**EASTMAN** **KODAK: FACING DISRUPTIVE TECHNOLOGICAL CHANGE**

On August 25, 1981, a shock wave hit the Eastman Kodak Company in Rochester, NY. On the other side of the world in Tokyo, Sony Corporation demonstrated its new Mavica camera at a press conference filled with interested onlookers. Mavica stood for MAgnetic VIdeo CAmera, and while the device appeared much like 35mm single lens reflex cameras from many other companies, this camera used no film and was fully electronic in operation. The camera required only three AA batteries to operate. The Mavica captured images in a similar fashion to video recorders; the unit used a CCD chip to record still video images. The output quality matched the maximum level available in televisions and video monitors pixels (Carter, n.d.b; “Sony Mavica (1981),” 2012; “History of the camera,” 2013). Sony’s Mavica appeared to be a complete product. Besides the camera itself, Sony introduced a larger system to support the device that included lenses, floppy disks called Mavipaks, and a playback device called the Mavipak Viewer.

Within Eastman Kodak, the event provoked a range of reactions. Eastman Kodak’s president, Colby Chandler, dismissed the new camera claiming that the company had developed a digital image capture device and could design and build its own competitor to Sony’s electronic camera. He also cited the company’s long-standing strength in film and the market demand for quality color prints. However, other members of Eastman Kodak’s management felt much less comfortable with this new challenge. Indeed Sony’s Mavica caused panic among some at the company; many senior managers felt that this signaled the end of chemical-based film technology and photography as Eastman Kodak knew it (Swasy, 1997). Given the rise of this new development, how should managers at Eastman Kodak respond?

**Eastman Kodak Invents the First Digital Camera**

Regardless of Sony’s announcement, engineers and managers within Eastman Kodak had been familiar with developments in filmless and digital cameras for years. It was within Eastman Kodak’s own research labs in December, 1975, that the first digital camera was developed to test the feasibility of using newly developed image sensing chips to create a digital image capture device (Carter, n.d.a; Lloyd & Sasson, 1978, “History of the camera,” 2013). With meager resources, a small team led by Steve Sasson created a system for storing images, and used newly developed microprocessors to process and transmit the images. Since they were working with largely unexplored technology, they could not even see an image until the whole system had been assembled after months of work. When completed, the camera weighed eight pounds and recorded 10,000 pixel (or 0.01 megapixel) images to a cassette tape that could hold thirty pictures (Gennuth, 2012; “History of the camera,” 2013).

Demonstrations of the camera in action, taking pictures and then quickly seeing them displayed on a video screen, generally received encouraging reactions from engineers and managers within Eastman Kodak (Gennuth, 2012). The digital camera that Sasson’s team had come up with clearly demonstrated a completely digital imaging system that dispensed with film and chemical processing. However, some people within Eastman Kodak expressed concern with the new device (Dobbin, 2005). The image quality produced by the camera paled in comparison to film-based photos. The images were limited to black-and-white. It also took a long time to generate the images, taking twenty-three seconds to record an picture (Gennuth, 2012; “History of the camera,” 2013).

Although Sasson received encouragement within Eastman Kodak for his work on the first digital camera, it was a technical experiment rather than a product development effort and many technical hurdles remained before it could go to market. Sasson believed that it would be another fifteen to twenty years before the technology could reach an acceptable level of refinement and quality (Gennuth, 2012). This estimate was based on his assessment of the trajectory of performance and cost of the necessary electronic components and the minimum acceptable level of image quality demanded by consumers, believed to be the equivalent of two megapixels (two hundred times the resolution of his camera). Eastman Kodak continued to work on developing the technology and solving the problems required to bring filmless, electronic photography to consumers, including refinements in the image sensors that would be the new “film” in any future digital cameras and the techniques for producing color images.

**Eastman Kodak in 1981**

In 1981, Eastman Kodak held a commanding position in both domestic and international markets, with a dominant market share of 77.95% in film (Kadiyali, 1996), and held the title of world’s largest manufacturer of photographic products. Between 1975 and 1980, Eastman Kodak’s revenues had a compound annual growth rate of over 14%, ending the period at $9.7 billion. During the same period, its net income was over $1.1 billion with an annual growth rate of over 13%, the company’s current ratio averaged 2.43, and it had $1.585 billion in cash.

Eastman Kodak’s marquee photographic business confronted a number of challenges. Since the early 1970s, the company faced multiple lawsuits for allegedly unfair competitive practices in the market for photographic devices and processing (Schusteff, Dubovoj, & Salamie, 2008). The biggest of these was the patent infringement suit by Polaroid over Eastman Kodak’s instant camera business. Eastman Kodak launched its instant camera in 1976, and its development of a rival to Polaroid’s popular instant cameras demanded much managerial attention at the company. Despite the importance placed on this business, the instant photography effort suffered from quality issues, demanded a large amount of investment, and alienated photofinishing customers who traditionally purchased photographic paper and chemicals from the company (Swasy, 1997). Also drawing much of the company’s attention in 1981 was the upcoming launch of a long-awaited new film format camera using film disks instead of rolls with advanced electronics to control the exposure and flash (Cook, 1982). A Japanese rival, Fuji Photo Film Company, also increasingly challenged the company in photographic films and paper, offering competing products at lower prices but with similar quality (Schusteff et al, 2008).

Eastman Kodak also continued diversification efforts outside of its traditional consumer photographic market. The company produced products for business and commercial customers, having long operated microfilm and facsimile machine businesses. It actively promoted a document copier business positioning it opposite Xerox (Schusteff et al, 2008). Eastman Kodak’s product offered the benefit of collation and high speed, effectively differentiating it from rivals. The company fortified its commitment to the copier and duplicator market in 1981 by building a $50 million photocopying equipment plant in Rochester, NY (“Kodak plans $50mil Ektaprint plant,” 1981).

As was evident from Eastman Kodak’s innovation in digital imaging and its energetic pursuit of the instant photography market, the company maintained an aggressive research effort in many of its areas of operation. Eastman Kodak spent $459 million on research and development in 1979, and increased that expenditure to $521 million in 1980 (Esposito, 1981). The company was on track to increase that investment to $615 million in 1981, continuing its commitment to innovation and product development (“Kodak raises R&D spending 18%,” 1982).

In the aftermath of Sony’s announcement, what might be the impact of digital photography and how should Eastman Kodak adapt to position itself as leader in the photography market, whether film or digital?

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