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# The Development of Software Pricing Schemata and Its Application to Software Industry in Korea

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***Abstract***

*The purpose of this this research is to suggest comprehensive pricing schemata that software developers can use in the integrated state of software uses. To do so, we have reviewed the pricing criteria that the current fields of business administration treat and offered the basis of pricing systems. Then we have applied the prices of software products in Korea to the systems and earned abundant price payment units.*

*As for the research works of software pricing at the present, however, it seems that they are mainly focused on the uses and functions of some specific software rather than on general variables that affect the software pricing policies of PC and Client/Server environment. There have been many researches on individual consumption features such as on the case of upgrade, on the case of outsourcing like ASP, on the case of pricing package items, or on the case of ERP software.[1-5] In other words, there have been few researches on the schemata of pricing that software developers can use.*

*This paper aims to suggest a comprehensive pricing schemata that software developers, sellers, and distributers can use regardless of the state of software uses. To do so, first, it reviews the criteria of pricing that are frequently discussed in the current fields of economics and management and thereby establishes the basis that leads to a pricing schemata. Then the prices of software in Korea will be applied to the schemata, which will eventually make it possible to produce the complete pricing schemata unique in Korea.*

***Keywords:*** *Software Pricing, Industry*

## 1. Introduction

Since IBM introduced a policy that was to take off the software price from the hardware price of the computer in the early 1970s, the software was a different, independent item from the computer. The pricing of the software has been an important factor directly related to the sale and revenue management of the company.

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upgrade, on the case of outsourcing like ASP, on the case of pricing package items, or on the case of ERP software.[1-5] In other words, there have been few researches on the schemata of pricing that software developers can use.

This paper aims to suggest a comprehensive pricing schemata that software developers, sellers, and distributers can use regardless of the state of software uses. To do so, first, it reviews the criteria of pricing that are frequently discussed in the current fields of economics and management and thereby establishes the basis that leads to a pricing schemata. Then the prices of software in Korea will be applied to the schemata, which will eventually make it possible to produce the complete pricing schemata unique in Korea.

## 2. Literature Review

### 2.1. Linear vs nonlinear pricing

The most frequently treated topic on pricing in economics is the decision on the price scheme.[6] In economics, the price scheme is divided into the linear pricing and the nonlinear pricing. The linear pricing refers to the case that the unit price does not change although the quantity the customer purchases changes. On the other hand, in the nonlinear pricing the unit or service price changes when the quantity changes.[7] In the nonlinear pricing, the provider of the unit or service suggests different prices for different quantities in advance, and the customer adjusts the quantity of purchase to the pre-noticed list of prices as he or she wishes. In other words, in the nonlinear pricing the customer him- or herself chooses the price scheme that best suits his or her purpose. Because the nonlinear pricing offers the heavy user discounted prices, it gives more benefits to loyal customers, who in turn benefit the company, and enhances the level of customer satisfaction. In this regard, the nonlinear pricing is the most effective policy for digitalized cases such as on-line business or service-offering cases such as ASP.

Many researches that deal with nonlinear pricing offer in common 1) the two-part tariff system, 2) n-block tariff system, and 3) all-unit quantity discount system. The two-part tariff system refers to a system of applying a certain price for a certain unit that has been purchased additional to the fixed fee; the n-block tariff system, a system of pricing the unit expensively to its certain amount and discounting the price in case of outnumbering the purchase volume. For example, if when there are four purchasers, $10 is charged for one unit or service, when there are five purchasers, for the additional one purchaser only $8 is charged. The all-unit quantity discount system is a system of applying a discount to all units when the amount of purchase goes over a certain purchase volume. Generally, it is reported that the nonlinear pricing system produces more profits and sales volume than the linear pricing system[8-9].

### 2.2. Pay-first & product-second vs. product-first & pay-second

The decision making issue that has been recently discussed most in management is the payment timing decision making. When the customer pays first and then the product or service is provided, it is called the pay-first & product-second system; when the customer uses the product or service first and then pays later, it is called the product-first & pay-second system.[10-11]

For the company, the pay-first & product-second system is preferable. Since it is paid in advance, its cash inflow enhances. Also, the customer receives many benefits such as

discounts for paying in advance, and the company does not have to worry about losing its customers to other companies.

However, the product-first & pay-second system leads the customer to use the product or service in advance and thereby get used to the software. It also leads to the increase of trials of the product because it allows the customer to pay later after he or she uses the product. So it is very useful for a company that develops new software. It is a representative example that recently security corporations receive fees after one-month of future and option transaction on home trading system as one of ASP systems.

### 2.3. Price Unit Criteria

While not treated often in economics or business administration, the price unit criteria is an issue that is much discussed in the software industry. Table I, suggested by Jung Hongjin (2000), shows the companies that offer pricing by license unit criteria.[12] In this Table, it is shown that as the list moves downward, the price unit criteria relying on hardware is offered; on the other hand, when moving upward, it is decided by the number of users. Well-known general purpose computer companies such as DEC and IBM rely more on hardware.

Table 1. Variety of C/S License Contract Model (Jung Hongjin 2000)

| Price unit criteria | Companies |
|---|---|
| Product/Step Newwork/User | D&B, SAP, Lawson |
| Application/ module network/ user | D&B, SAP, Lawson |
| Network/ user+ uniform server price | Microsoft |
| Network/ user+ nonlinear server price | Oracle |
| Uniform user price per server | Oracle, IBM |
| Nonlinear price | Novell, IBM, MS |
| Process Size | DEC, HP, IBM |

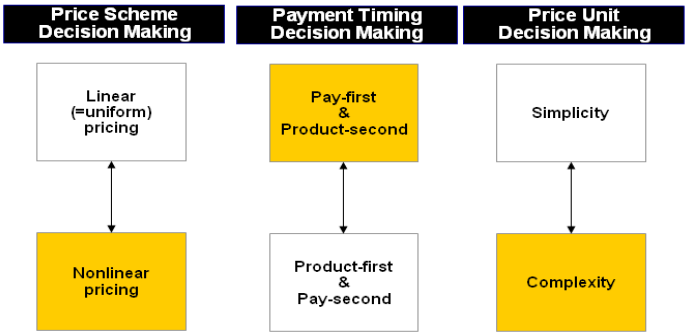


Figure 1. Topical classification of researches on pricing

Table 1 shows that some companies such as Oracle and IBM use multi price unit criteria instead of just one. It is said that such cases have complexity, while cases of using one have simplicity. According to the current researches, as the complexity of the price unit criteria is higher, the customer's right for preference gets higher and the company's profits increase.[11]

Various price unit criteria are also found in other industries as the license models of software are various. For example, in security business, the customer can make different prices according to the amount of transaction money, the number of transaction, transaction channel, transaction items, or the period of possession. Therefore, there could be some price unit criteria unique only for software industry. Figure 1 shows the software pricing systems that have been discussed so far in the previous researches. This will be the basis for producing our software pricing schemata.

## 3. Experimental Model

At this stage of positive research, the prices of software in Korea are applied to the pricing systems that are deductively earned in the previous chapter. It is expected in this process that we could find a new pricing schemata not detected in the earlier systems and that we could get the unique price unit criteria for the industry.

For the data collection, the researchers decide the scope of software. The target software is decided upon the classification for the purpose of use. It is because the price of the software upon the classification of industry can be decided by the “deal” that researchers cannot approach. The Korean government reports that there are two software by the classification of the purpose of use [13]. The first classification is the system software which supports the operating system and application. This classification is divided into system management software, system support software, and system development software. The other classification is the application software which treats the operations that users are interested in. It is divided in the general purpose application software and the special purpose application software.

The data by the classification of software have been collected among the software that can be purchased in the on-line software shops that were searched by the explorer engine such as naver.com or yahoo.com from January to May, 2008. As a result, the price schemes, the price levels and price unit criteria of 153 companies could be earned. The number of software products and prices earned on line was relatively lower than in the statistics that says 7,067 software companies were recorded on line in 2006.[13]

## 4. Analysis of the Model

After the target software is classified by the purpose of use, the price schemes are divided in the linear and nonlinear systems. Then the payment timing is decided and the price unit criteria is studied. The result is shown in Table 2.

First, as for the price scheme, more companies prefer the linear pricing system to the nonlinear. This shows that the software companies do not make use of the theory that the nonlinear pricing system produces more profits for the company than the linear pricing system. In the nonlinear pricing system, the n-block tariff system is more often used than other systems. The n-block system is usually used in the client/server environment by the number of users. It is necessary to use the two-part tariff or all-unit discount systems more often in the future.

Second, as for the payment timing, the pay-first & product-second system is usually used in software industry. Only the home trading system that the security companies adopt uses the product-first & pay-second system in the form of ASP. It is urged to introduce the product-first & pay-second system more positively.

Third, as for the price unit criteria, there are various criteria such as product differentiation, clients/server, upgrade, person/organization, bundling, or usage time horizon. Also, major companies use complexity of various price unit criteria, while small and medium companies use simplicity of few price unit criteria.

Fourth, the price payment unit differs on the character of software. Among the system software, the system support software shows the most various payment units while the application software shows more various payment units than the system software.

Table 2. Current state of pricing Korean software products

| | | price scheme | | | | payment time | |
|---|---|---|---|---|---|---|---|
| | | linear | nonlinear | | | pay-first | product-first |
| | | | two-part tariff | n-block tariff | all-unit discount | | |
| system software | system management software | linux, Window, Asianux, Hancomlinux, Igetlinux, Mizilinux, MySQL, Nitix, Red Hat, Tirbo Linux, WebTrend, Oracle, Ispector | Ipswitch | Hancom office, Ipswitch, Red Hat, Suse, Window, Oracle, Ispector, Semantec | | linux, Window, Asianux, Hancomlinux, Igetlinux, Mizilinux, MySQL, Nitix, Red Hat, Tirbo Linux, WebTrend, Oracle, Ispector, Hancom office, Ipswitch, Red Hat, Suse, Window, Oracle, Ispector, Semantec | |
| | system support software | namo, hauri, Alzip, Fineprint, DISKEEPER, RarLab, Winzip, ZipNall, ACDsee, Nero Burning, EditPlus, CuteFTP, DaOffice, IpswitchFTP, Easy CD, Patition, Vandyke, Virobot, Ahnlab Policy Center, V3, V3 Plantium, Spyzero, V3netserver, V3pro, V3firewall, Norton, | Virobot | Alzip, Fineprint, Quest, RarLab, Winzip, paperPort, Snalgt, Ultra Edite32, virobot, Ahnlab Policy Center, V3, Semantec antivirus, norton, virus chaser, terrace | | namo, hauri, Alzip, Fineprint, DISKEEPER, RarLab, Winzip, ZipNall, ACDsee, Nero Burning, EditPlus, CuteFTP, DaOffice, IpswitchFTP, Easy CD, Patition, Vandyke, Alzip, Fineprint, Quest, RarLab, Winzip, paperPort, Snalgt, Ultra Edite32, Virobot, Ahnlab Polic | |
| | system development software | C++ | | EditPlus2.12, Ultra Edit-32 | | C++, EditPlus2.12, Ultra Edit-32 | |
| application software | general application software | hangul 2007, hangul PDF, hangul Office, MS Office, Wordperfect, Acrobat, Hunminjungum, Namo, Adobe, Corel, streamauthor, paintshop, micromedia, fontpage | | hangul 2007 | | hangul 2007, hangul PDF, hangul Office, MS Office, Wordperfect, Acrobat, Hunminjungum, Namo, Adobe, Corel, streamauthor, paintshop, micromedia, fontpage | |
| | specific application sfotware | autodesk, Dreamweaver, SPSS, Sketchup, Nase, mainz, softclass, iquest, snsoft, zounsoft, Mymailer, jointinfo, Transcat, Easyman, Armi, IRIS, Yoondesign, Nova, Quark, junjajang | | SPSS, Softcity, inbi.com | Mymailer | autodesk, Dreamweaver, SPSS, Sketchup, Nase, mainz, softclass, iquest, snsoft, zounsoft, Mymailer, jointinfo, Transcat, Easyman, Armi, IRIS, Yoondesign, Nova, Quark, junjajang, SPSS, Softcity, inbi.com, Mymailer | ASP (Home trading system) |

| | | price unit | | | | | |
|---|---|---|---|---|---|---|---|
| | | product differentiation | client/server | upgrade(repeat purchase) | person/org | Bundling | usage time |
| system software | system management software | linux | linux, Ipswitch, MySQL, Nitix, Red Hat, Suse, Turbo linux, Webtrend, Window, Oracle, Ispector | linux, Window, Semantec | Window, Asianux, Hancom Office | | |
| | system support software | | Quest | Finprint | Finprint, ACDsee | | |
| | | V3 Plantium, V3firewall, final data | virobot, V3NetServer, final data | V3, V3 Plantium, Spyzero, V3netserver, Semantec Antivirus, casperski | virobot, casperski, safezone | V3+Xkeeper, V3+final data, v3pro+spyzero, Anti virus+antispyware | caspersky anti virus Linux/Unix File Servers, casperski anti virus 6.0 for Windows Servers, Gikimi, safezone |
| | system development software | | | C++ | | Toad(Quest) | C++ |
| application software | general application software | MS Office, Adobe, Corel, Micromedia | Adobe | hangul 2007, hangul Office, MS Office, Wordperfect, Acrobat, Hunminjungum, Namo, Adobe, Corel, paintshop, mixromedia, fontpage | hangul PDF, MS Office, Adobe, Corel, paintshop, micromedia, frontpage | Adobe Design Bundle, CorelDRAW Graphics Suite 12 + Corel KnockOut 2 | |
| | specific application sfotware | iquest, snsoft, zounsoft, jointinfo, eTran, Easyman, Yoondesign, Nova, Qurk, junjajang | Mymailer | Dreamweaver, Sketchup, armi, Yoondesign | sketchup, By voice, Armi, junjajang | Easyman, Armi, Yoondesign | Create Adobe PDF Online, sketchup |

## 5. Conclusion and Suggestions

The purpose of this research is to suggest a comprehensive pricing schemata that software developers can use in the integrated state of software uses. To do so, we have reviewed the pricing criteria that the current fields of business administration treat and offered the basis of pricing systems. Then we have applied the prices of software products in Korea to the systems and earned abundant price payment units.

Software developers and sellers have seen the chances to increase the profits of their companies by making use of the above systems. According to our research, Korean software companies have not made full use of price payment systems, payment timing, and payment units to maximize their profits. Therefore, it is suggested that they seek to adopt various nonlinear pricing payment systems. In addition, they may have to offer their customers various payment opportunities, like a cafeteria, instead of offering one payment unit.

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