THE “CHICKEN-AND-EGG” PROBLEM

A potential “chicken-and-egg” problem may exist when it is necessary to have two conditions—each of which depends on the other—met before a product or exchange is possible. One type of these problems comes about when it is necessary to have a large number of buyers before potential sellers are motivated to produce the product, but buyers will only be attracted when the product (or accessories) is available. For example, it would be very difficult to start an online auction service competing with eBay. Sellers would not be motivated to list their products before there were buyers around to bid on them, and buyers would not be motivated to visit a site has few if any listings. When credit cards were first introduced, a similar situation existed: Merchants were not motivated to start accepting credit cards until a significant number of customers actually carried these, and it was difficult to persuade customers to sign up for a card that was not yet accepted by many merchants. Netflix maintains a large database where previous renters have evaluated different films, making it possible to correlate what one viewer likes with what others who like the same things have liked, allowing for personalized recommendations. Netflix was able to build up this database when no one else was offering this, thus not facing competition with respect to this service, but it would be difficult for a new firm to match since customers would be reluctant to sign up until a large database exists.

Another type of chicken-and-egg problems come about when a certain infrastructure is needed before an innovation is viable. For example, hydrogen driven cars have significant advantages—e.g., that no air pollution is emitted—but it is necessary to have fueling stations that carry hydrogen distributed where customers travel in order for this technology to be viable. If a large number of drivers were to adopt these cars, it could become profitable for filling stations to invest in carrying this fuel, but the customers are unlikely to come about before the fuel is readily available.

Sometimes, technologies which suffer from a chicken-and-egg problem can be “jump started.” For example, early issuers of credit cards were able to offer large corporations very favorable terms if they would adopt the cards immediately. Once these large corporations had adopted the cards, a number of merchants—especially in the travel industry—were attracted. Back when UHF broadcast channels were offered, TV stations were motivated to broadcast on channels that were not yet heavily watched because they offered the right to continue to use these channels in the future if they would agree to broadcast for at least four hours a day. Broadcasters accepted this offer and began to broadcast, making programming available, and manufacturers then began to make TV sets that featured tuning capabilities for these channels.

Occasionally, concentrated interests may see an opportunity to invest in new technology that would become profitable. For example, when CD players were introduced, the record companies saw an opportunity to make large profits selling a new recording on a new medium to existing customers. The introduction of the DVD player presented a similar opportunity.

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1 An old riddle questions what came first: the chicken or the egg? How can a chicken come about without having emerged from an egg? How can an egg come about if a chicken had not been around to lay it? It turns out that the egg actually came first, since chickens descend from amphibian reptiles. That, of course, only postpones the problem: What came first: the reptile or the egg?