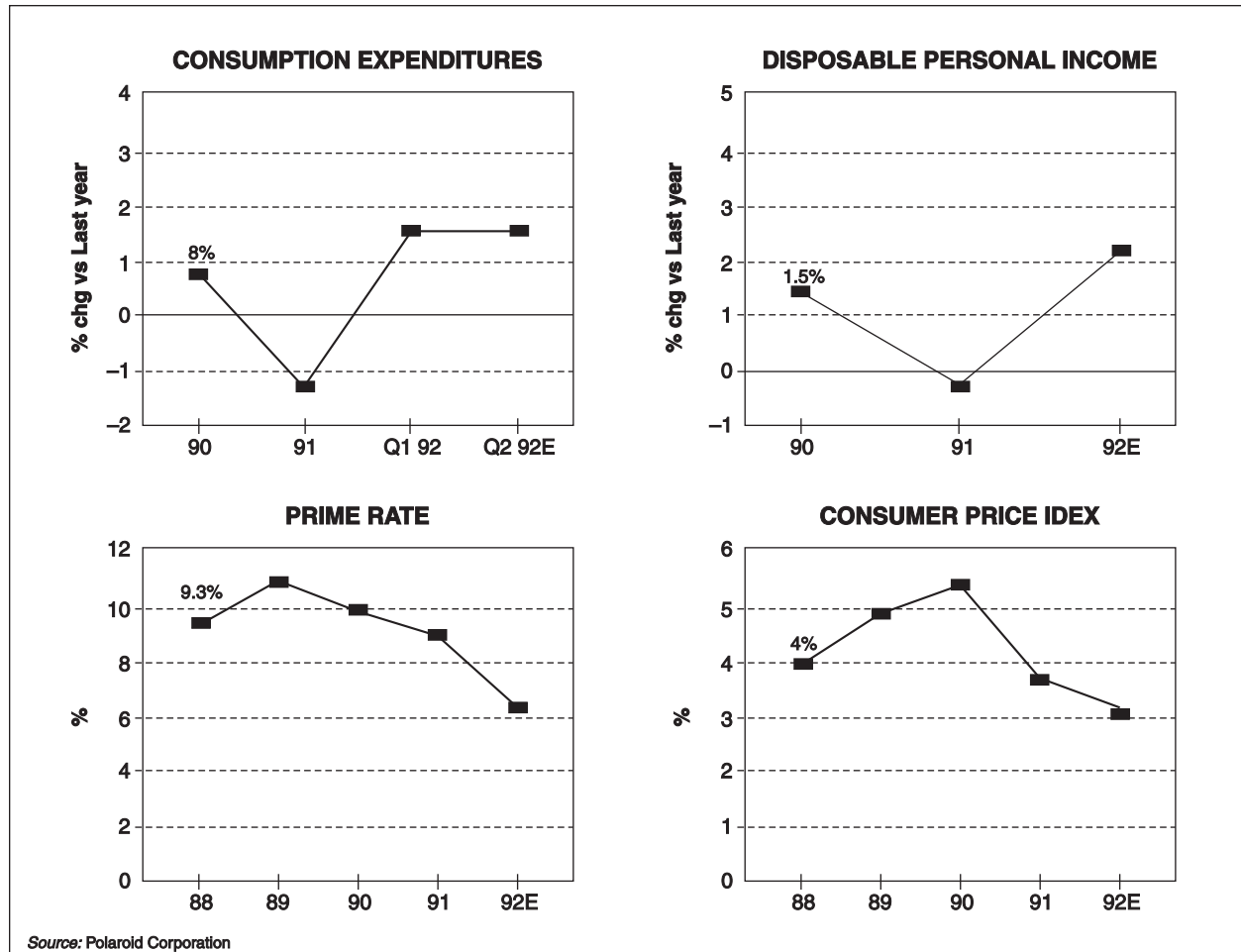
This overhead [Exhibit 6] provides a societal overview and shows that we believe that the United States is becoming increasingly fragmented. Minority populations are becoming more significant, as is the mature population. Further, we are also seeing an explosion of specialized media and communication channels. The United States is becoming a 'salad bowl' instead of a 'melting pot.'

We now turn to the U.S. camera market itself [Exhibit 7]. This overhead uses Photo Marketing Association Data and Morgan Stanley data to show that although the total still-camera market (not including camcorders) is flat, 35mm rangefinder camera sales (the so-called point-and-shoot 35mm camera without interchangeable lenses) are growing rapidly. The 35mm rangefinder has taken share from other camera types in the last six years. The rangefinders offer excellent photo quality, automated functions, ease of use versus traditional 35mm single-lens reflex cameras, compact size, built-in zoom lenses in some cases, and relatively low prices (as low as \$19.95 for some simple versions). Vivitar, Olympus, and Polaroid have seen their total shares of the camera market grow in the past four years while Kodak's has fallen. Many major players are introducing new models.

We estimate that about 90 percent of households own a still camera of some kind and about 20 percent own an instant camera. As you know, although our U.S. consumer business is reasonably healthy, our sales revenue has been flat since 1986, even though our shipments and market share are up. Average 35mm rangefinder camera prices have been in the \$95 range for the past five years, while average distant camera prices are falling into the low \$40 range. The average price for 35mm single-lens reflex cameras is \$333 today, as compared with about \$195 in 1986.

I thought you would also be interested in camera distribution and prices, so I included these next two overheads [Exhibits 8 and 9, pages 793-794] based on Photo Marketing Association data. The major change since 1986 has been the almost one-third increase in our percentage distribution through discount stores, including stores such as Wal-Mart and Kmart. The Photo Marketing Association's research

EXHIBIT 5  
U.S. Economic Overview



indicates that consumers purchase 58.1 percent of 110/126/disc/instant cameras [i.e., camera sizes other than 35mm] in discount department stores and another 23.7 percent in other mass retail stores. The pie charts showing the format mix of still cameras purchased [Exhibit 8] reveal that these cameras account for about 28 percent of the cameras sold in discount stores and about 29 percent in other mass

retailers. Our own top ten accounts generated about 60 percent of our sales in 1991 versus about 45 percent in 1986.

The next overhead [Exhibit 9] reflects the importance of mass retailers (including discount stores) in the camera market. Camera sales through these dwarf average sales in other outlets; but, as you can see, the average prices are much lower.

**EXHIBIT 6**  
*Societal Overview*

**Demographic**

Growth of minority population  
(33% of population by 2010)

	1983-1993	1993 % Pop
Hispanic	+53%	10%
Asian	+40%	3%
African American	+13%	12%

Growth of mature population (age 50+)  
67M people, 25% of U.S. population  
14% growth through 2000

**Psychographic**

Strong adherence to special issues

- Alternative lifestyles
- Religious right
- Green movement
- Handicapped

**Media**

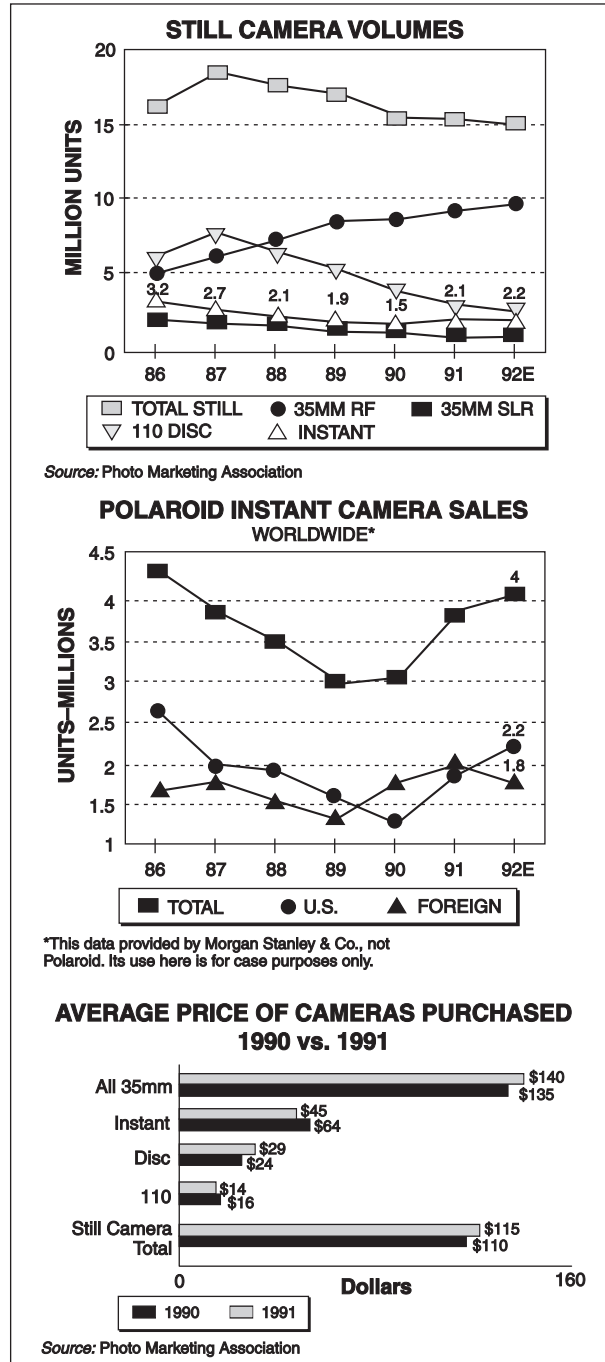
- Increased cable penetration—64% in 1993
- “500 channels” vs. 3 networks
- Spanish-language networks
- Increased alternative lifestyle media
- Proliferation of targeted communications
  - Direct mail
  - Telemarketing
  - Infomercials

**Implications**

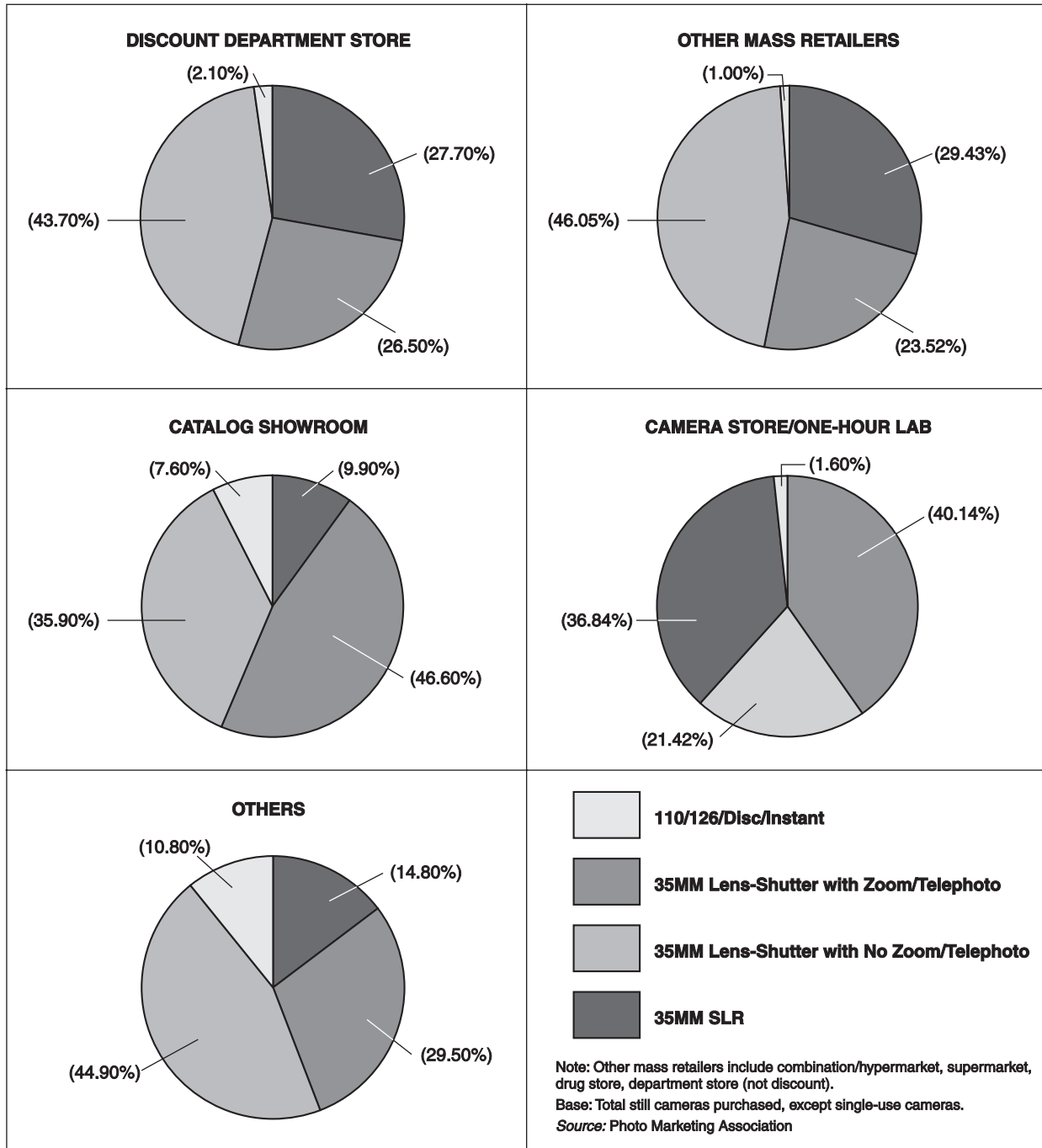
- Increased need for segmentation strategy to reach consumers
- Need to diversify advertising vehicles and media

Source: Polaroid Corporation. Demographic data from U.S. Census Bureau.

**EXHIBIT 7**  
*U.S. Camera Market Overview*



**EXHIBIT 8**  
*Still Cameras Purchased: Format Mix by Outlet Type*



**EXHIBIT 9**  
*Camera Distribution and Prices 1991*

Camera Type	All Specialty Retailers Combined	Camera Store No Mini Lab	Camera Store With Mini Lab	Standalone Mini Lab	All Mass Retailers Combined
<b>Average Number of Cameras Sold per Firm*</b>					
35MM SLR	122	84	174	42	22
35MM RF	359	253	665	90	2,662
110/Disc	194	12	324	13	165
Instant					
Spectra	24	11	32	12	NA
Impulse	35	22	43	15	12
Cool Cam	68	12	105	11	NA
Other	37	13	50	13	2,050
Total instant	82	32	118	23	1,371
Total still cameras	401	241	770	91	2,916
<b>Average Price per Camera</b>					
35MM SLR	\$ 373	\$ 413	\$ 364	\$ 391	\$ 387
35MM RF	\$ 205	\$ 258	\$ 200	\$ 168	\$ 37
110/Disc	\$ 18	\$ 25	\$ 18	\$ 22	\$ 15
Instant					
Spectra	\$ 122	\$ 143	\$ 118	\$ 136	NA
Impulse	\$ 68	\$ 72	\$ 67	\$ 86	\$ 39
Cool Cam	\$ 35	\$ 40	\$ 34	\$ 54	NA
Other	\$ 117	\$ 62	\$ 56	\$ 75	\$ 30
Total instant	\$ 82	\$ 108	\$ 67	\$ 97	\$ 30
Total still cameras	\$ 179	\$ 250	\$ 170	\$ 163	\$ 35

\* Numbers sold are per firm, not per outlet. A firm that sells a particular camera format may not do so in all its outlets.

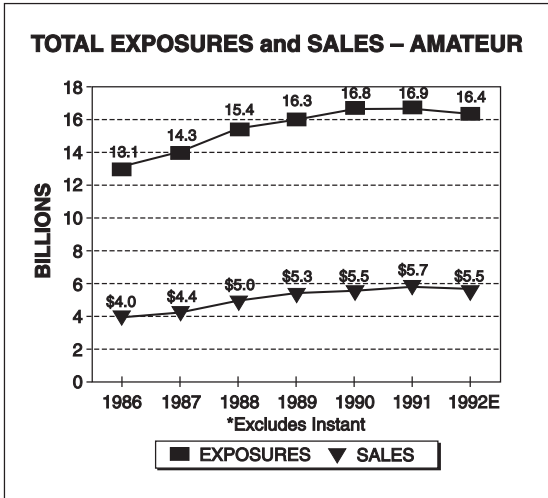
Source: Photo Marketing Association.

The film market graphs [Exhibit 10] use data from the Photo Marketing Association and Morgan Stanley to describe the U.S. film market. As you can see, total exposures are flat, as are our film shipments. However, 35mm film is taking a growing market share while our sales are relatively flat. As you know, film purchasing accounts for 18 percent of the \$12 billion amateur camera/film market, and film processing accounts for 45.5 percent. Still cameras themselves account for 13.3 percent of annual sales.

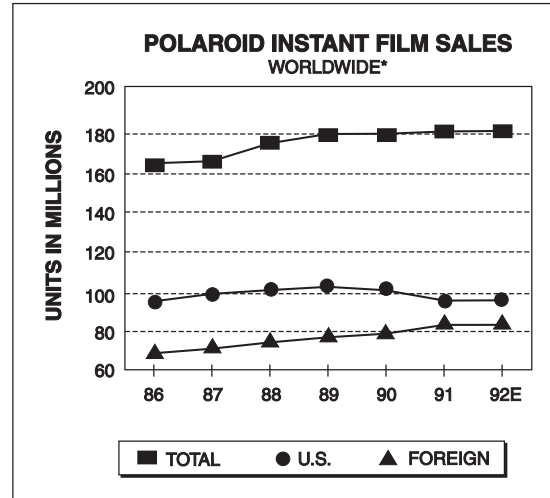
This overhead [Exhibit 11] again uses Photo Marketing Association data to show that our dollar

volume of film sales to the amateur market has been relatively flat since 1988, although the dollar volume will increase slightly this year. Unit volume, however, has been declining since 1988. Instant film captures only a 1.5 percent share of the total film exposures and only 3.7 percent of the rolls or packages of film sold. Only about 2.8 percent of households purchase instant film in a three-month period buying about three packs. This compares with 43 percent who purchase 35mm film, buying almost five rolls.

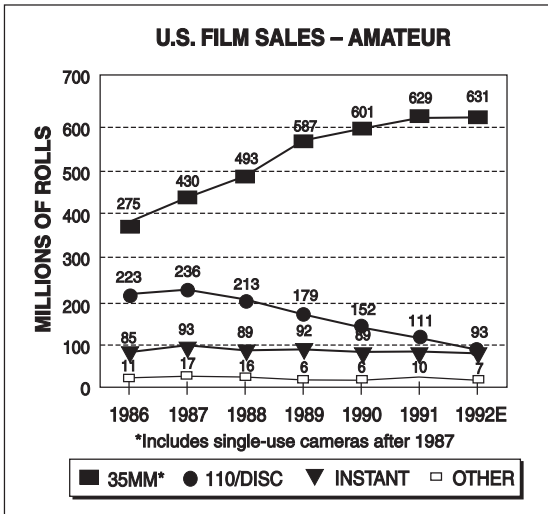
EXHIBIT 10  
Film Market



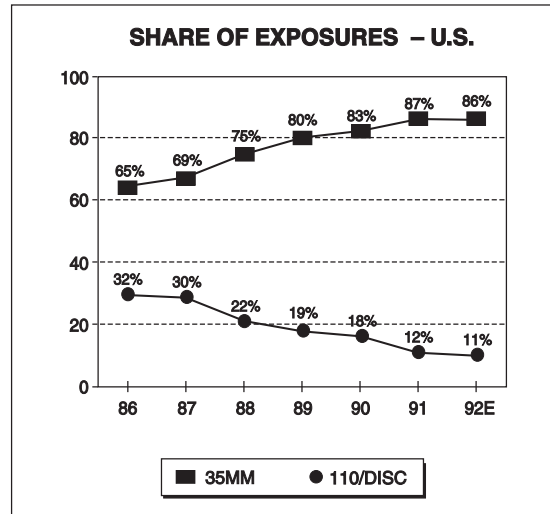
Source: Photo Marketing Association



\*This data provided by Morgan Stanley & Co., not Polaroid. Its use here is for case purposes only.



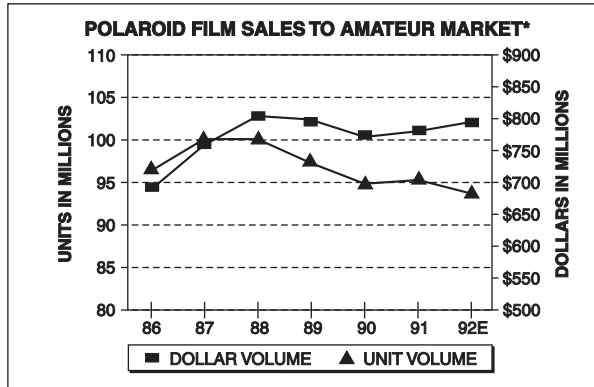
Source: Photo Marketing Association



Source: Photo Marketing Association

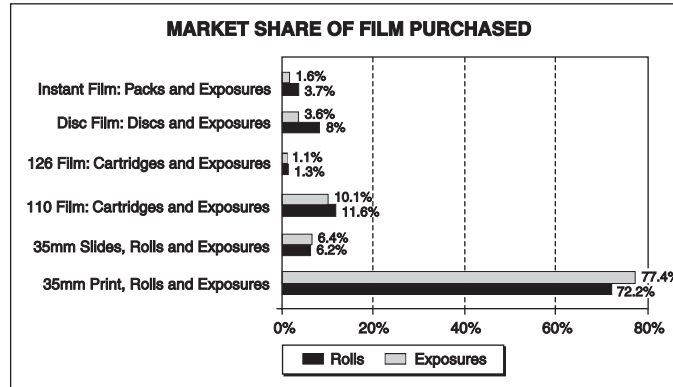


**EXHIBIT 11**  
*Analysis of Film Sales*

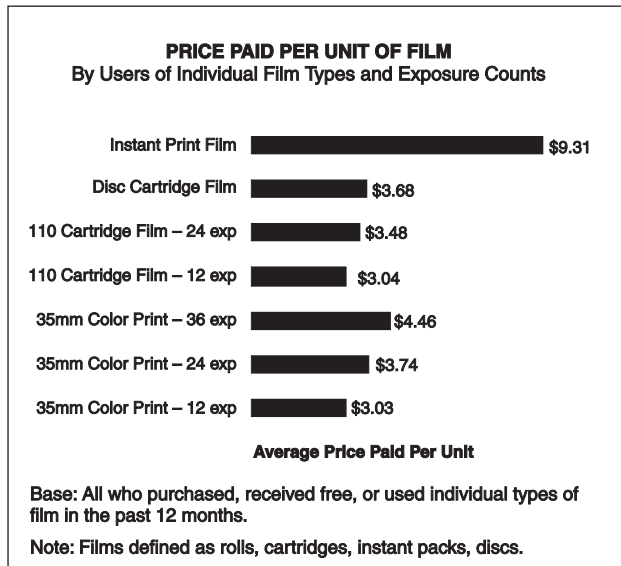


Source: Morgan Stanley Research Estimates

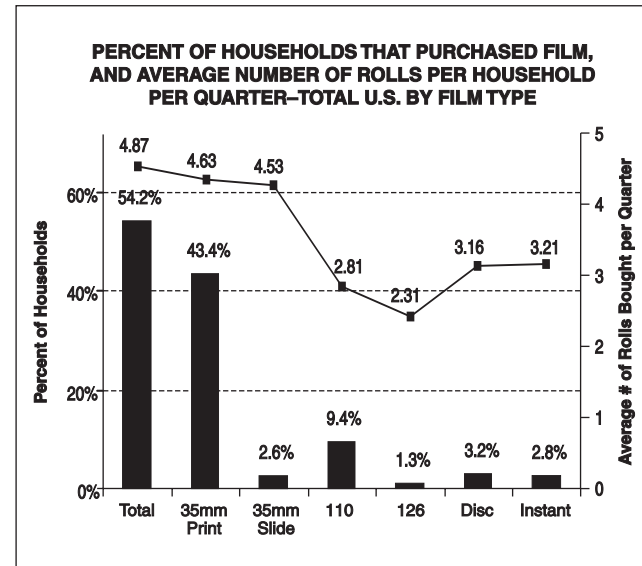
\*This data provided by Stanley Morgan & Co., not Polaroid. Its use here is for case purposes only



Source: Photo Marketing Association



Source: Photo Marketing Association



Source: Photo Marketing Association

I noted earlier that instant film is expensive compared to other film. This overhead shows that dramatically. In fact, the price gap between instant and 35mm film *per developed image* has been widening over the past six years. The cost per developed image for instant film will be about \$0.97 this year versus about \$0.39 for 35mm film. I analyzed some Photo Marketing Association data that indicated that consumers pay an average premium of almost 31 percent when they select "fast" processing versus regular processing at photo-processing outlets.

Since I'm discussing processing, take a look at the next overhead [Exhibit 12], which shows that the growth in minilab, 1-hour processing seems to have peaked and that discount and grocery store processing is actually growing faster than minilab. Most grocery-discount stores offer one-day turnaround. This is where we feel the growth is.

John Sturgis put up his hand. "Vicki, while you are on the subject of film, do you have any data on where consumers are buying film?" he asked.

"You folks are always asking me about making the film, but we haven't really discussed consumer buying habits."

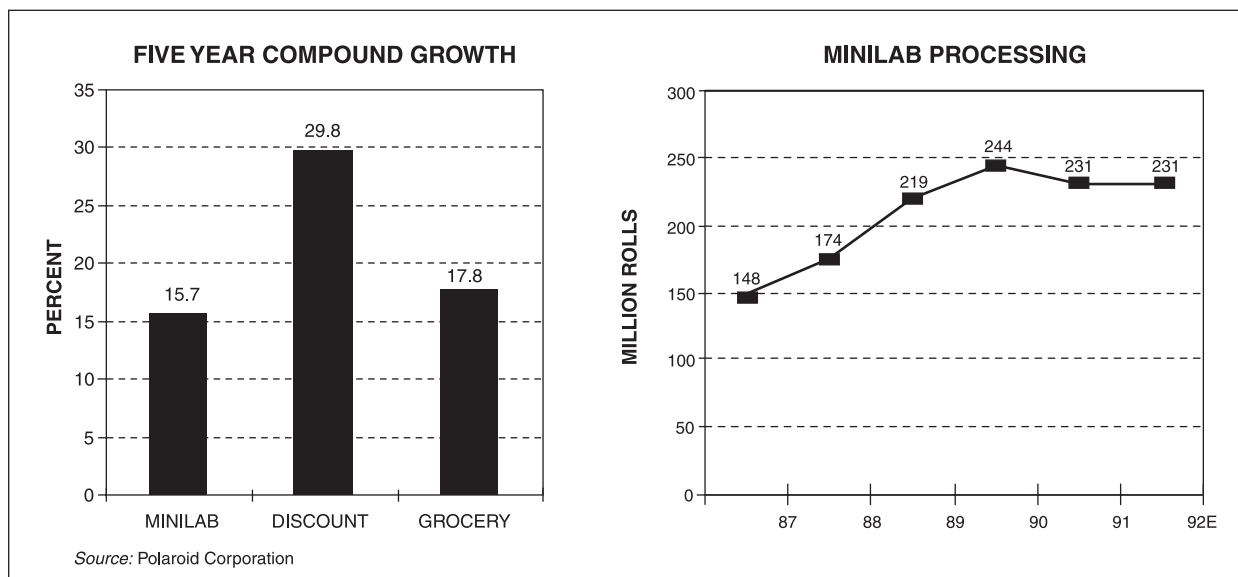
Good question, John. Let me see, I believe I have an overhead here on that. Yes, here it is [Exhibit 13]. As I noted earlier, we have seen a significant increase in our camera sales in discount department stores. This chart, which is based on Photo Marketing Association data, shows that consumers purchased almost 37 percent of film in these stores, easily outdistancing drug-stores and supermarkets. As in camera sales, our top ten customers now account for about half of our film shipments, up from about one-third in 1986.

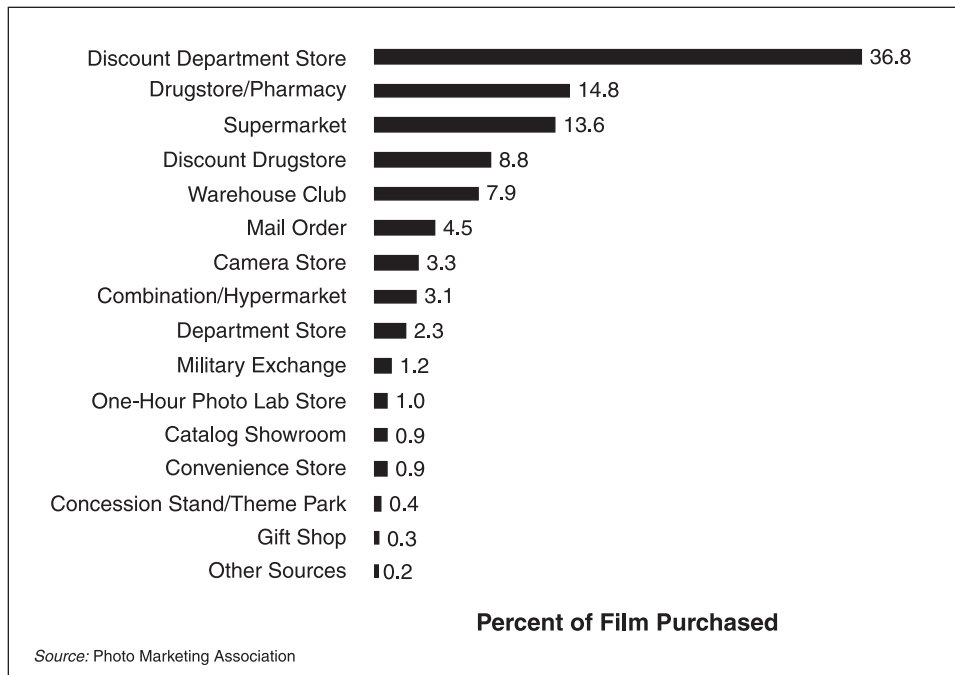
"How are we doing on consumer awareness?" Howard Fortner asked. "Like John, I worry about making the cameras rather than selling them. But I notice that when I meet people and tell them I work for Polaroid, often they really don't know much about us or our cameras."

"Another good question, and right on cue, Howard," Vicki responded. "I'll ask Nick to show you some overheads he prepared."

Nick Ward had only recently joined Polaroid as senior marketing research analyst. He had previously been with Kraft/General Foods and had a Ph.D. in experimental psychology from the

**EXHIBIT 12**  
*Minilab Processing*



**EXHIBIT 13***Percentage Breakdown of Household Film Purchased in the Past 12 Months by Outlet Type*

University of Kansas and an undergraduate degree from UCLA in mathematical psychology.

Howard, this overhead [Exhibit 14] shows some results from the Photo Marketing Association's most recent consumer tracking studies. As you can see, Kodak has tremendous consumer awareness in both cameras and film, while we hover in the 40 to 50 percent range. Our camera awareness is significantly below 50 percent in terms of top-of-mind awareness. As you know, our research shows that most Polaroid owners also have at least one other camera in their home. Our advertising tracking studies show that about one-third of consumers see instant cameras fitting their lifestyle. However, consumer perceptions of the quality of our cameras has fallen somewhat, probably due to our advertising our OneStep and Cool Cam cameras at less than \$30, the "under 30 clams" ads.

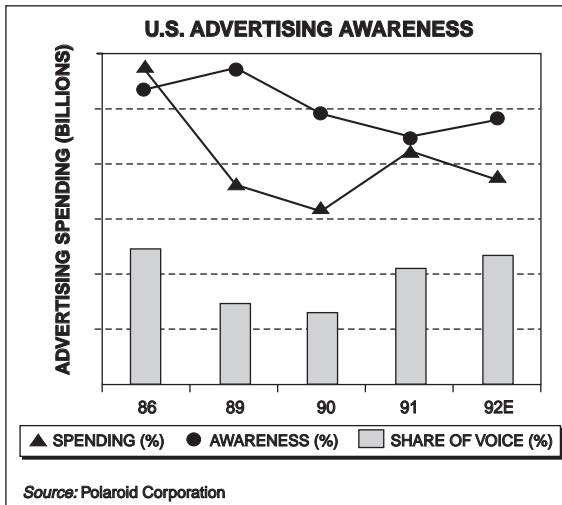
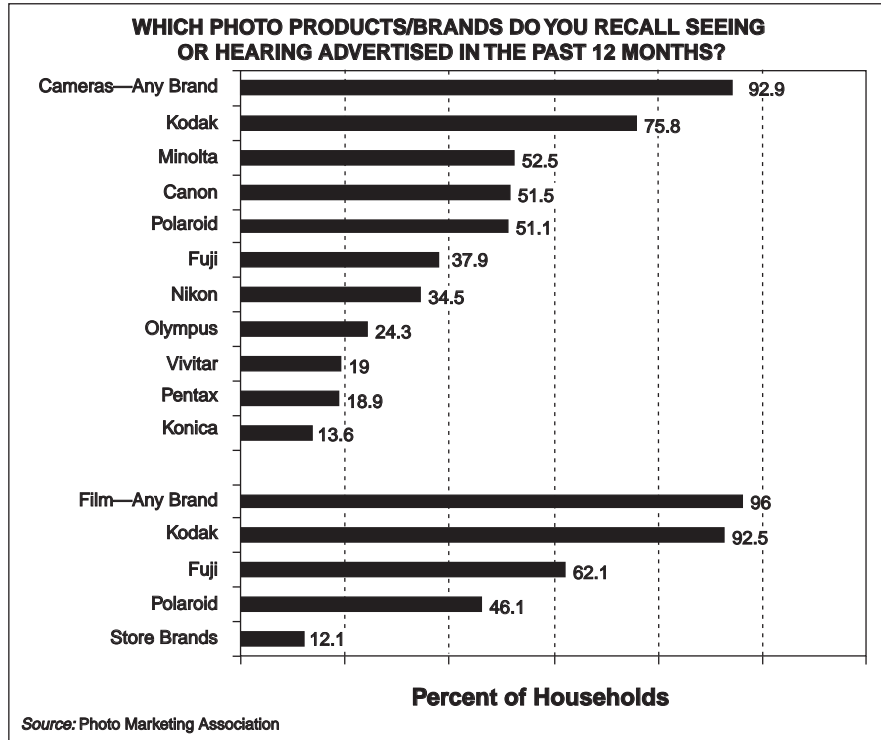
I guess the next logical question relates to our advertising spending. So, this overhead also compares our

U.S. advertising spending and share of voice with our awareness. There is some lag effect here from year to year. I've included a graph showing our advertising and promotion expenses as a percent of worldwide sales.

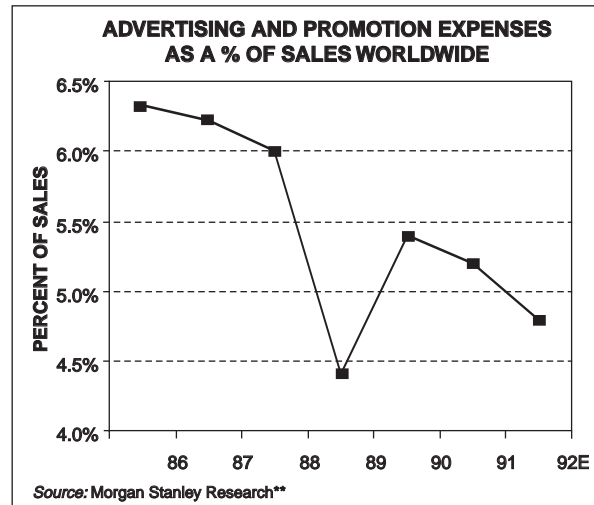
The next two overheads [Exhibits 15 and 16, pages 800-801] summarize some Photo Marketing Association information I've gathered about the knowledge and use of cameras. The pie chart on the first overhead indicates that 53 percent of the survey's respondents felt they knew almost nothing or just a little about photography. The bar graph compares consumers' views of picture quality. Respondents gave instant prints the lowest rating. Our tracking studies also show that consumers see instant cameras as being more expensive and less flexible and compact than other camera types.

The four bar graphs on the last overhead [Exhibit 16] again use Photo Marketing Association data to illustrate that consumers are taking fewer pictures because they feel they have fewer opportunities much

EXHIBIT 14  
Advertising and Promotion



\*Specific data points are not disclosed on the graph. Graph represents relative magnitudes of spending, awareness, and share of voice.



\*\*Data for graph provided by Morgan Stanley & Co., not by Polaroid. Use is for case purposes only.

**EXHIBIT 15**  
*Consumer Ratings of Quality and Knowledge*

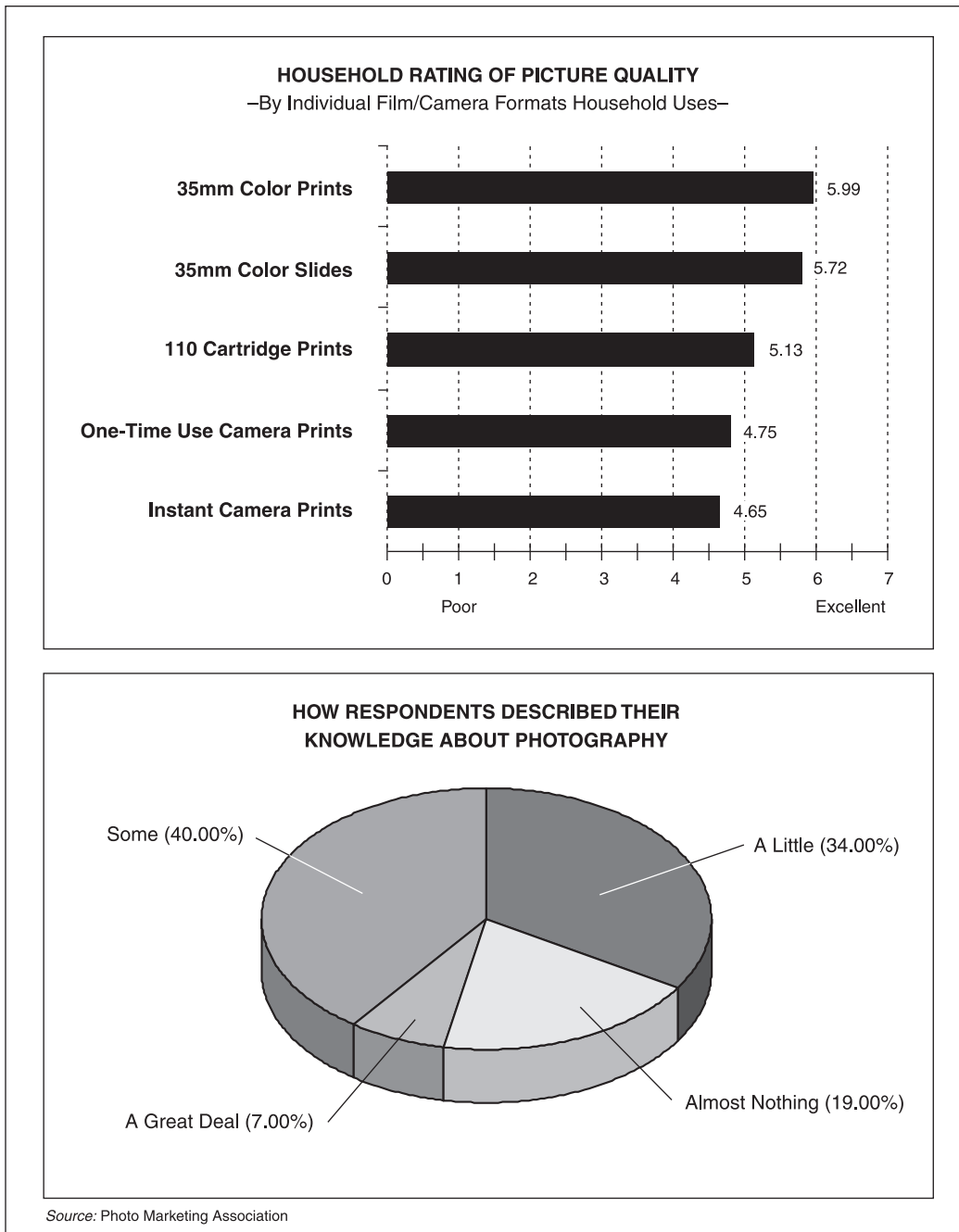
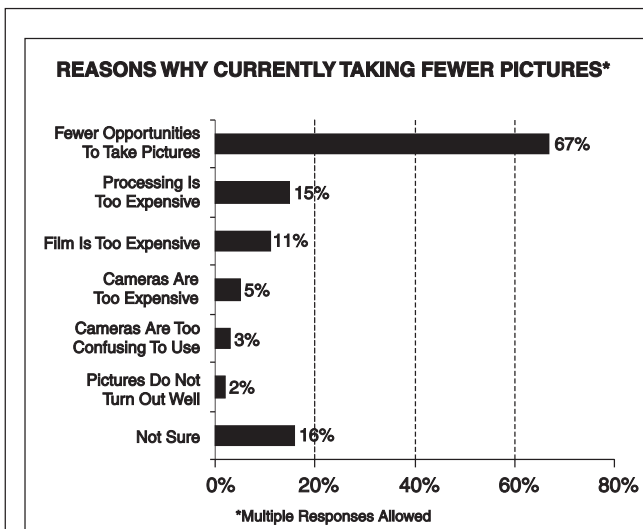
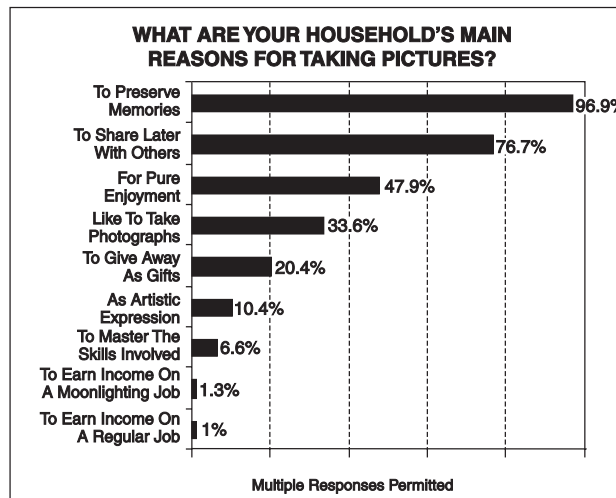


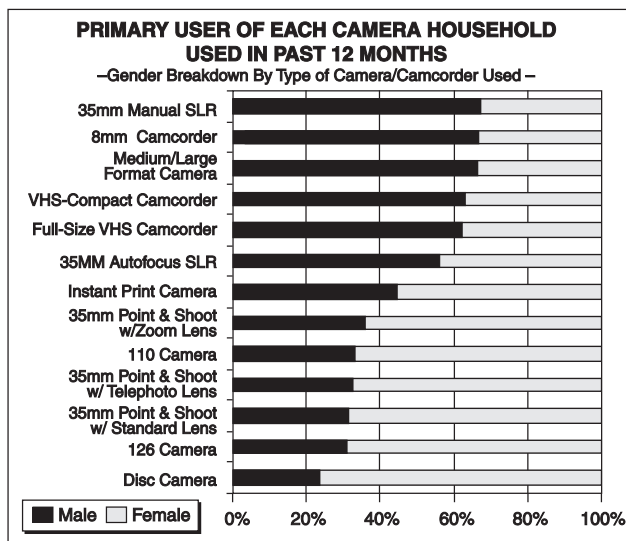
EXHIBIT 16 Camera Usage



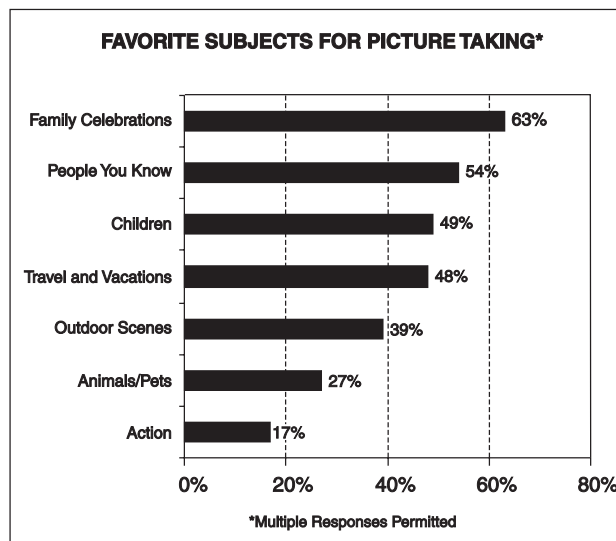
\*Among those who are taking fewer pictures now compared to five years ago.  
 Base: 22% of the households that had taken a picture in the previous 12 months.  
 Source: Photo Marketing Association



Base: All who own cameras/camcorders.  
 Source: Photo Marketing Association



Source: Photo Marketing Association



Source: Photo Marketing Association

more than because of their concern over the cost of film and processing. People cited their desire to preserve memories and share those memories later with others as their main reasons for taking pictures. Notice that the primary users of instant cameras are females. We also know that the average instant camera user is somewhat older than the average users of other cameras. For example, our average user is about 46 years old versus about 41 years old for users of 35mm rangefinders. The favorite subjects for picture taking are family celebrations and people. I should also add that we estimate that there are approximately 9.5 million households that have and use a Polaroid camera, about an equal number that have a Polaroid camera but don't use it, and about 75 million households that don't own a Polaroid.

Finally, our research shows that the Joshua camera has good product imagery; that is, compared to our other cameras, consumers see it as similar to a 35mm camera and as having a stylish appearance and contemporary design. Consumers also found it easier to handle, more full-featured, and more fully automatic than our other cameras. They felt they would be more likely to use the Joshua camera than our other cameras for vacations, weekend and day trips, and sporting events. Research also shows that consumers want a better camera that is easier to operate and that they can carry on trips in the U.S.

"Nick, did you find any commonalities among the consumers who liked the Joshua camera in your research?" asked Roy Baessler.

"Yes, Roy. At this time, we can say that the camera appeals to younger, upscale, career-minded people who are intelligent, stylish, adventurous, and friendly," Nick responded. "I know those terms sound very general to an engineer, but those are the adjectives we've used to describe people who like the new camera design."

"Roger, that's all the background information we wanted to present today."

### THE ASSIGNMENT

"Thanks, Vicki and Nick. As I said, we need to spend the time in these meetings over the next two weeks to prepare for our meeting with the corporate officers. I'd like to ask Vicki, Nick, and Rick to be prepared to present an outline of a U.S. marketing strategy for our family-imaging business at our meeting in three weeks. Meanwhile, if any of you have suggestions for them, please feel free to share them. I'm sure they'll appreciate your ideas."

As the meeting adjourned, Vicki gathered her overheads. She glanced at the countdown clock and then at Nick. "I'm starting to hate that clock," she announced. "We've lost seven days since our last meeting! There's just too much to do and too little time."