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This product could not have been produced without extensive interdisciplinary collaboration and respect. The industrial designers had to work with mechanical and electrical engineers to develop the interior components. Both groups then had to work with manufacturing engineers to create molds and materials for the high-quality color translucent parts, which would complement the computer's interior components and work in harmony to complete a new visual aesthetic for the desktop. The iMac is responsible for resurrecting the company and has inspired products in almost every other industry. Many others have followed the trend of translucency and candy colors, so nicely highlighted by the "Kandy" ad campaign shown in Figure 8.20. As other companies responded to the iMac, Apple was ready with other designs, such as the new tower G3, which pushed the concept further and left the competition to follow its innovative trail

Freeplay Radio

This final case study emphasizes the social impact VO and demonstrates how an Upper Right product for people in developing nations can still lead to high sales and high profits. The Freeplay radio (Figure 8.21) is a hand-powered radio originally developed for emerging nations in Africa. The product is a wonderful example of how Upper Right products are extendable to other lines and products. There are now several versions of the Freeplay products on the market (from radios to flashlights) and thousands of stores, cataloger, and Web sites throughout the world that sell them.

The original Freeplay radio was conceived as a response to a group of life-threatening SET Factors that existed in many emerging nations. The AIDS epidemic was spreading in African countries with high illiteracy, poor communication, and little education. Many of these countries lacked the infrastructure to distribute electrical power. Few people had the money to purchase expensive batteries. So it was nearly impossible to educate and broadcast information to entire villages.



Figure 8.21 The Freeplay Radio: product image and internal schemata. (Reprinted with permission of Freeplay Group.)

Trevor Baylis, a British inventor, realized that a reliable human-powered radio could help to solve this problem. The challenges for Baylis were formidable. He had to find funding for development and manufacture. He had to develop a radio that would be competitive with battery and electric powered radios and would be valued as equivalent. Hand cranking was not as prestigious as electric or battery powered. He received support from a number of people, who were instrumental in helping him to find funding, develop prototypes, and locate the best audience that would find the product the most useful. After failing to attract the attention of British manufacturers, Baylis was interviewed by the BBC World Service, an interview that started the chain of events that led to the creation of the Freeplay radio.

The BBC interview caught the attention of accountant Christopher Staines. Staines provided the economic knowledge for product development and gave Baylis his first contact in South Africa. Staines put him in touch with South African Rory Stear, who had experience working for the UN and who realized that the product could help as many as 600 million people in Africa. Hylton Appelbaum, the director of a charitable foundation in South Africa, saw the interview and suggested that the radio be designed in a way that it could be assembled by people with disabilities. This decision allowed the product to receive the support of many foundations supporting the development of work opportunities for the disabled. A research group at Bristol University in England refined the cranking mechanism to allow it to meet performance criteria that would make it competitive with battery-powered radios. Market research determined the features and style that would be required to make the product appealing and competitive. The product's features were based on feedback from interviews that Baylis and Stear conducted when they took a prototype to rural areas in South Africa.

Results from the interviews determined that the radio had to look robust and that it had to be loud enough to be heard by many people simultaneously. The acceptable ratio of winding to playing time was determined to be 20 seconds of winding resulting in $\frac{1}{2}$ hour of playing time. The early version that played for 14 minutes with a cranking time of 2 minutes was not deemed suitable because it did not really compete against battery-powered radios. The power needed for the higher volume performance resulted in a total reengineering of the winding mechanism. After significant analysis, the right combination of metal and plastic were used to create an efficient and durable mechanism.

The radio had to convey a sense of importance and status. It had to be large and have a durable handle that would allow it to be easy to pick up and move. The result was a strong, simple design with a permanent, rigid handle that gave the radio a sturdy and durable look. The radio was designed to be assembled by factory workers with disabilities. The price was set to be the local equivalent to that of a battery-powered radio plus a year's supply of batteries. After being successfully introduced and produced in South Africa, Nelson Mandela personally thanked Trevor Baylis for his invention.⁵

As has been the case with many of the Upper Right case studies cited in this book, the resulting design was applicable to more markets and the concept could be applied to other products. The radio is now a popular product, which is being purchased for a number of uses throughout the world including survival/emergency kits and camping. It is useful for people in any rural area anywhere in the world. Over 2.5 million units have been sold in the first five years of production. A version with a crank, solar panel, and A M C input has been developed. The concept has been extended to a flashlight that uses a crank along with a rechargeable battery option.

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This case study highlights a few points. No manufacturer in England saw the potential in this product. Even though the product was extremely useful in its basic technology state, the product still had to be designed to be usable and desirable through additional technology, styling, and a user focus. Poor consumers in emerging countries have value systems just like people in middle and upper classes in other parts of the world. They will respond best to products with appropriate features that fulfill a range of values and do not just simply satisfy a basic need with vanilla style or technology. It is also very clear that an initial idea, no matter how valid, must be improved and supported by a number of other contributors with different types of expertise to make the product a success. Finally, though the product could not be priced at a premium in its initial target market, the Freeplay's Upper Right qualities enabled it to extend to numerous applications, leading

Summary Points

- ❑ There are a broad range of products and services in the Upper Right.
- ❑ Established Upper Right products and services remain there by injecting new innovations that are considered useful, usable, and desirable.
- ❑ Each breakthrough new product or service is clearly differentiated from the rest of the field.

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