

Figure 9.3 Coordination Game

Boeing and Airbus make simultaneous choices of new communication systems for their planes. Two technologies exist: Alpha and Beta (payoffs in millions of dollars). Both firms benefit if they choose the same technology. Applying the arrow technique, we can see that there are two Nash equilibria: Alpha/Alpha and Beta/Beta (shaded cells).

	Boeing—Alpha	Boeing—Beta
Boeing—Alpha	\$100	\$50
Boeing—Beta	\$50	\$100
	Airbus—Alpha	Airbus—Beta

Coordination Problems with HDTV

High-definition televisions are digital and capable of displaying images at very high resolution. When combined with a good sound system, HDTV can provide a theater-like experience. The introduction of HDTV into the marketplace was slowed by coordination problems between television networks and manufacturers. Both groups thought that they would benefit by the development of this product. However, neither wanted to be the first to commit. Network executives were quoted as saying that they were reluctant to move forward with plans for new programming until the television manufacturers committed themselves to producing enough affordable sets to receive it. Yet manufacturers did not want to commit until the networks indicated that there would be enough digital programming for consumers to want to buy the sets. The situation was summed up in 1997 by a senior executive at CBS, "The networks are waiting to see what the TV makers are going to do, and the TV makers are waiting to see what the networks are going to do." In this situation, there are two Nash equilibria: manufacturers and broadcasters both invest or neither invests. Due to coordination problems, firms may "get stuck" in the second equilibrium, even though both groups prefer the first. Although development of HDTV was slowed by coordination problems, it became a commercial reality by 1999. Manufacturers were selling the sets and broadcasting companies were providing more and more HDTV programming (the first equilibrium). Nonetheless, for HDTV to become a widely adopted product, available programming had to increase and set prices had to decline. Their initial prices for the sets ranged from about \$5,000 to \$10,000.

The coordination problems illustrated in this example arise frequently with new technologies. The overall value of a technology is usually higher when there are many users (there are network effects) and there is a common standard (for example, consider how much less valuable DVDs would be if there were several different incompatible formats and only a small number of users of any one type). Adopting a uniform standard can be difficult when there are numerous players with somewhat conflicting interests. Sometimes governments, joint ventures among firms, and industry trade groups play a constructive role in promoting common standards, thereby helping to realize a preferred equilibrium. For example, in December 1996 the Federal Communications Commission set a timetable for stations and manufacturers converting to digital technology.

Source: J. Brinkley (1997), "Networks and Set Makers in Standoff over HDTV," *New York Times* (August 29), 5.