

Innovative Pricing

Abstract

The rapid progress in technologies makes the products intangible and more complicated. The problem of chargeability for a complex product arises. The theory of Innovative Pricing (IP) highlights the entrepreneurial process of defining a product and a price level such that the product can be made chargeable. The theory rests on the assumption that the complexity and dynamics of different pricing combinations make products endogenous to the pricing decision. The product definition is changed, not to improve performance but rather in a subjective attempt to make the product chargeable by finding or inventing a parameter where a positive price level can be set. By some examples in this paper, we can find pricing becomes an act of innovation. The IP can affect the relationship between the operators and suppliers because the chargeable parameter for pricing can be owned partly or entirely by another firm in the economy.

1 Introduction

The rapid advance in technology has meant that products of an increasingly intangible nature are being developed. This creates a problem for firm how to charge those complex products, especially, parts of which being easily accessible without charge, for example, we can download free softwares from the Internet.

Conventional price theory often deals with homogenous goods or bundles. Production definitions and pricing structures are often considered exogenous, however, and not part of a path dependent, subjective and innovative decision process of the firm. In such models, the externalities between products are known or at least calculable under some rational exceptions function. The problem, however, is that when the number of combinations available to the firm are numerous, and change quickly over time, it prevents a pricing decision based on rational expectations, since the optimization upon which the mainstream pricing theory rests cannot incorporate an open state space.

The traditional theoretical framework neither recognizes innovative redefinition of products to increase aggregate revenue, nor firm's ability to invent new bases for charging when conditions in a market changes as a result of decisions taken by other agents. This is typical in reality and recognized by the theory of the Experimentally Organized Economy (EOE). In the EOE firms continuously experiment with their products, changing not only the bases for charging but also the products such that they cannot be efficiently priced. The expected direction of revenue flow is highly uncertain in such an environment. Firms are often unaware of what type of agents in the market they will have as customers and who will be the suppliers. The enabler of such changes in the pricing base is innovative technology or product reorganization. Product development becomes integrated with pricing, since it is crucial to structure a product such that its aggregate contribution to the bottom line becomes positive.

Inability to charge for products and services will inevitably lead to bankruptcy, no matter how much business value is created.

In contrast, the theory of Innovative Pricing (IP) entails finding a stable characteristic to make the valuable elements of the product chargeable. An innovation does not have to be spectacular as sometimes it does. An IP scheme can be something that is brought in from another market as long as it entails something new that other actors through inability or ignorance cannot exploit. We can find an excellent example from the paper “Metro”. Its success lies in the successful experience from the TV or radio broadcast.

The pricing competence of the firms is to locate a base of its product portfolio, such as a base for pricing can be established. Either by rearranging the base for pricing or by adding new earlier not recognized or imagined characteristics by redefining the product. In other words, the IP problem amounts to capturing the economic value of the spillovers, or get somebody else to pay for part, or all costs to continue to offer the product.

2 Mobile Internet Revenues: An empirical study of the I-mode portal

Firstly introduced in February 1999 by the operator NTT DoCoMo, I-mode soon became one of the world’s most popular wireless Internet services offering web browsing and email from mobile phones. The service was actually firstly launched as a single VPN (Virtual Private Network) application intended for business users. This initial strategy can be explained by the fact that mobile telephony in Japan has been a private phenomenon causing peaks in traffic during non-working hours. NTT DoCoMo’s initial intent was therefore to fill out low marginal cost off-peak airtime during business hours and to increase mobile usage in the less price sensitive corporate segment, unfortunately, this initiative created little interest in the market. The service was innovatively repackaged as a private application and given the non-technical name I-mode.

The subscriber’s bill depends on usage of the I-mode function on the phone, and the number of free-based I-mode content services has subscribed to. There is a basic fee of 300 yen (Japanese currency unit) per month to access the I-mode service, which is paid via the subscriber’s phone bill to NTT DoCoMo. The study was carried by the Consumer Lab of Ericsson Radio System during mid Feb to early March 2000. The two types of respondents are Japanese I-mode users and potential users of this service. 450 are I-mode users and 200 potential users of this service.

| | <5 | 5-10 | 10-15 | 15-20 | 20-30 | >30 | Average | NTT billing |
|-----------|-----|------|-------|-------|-------|-----|---------|-------------|
| I-mode | 16% | 47% | 21% | 11% | 3% | 2% | 11295 | 10833 |
| Potential | 39% | 46% | 10% | 5% | 0% | 0% | 7544 | 8250 |

Table 1 illustration of the phone bills of potential and actual users of I-mode (in JPY)

Data from the user's phone bill in Table 1, we can find the additional revenue can be received from the introduction of Internet content and m-commerce applications on wireless devices. I-mode users clearly spend more money than regularly users of wireless telephony. The revenue increase is around 25%.

| | Regular voice | Additional voice | Data traffic | Service charge | Billing | Content |
|---------|---------------|------------------|--------------|----------------|---------|---------|
| I-mode | 8250 | 1320 | 891 | 300 | 11 | 111 |
| Regular | 8250 | 0 | 0 | 0 | 0 | 0 |

Table 2 Revenues broken down to individual pricing parameters (in JPY)

The providers of content create the end-user value of the I-mode portal. The operator does not offer any content services with the portal and although the billing of the services, provided by the operator, is clearly valuable for the content providers, it brings little real value to the end users. The increase in revenue can therefore be derived from the value created by the content providers. As discussed previously, the creation of value does not necessarily mean chargeability. Table 2 illustrates the distribution of revenue between the different pricing parameters. This leads to the conclusion that although valuable, the content represents a relatively small share of the total Average Revenue Per user (ARPU).

By using IP NTT DoCoMo has been able to leverage its unique parameters of access and end user billing, in a manner such that a positive price could be set on the externalities of data traffic and additional voice. Although valuable, the content and services in the I-mode portal has failed to generate the corresponding revenue for the content providers.

3 Innovative Pricing Effects: Theory and practice in Mobile Internet networks

As customers increasingly rely on the web to send and receive information, the demand to conduct these activities from multiple access points also increases. One natural first step in this evolution of information access technology will be to bring the Internet to wireless devices. To accommodate this need, online content providers are striking deals with operators and infrastructure manufacture to push and receive content over wireless.

An interesting problem arises, however, when the owner of the stable chargeable characteristic and the owner of the valuable entity are two separate actors in the economy as the owner of bridge and the owner of tollbooth. Suppliers are often restricted in their ability to affect the pricing of their customers and the effects can be out of their control. This can create an incentive to redefine their product, to reduce uncertainty. Either to exit the provider market or entry in the operators market through vertical integration.

One industry that has experienced an abrupt change in its pricing institution is wireless networks. From being a regular voice service device with its pricing based on per minute of use base, mobile phones now offer a wide range of contributions from several industries with multiple voice, content and application plans. This has created uncertainty about not only how these services are charged for but also how the pricing of the existing services, still dominant in revenue, relates to the new.

The most common arrangement is that the operators handle the billing towards the end users, while the providers add value to the end-users in the form of branded services and applications. It is debated, however, how end-users' revenues are to be divided between these third party providers and the operators. The operators would like to see themselves as suppliers of the service, and therefore expect to receive payment. On the other hand, the providers do not always agree. Providers are often completely dependent on the operators' billing system to make their products chargeable. The decision on how to define customers and suppliers will differ between markets depending on the operators subjective perception of the spillovers created.

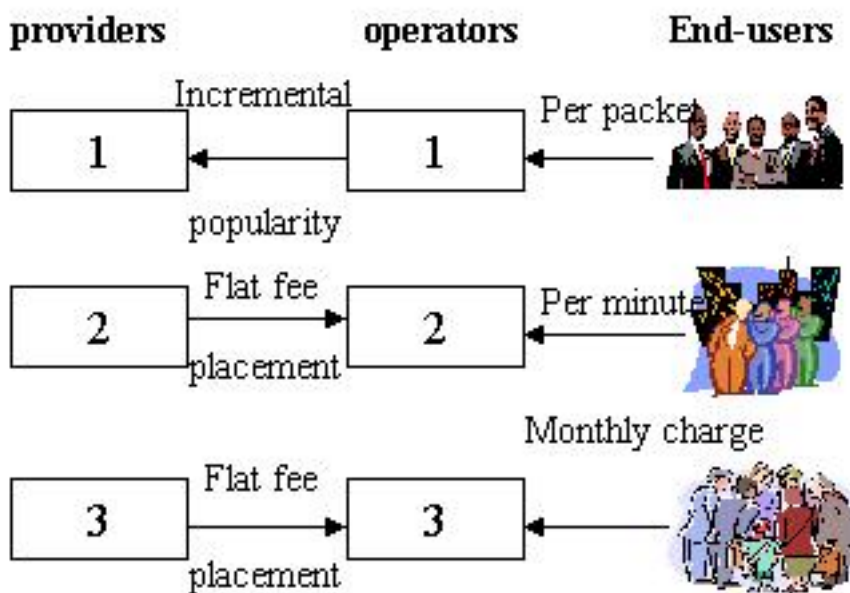


Figure 1 three different Mobile Internet pricing models

The three operators illustrated above all have different ways of charging end-users. Operator 1 charges for the information sent and received by counting the number of data packets. Operator 2 uses a similar strategy but, because of technical limitations, charges its end-users on a circuit-switched basis, in minute increments. Finally, operator 3 uses a flat fee for charging end-users. This pricing scheme has its advantages in end-users simplicity and a cost efficient billing process. However, there is also considerable risk associated with network utilization in terms of managing capacity. Under this pricing scheme, operator 3 may be forced to upgrade capacity to cover the demand of existing customers and thus drive network costs without a corresponding revenue increase.

Under the scenarios imposed by operator 2 and operator 3, the providers are in fact customers. Many of the same providers are at the same time paid by operator 1 to deliver similar content and services. This makes the operator to become the customer.

The problem in models 2 and 3 is that there is little revenue incentive for the providers. The mobile Internet service of these operators may actually work as a substitute to the providers' fixed Internet presence. The pricing decision of the operators has helped to structure the roles of the different agents in the market. A long-term solution for these providers can be to either stop offering the services or to become an operator themselves. The latter option would surely make the providers into competitors rather than partners, where the competitive advantage could be reached by leveraging their unique content or applications.

The decision of how to charge does not only affect the competition, the suppliers and the customers of the product. It is also a major defining element of the actors' role in the transaction. As illustrated, providers can be both customers and suppliers to the operators. Operators 2 and 3 have defined the providers as customers while operator 1 defines providers as its suppliers. The set standard pricing scheme is maintained by the transaction costs and institutions of the economy and hinders deviation from what is considered normal, until an entrepreneurial prospector comes up with a new Innovative Pricing (IP) scheme that turns the whole market upside down again.

Another conclusion is that firms, previously partners, either deliberately or unwittingly can become competitors if the charging scheme is covered in secrecy or if it blocks them from profits in the market. The operator's decision of how to price their mobile Internet presence will therefore not only be a tool of competition but also a major determinant of which companies they will be able to regard as partners and which will become competitors.

As illustrated, the problem with this type of externality pricing towards providers is that it reduces the incremental incentive to provide a compelling and at the same time low cost content service for the end users of the service. Unless providers are committed to offer a compelling service, it will reduce the externality of bandwidth that makes the service chargeable for the operator.

Inability of suppliers and providers to charge for products can have two effects. They can either exit the market or redefine their products, which potentially could make them competitors. None of these is beneficial for operators, since this would lessen the overall value of the end-product. The ability for suppliers and partners to efficiently charge for their products becomes a joint problem for all parties. The critical path of the Mobile Internet business is to create a mutual understanding of the value of the product such that the right incentive contract can be signed.

4 Conclusions

When the level of uncertainty and the rate of product innovation in the market are high, choosing pricing base becomes critical for achieving acceptable profitability. To identify an effective base for pricing the new technology or products, pricing becomes an act of innovation. The operator is already aware that it will have to make new Innovative Pricing decisions in the future as a result of new technology. The rationale of sharing information and incentives on pricing strategies with both suppliers and customers is very important. By sharing information on its pricing strategy, the firm reduces uncertainty of how to price. Furthermore, a shared pricing base with suppliers is likely to reduce the incentive for the supply side to bypass the role of the firm through IP and may thereby lower the business risk for both parties.

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