Profiting from Value-Added Wireless Services

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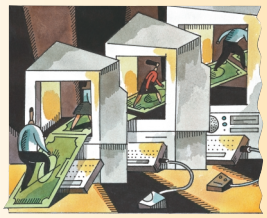
Energized by the prospect of a mobile commerce era, wireless telecommunication providers have spent hundreds of billions of dollars just to buy radio spectrum rights in auctions around the world. Costs for wireless infrastructure, equipment, and marketing will add hundreds of billions more. Wireless providers do not expect payoffs from such a huge investment any time soon but instead are focusing on rapidly gaining market share before the rollout of third-generation (3G) wireless technology.

THE BERTRAND PITFALL

Establishing market presence, however, does not ensure profitability in what is already a fiercely competitive environment. French mathematician Joseph Bertrand demonstrated more than a century ago that, in a free market, sellers of a homogeneous good must cut their price until it equals the marginal cost—even if consumers value the product much higher.

As a result of universal improvements in voice transmission quality and geographical coverage, wireless voice is becoming a commodity in which price predominantly drives sales. The ubiquity of price comparison tools (see http://wireless.cnet.com for an example) intensifies competition, which threatens to draw all wireless companies into a Bertrand pitfall that leaves sellers without a profit.

To avoid such a gloomy scenario, wireless providers could engage in collusion—an illegal and often heavily penalized practice in many countries, including the US—or accumulate a large enough cash reserve to ride out a price war and bankrupt their competitors.



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PRODUCT DIFFERENTIATION

However, we believe that product differentiation offers the best strategy for achieving financial success in the upcoming 3G mobile commerce market. There are three basic differentiation strategies.

- *Horizontal differentiation.* Sellers can avoid a price war by targeting different consumer groups with various preferences, tastes, or occupations. For example, one wireless provider focuses on financial services, another on travel services.
- *Vertical differentiation.* Sellers can differentiate their products in a way that consistently affects all consumer valuations. For example, one wireless provider offers real-time financial information at a higher price than another provider offers delayed financial information.
- *Cross-market differentiation by tying.* A seller can use a bundling strategy and its monopoly in one market to attack competitors in another. For example, a wireless provider with exclusive access to a popular short-message service requires consumers to buy both voice-communication service and short-message service at the same time.

A more practical strategy is to introduce different operating conventions and user experiences, much as vendors do with personal computing systems, so that consumers find it too troublesome to switch to another service. For example, by using services such as interactive multiplayer games to build up exclusive communities, wireless providers could effectively create switching costs for consumers.

The simple functionality and technology at the consumer end allows for little differentiation in voice communication, but the faster speed of 3G wireless, along with increasingly powerful handheld devices, creates numerous possibilities for differentiating value-added wireless services.

DIFFERENTIATING VALUE-ADDED SERVICES

Even the most ambitious company cannot offer all possible value-added services to its customers. Many wireless providers are struggling to turn their infrastructure services into a profitable business.

Because most 3G variations are expected to utilize packet-based, high-speed communication channels, there is little room to differentiate communication infrastructure services. The best

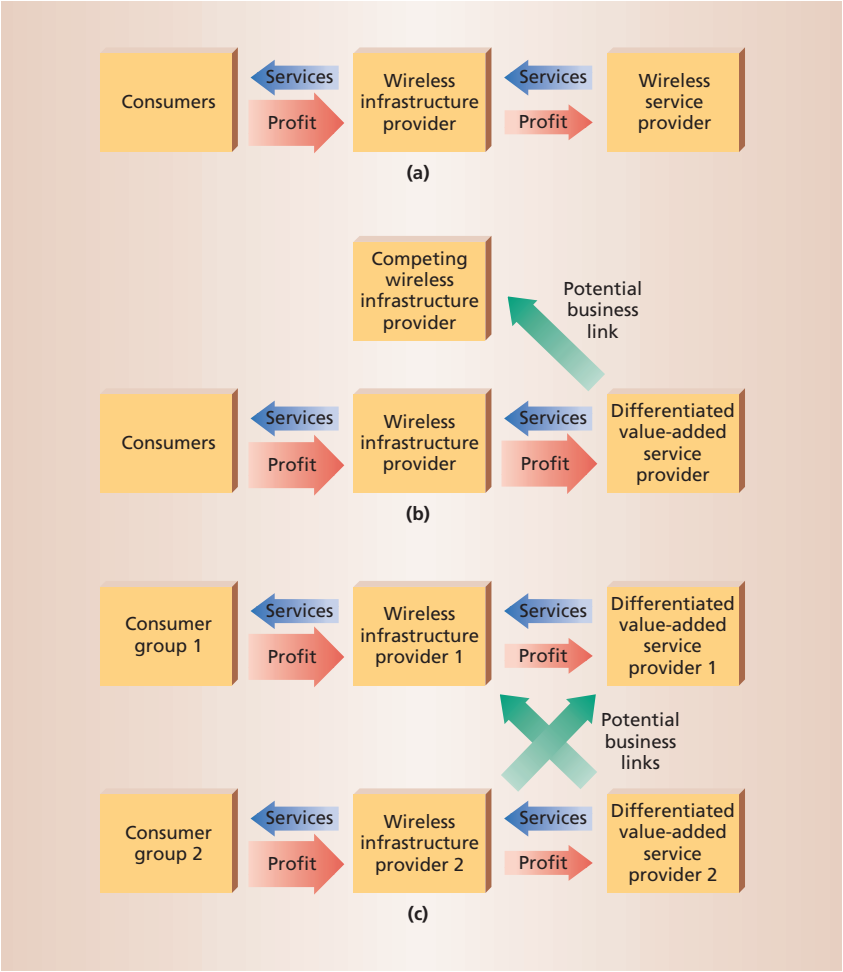

Figure 1. The supply chain for value-added services. (a) Without competition, profit sharing between a wireless infrastructure provider and a wireless service provider depends on the companies' relative market power. (b) If multiple wireless infrastructure providers compete for one differentiated value-added service provider, the winning infrastructure provider must offer all profit according to the Bertrand scenario. (c) Multiple service providers and competing infrastructure providers allow everyone to share in the profit.

solution, therefore, is to bundle an undifferentiated wireless infrastructure with differentiated value-added services. This strategy falls into the category of cross-market differentiation by tying.

Horizontal and vertical differentiation each pose a problem. Although numerous value-added combinations are possible, some services—for example, weather forecasting and online gaming—are more popular than others. Also, consumers may be willing to pay more for certain services, such as real-time stock quotes. Because wireless providers tend to focus on the most promising services, horizontal differentiation can be difficult.

Most value-added services are new to consumers. In the US, firms usually require customers to pay a subscription fee before using such a service. For example, Sprint PCS charges $10 per month, plus an airtime fee, for its wireless Web service. Consumers may choose not to spend their money in the face of quality uncertainty. As a result, a firm's effort to differentiate vertically may result in no discernable market effect.

Wireless service providers can solve the first problem only by creating more new services. To solve the second problem, they must encourage consumers to try new services at low costs, a strategy that calls for usage-based pricing.

USAGE-BASED PRICING

The telecommunication industry continues debating the merits of usage-based, pay-as-you-go pricing versus flat-rate, all-you-can-eat pricing. Nearly all residential wired telephone services in the US charge flat-rate prices, while long-distance wired telephone services are usage-based. Mobile phone services are largely usage-based, but many monthly plans that restrict total minutes resemble flat-rate pricing.

Usage-based pricing usually refers to charging consumers based on connection time or traffic volume. 3G technology will enable delivery of various services at the same transaction-completion time but through different bandwidths: For example, video downloading requires far more bandwidth than wireless Web access. Thus, connection time may not correctly reflect radio spectrum usage. For its i-mode service, Japan's NTT DoCoMo recently introduced packet-based pricing, which is closer to traffic-volume-based charges. Usage-based pricing becomes even more important when we consider congestion.

For value-added service providers, usage-based pricing facilitates introducing new products and services and lets sellers evaluate unknown high-quality services. Compared to prepaid flat-rate plans, usage-based pricing imposes lower costs on consumers who try a new value-added service because they can immediately drop the service whenever they find it unsatisfactory.

MARKET POWER ALONG THE SUPPLY CHAIN

By tying with differentiated value-added services, a wireless infrastructure provider can increase its market power and thus its profit. As Figure 1 shows, however, it must share its profit with the value-added service provider. Otherwise, competition from another wireless infrastructure provider for the same service can significantly reduce the incumbent infrastructure provider's market power.

In the extreme case of a differentiated value-added service provider with local monopoly power, profit can shift completely to the service provider. However, competition among multiple value-added service providers—each offering different service bundles targeted at different consumer groups—will let multiple infrastructure providers thrive.

The large size, stability, and long-term presence of wireless infrastructure providers should allow them to overcome inherent constraints on their ability to differentiate products. By continually striving to build up relations with certain types of service providers, they can gain reputations as specialists, even if the cooperating service providers repeatedly change. As a result, wireless infrastructure providers can attract a pool of loyal consumers and use this asset to negotiate favorable contracts with service providers. ✷

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