WIPO/IP/HCM/97/16
ORIGINAL: English
DATE: February 1997

DEPARTMENT OF SCIENCE, TECHNOLOGY AND ENVIRONMENT OF THE PEOPLE'S COMMITTEE OF HO CHI MINH CITY

NATIONAL OFFICE OF INDUSTRIAL PROPERTY OF VIET NAM

WORLD INTELLECTUAL PROPERTY ORGANIZATION

JAPANESE PATENT OFFICE

WIPO ASIAN REGIONAL SYMPOSIUM ON THE PROMOTION OF INVENTIVE AND INNOVATIVE ACTIVITIES AND THEIR VALUATION AND COMMERCIALIZATION

organized by
the World Intellectual Property Organization (WIPO)

in cooperation with
the National Office of Industrial Property of Viet Nam (NOIP)

and
the Department of Science, Technology and Environment of
the People's Committee of Ho Chi Minh City

and with the assistance of
the Japanese Patent Office (JPO)

Ho Chi Minh City, Viet Nam, March 5 to 7, 1997

THEME III: VALUATION OF INDUSTRIAL PROPERTY ASSETS - METHODOLOGIES OF DETERMINING THE VALUE OF INDUSTRIAL PROPERTY ASSETS

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INTRODUCTION

This Paper will

* Discuss the conditions for determining the value of intellectual property assets
* Present some basic price setting considerations and "rules of thumb"
* Bring a simplified example on how to use the "rules of thumb"
* Illustrate why IPR must be seen as one element amongst others
* Give a short conclusion on the subject

CONDITIONS FOR DETERMINING THE VALUE OF INTELLECTUAL PROPERTY ASSETS

Unfortunately, there is no easy or single answer to the question:

"What is the value of a certain industrial property asset ?"

1. The value of any invention is highly dependent on a complex set of conditions and circumstances, and there are examples that it can go up and down overnight.

2. One reason for this is that the value of an invention is determined not by the market today, but by the expectations of the market development in perhaps many years from now. Inventions in this respect are quite like options and futures on the stock market - mainly considered as high risk investments.

3. Bringing a patentable invention to the licensing market is an unusual venture showing the following characteristics:

Characteristics of an invention as an object of trade:
* The object is unique - there is nothing like it * No standard product specifications exist * There is a very limited number of potential buyers

4. It is not a coincidence that the above characterization is also valid for the business of trading carpets on a market. When discussing how to establish the value of an invention in various international fora the image of carpet trading is quite often used as an illustration.

5. In the carpet trade situation, you either buy the carpet at a certain agreed price with no chance of renegotiation - or leave the market. In the typical trade of a patentable invention - a patent license, however, the final price is highly dependent on the outcome of the invention.

6. Only in very rare cases is IPR sold at a fixed price. In by far the most cases the IPR is sold on a profit and risk-sharing basis: a performance-related sales price.

Fig. 1 shows the payment forms and terms most frequently found in license agreements

Figure 1. Typical elements of a license agreement

Payment form	Payment terms	Objective
Down payment	By signature of the agreement	To cover licensor's up-front costs and secure commitment from the licensee company
Royalty fee	Percentage of turnover created by invention, payable 2-4 times a year	To share the risk between inventor and licensee company
Minimum royalty	Payable even if turnover is below a certain level	To maintain licensee's commitment and prevent him from "shelving" the invention

7. The Danish Innovation Center (DIC) is often asked by inventors or companies what a royalty fee should be for a certain invention, but as shown above the royalty fee is just one among three elements, and a low royalty can be compensated by a high down payment and *vice versa*.

8. In more complicated negotiations, the down payment can be payable in steps and on certain conditions. The royalty percentage itself can be dependent on the turnover, so that for instance very high turnovers will give a lower percentage. And last, but not least, all figures can be dependent on the strength of the patent.

9. Instead of calculating the royalty fee as a certain percentage of the generated turnover, in some cases, the royalty fee is agreed as a certain fee per produced unit. In this case certain provision for inflation has to be taken.

SELL OR LEASE

10. The true value of IPR can only be determined in the situation where it is brought to the market, is passed to somebody else who pays money in return. The very first question that occurs is whether the IPR is being sold or leased.

11. Whereas physical assets in most cases are sold in the sense that the ownership changes from seller to buyer, then in the case of IPR a lease situation is the most common way of passing IPR from one person or company to another. In this case the ownership to the IPR will remain with the licensor (the inventor), whereas the rights to exploit the IPR, on certain conditions, are passed to the other party (the licensee) against financial compensation.

Figure 2. Selling or leasing - pros and cons

Advantage	Lease	Sell
Inventor is in control of IPR	YES	NO
IPR goes back to inventor in case of licensee's bankruptcy	YES	NO
Company is independent of inventor	NO	YES
Highest potential price	NO	YES

12. DIC always advises that the lease situation be preferred unless a substantial part of the price for the patent is paid as a down payment. If negotiating with a smaller company with limited financial resources, the "lease" situation should always be preferred.

SOME BASIC PRICE SETTING CONSIDERATIONS AND INSTRUMENTS

13. As in any other trade situation, the bargaining power of the parties is most decisive for the agreed price. During the license negotiations, various arguments and considerations will be launched by the two parties. Some will be of a rather basic nature, whereas others can be quite complicated and involve numerous forecasts and calculations.

14. Many specialized theories have been developed within this field for various specific cases. For the general case, some rough "rules of thumb" have been developed as the outcome of many years of experience amongst licensing professionals, and some of these are described below. None of them represent the only true and sound consideration, but, on the other hand, all of them carry an element of the truth and help establish a picture that is as true as possible.

COSTS DEFRAYED BY LICENSOR

15. Most inventors have as a basic demand that they want at least to have covered the costs which they have defrayed for the creation and development of the invention covered by the IPR. This is an understandable starting point and should always be considered, but, on the other hand, the value of the argument can be challenged. The basic question of the licensee who is trying to acquire the IPR will naturally be: "What is in it for me?"

16. In some cases, inventors have invested a substantial amount of money in the development of an invention and in its protection - perhaps more than anybody is prepared to pay for it - and if the inventor in this case stands firmly on his argument, there will most likely be no deal, because nobody is prepared to pay the price.

17. But in the case where a potential licensee company is trying to press the price unreasonably, the argument of the licensor's cost can be used in the way that the potential licensee is being asked to explain how he would have been able to come to the same result at a lower price. Quite often it proves difficult for him.

18. The consideration of the licensor's defrayed cost is more useful in the case of incremental inventions, where the know-how has more value than the IPR. In case of a break-through technology covered by a strong patent, the value of the IPR can be many times as high as the perhaps limited costs involved for the protection.

LICENSEE'S ALTERNATIVE DEVELOPMENT COSTS

19. This is the reverse consideration of the above mentioned. The potential licensee tries to estimate the costs involved in case he himself should have developed the invention to its actual stage.

20. But unlike the above consideration, this can only be an estimate, since the development did not take place, and of course the company will be tempted to make a low estimate, perhaps not taking into account the numerous failures, mistakes and useless results that are inevitably a part of nearly every development project.

21. The potential licensee may be brought to realize that development is costly by considering the size and total costs of his own development department over the last, say five years and by making a simple division by the number of filed patent applications.

PROFIT SHARING CONSIDERATIONS

22. The license agreement should strive at sharing the profit generated by the IPR in a fair way. Experiences during the years have established that a fair profit sharing means that the licensor will receive between 1/4 and 1/3 of the totally generated profit in the total lifetime of the project. This is a good and useful rule of thumb. The drawback is of course that it can be very difficult to estimate the total profit over the lifetime of a product.

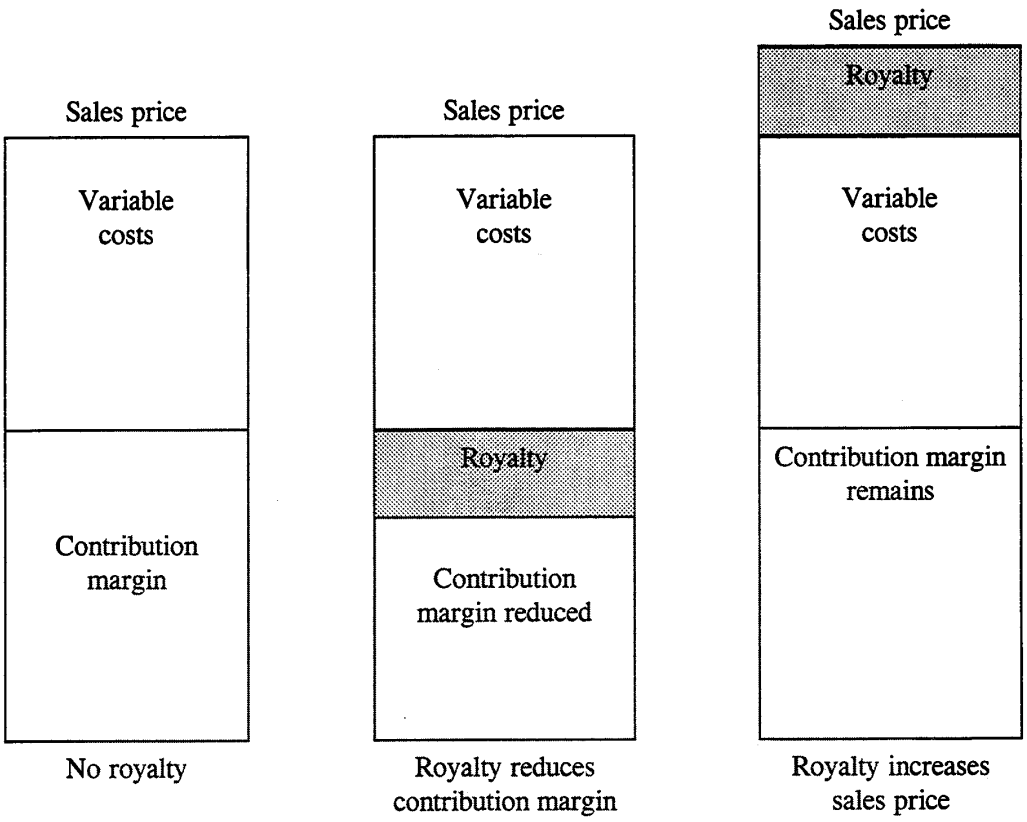
23. Various scenarios can be created taking into account different development factors, and independent marketing experts and technology experts can be drawn upon to give their best estimate in order to determine the total lifetime profit.

LICENSE FEE AND CONTRIBUTION MARGIN

24. If a company is being offered a patent license, then it will start calculating what sort of profits it can generate from the product. It will make a number of calculations in order to predict the variable production costs, and, dependent on the actual technology and market sector, it will most likely have a rather precise idea of how low a contribution ratio it is prepared to accept. On the other hand, the potential licensee will also make some considerations as to what price the market will be prepared to pay for the product and - dependent on the price - how big a market it is possible to access. All these elements are closely linked and mutually dependent in a way which in the end depends on the future market development.

25. But in the case of a license agreement, the licensee will have to add one more element to his variable costs: the license fee. If the license is paid through a royalty fee, then the licensee will either have to increase the sales price or he will have to accept a lower contribution margin or a combination of the two.

Figure 3. Royalty fee and its influence on the contribution margin/sales price



CONSEQUENCES OF THE ROYALTY SIZE

For a 1) very low, a 2) "fair" and a 3) very high royalty, the following three scenarios will occur:

A VERY LOW ROYALTY

26. If the royalty is very low, then the licensee will be able to make a good profit. In case he sells the product at a relatively high price, he will reach a relatively modest market, but he will be able to realize a high contribution margin and profit per unit. In case he sells at a relatively lower price, a more modest, but still satisfying contribution margin will be generated, but his turnover and hence his profit will probably be high, because he will reach a large market.

27. In the first of these two cases the licensor's share of the profit will be less than reasonable. In the second case, however, although the royalty percentage is low, the licensor may receive a share of the generated profit which is not far from being fair.

"FAIR" ROYALTY

28. This is the optimum case where the licensee is still able to sell at an interesting price, reaching a market of an interesting size, and making a neat profit. And the licensor will get a fair share of the generated profit.

A "TOO HIGH" ROYALTY

29. Unlike what many inventors believe, this is unfortunately a lose-lose situation. Everything may start well, and the licensor will receive a neat amount of money. But then things start to go wrong. Either the licensee will have to increase the sales price, which may result in a negative market response, so the turnover will be low, or he will keep the sales price low and have to accept a low contribution margin, which may make him unwilling to invest in the necessary marketing and sales activities, which again will result in a low turnover.

30. The licensee will not make a good profit, but, interestingly enough, neither will the licensor, because his royalty will be calculated from the relatively low turnover. So even for an inventor it is better to have 3% royalty of a success than 6% of a failure.

31. A commonly used rule of thumb says that the royalty fee should not exceed 1/10 of the contribution ratio (in %).

OTHER FACTORS AND CONDITIONS INFLUENCING THE VALUE OF INTELLECTUAL PROPERTY ASSETS

A number of individual factors influence the final price of IPR. Some of these are listed in figure 4:

Figure 4. **Some factors influencing the IPR value**

Higher price	Lower price
Large potential market	Niche market
Strong IPR, difficult to "by-pass"	Competitive products not covered by the IPR exist or can be developed
Exclusive license	Non exclusive license
Moderate investments needed	Huge investments needed
Close-to-the-market technology (in time)	Considerable development time necessary
Sub licenses possible	No option for sub licenses
Know-how and mutual development incl.	Patent licensing only

32. Apart from these purely professional factors the human factor should not be forgotten - in some cases it is the most important one. The following are a few examples:

33. Some inventors and scientists are true geniuses within their professional field - but impossible in a negotiation situation. They may even insult the potential licensee or come up with strange and unreasonable demands. In this case the owner of the IPR himself decreases the value of the asset.

34. In some professional sectors there is little or no tradition for acquiring IPR. People would rather develop something else themselves, or even infringe existing IPR. It may prove impossible to obtain a reasonable price.

35. But in some cases an invention which is only a small incremental step, and which should have a limited value comes to the right place, where a company desperately needs a certain technology, and then the price can be much higher than any previous estimate would predict.

EXAMPLE ON HOW TO USE THE "RULE OF THUMB"

36. In most cases, many, and rather complicated calculations will be made by both of the negotiating parties in a license negotiation. The use of the "rule of thumbs" will be illustrated here by a heavily simplified example showing the following characteristics: a relatively simple invention, strong IPR, close to the market, a relatively short expected lifetime.

Figure 5. Simplified calculation to predict profit and licensor's share from an estimated turnover

Year	1	2	3	4	5	6	7	Total
Turnover	0	40	80	150	150	80	40	540
Contribution ratio %		30	40	40	50	60	60	
Contribution margin		12	32	60	75	48	24	251
profit	-20	-8	12	40	55	28	4	111
4% royalty		2	3	6	6	3	2	22
Down payment	8							8
Total								30

37. As can be seen from the table, the expected total license fee lies within the area of 1/4-1/3 of the expected profit generated by the product, and a royalty of 4 % is just below 10% of the average expected contribution ratio.

38. In most cases, heavy development costs and investments will complicate the picture.

IPR DOES NOT STAND ALONE

39. In most cases known by DIC, the IPR in itself has a limited value. It is the combination of IPR, know-how and the option of acquiring further know-how in a common research and development activity that makes an invention or a research result covered by IPR valuable for a company.

40. Therefore the value of intellectual property assets highly depends on the conditions for the transfer of technical information and the future development. A good license contract is not just a patent license agreement. In most cases, the contract will be a patent license, know-how and development agreement. Or it can even be a consortium and development agreement incorporating the fact that one of the parties' contribution is secret technical information which later on in the development phase will be subject to protection under certain specified conditions. This sort of arrangement may sound strange, but in many cases it will increase the value of the intellectual property asset which will be the outcome of the activity.

41. This also implies that there are more factors for the licensor (the inventor or scientist) to deal with than just money, namely future professional restrictions.

42. Last summer DIC became involved in some negotiations that had taken part for some time between a scientist, a company and venture capital institution on the setting up of a new company to exploit a novel technology developed and patented by the scientist.

43. There was nothing wrong with the proposed license fee, it was absolutely fair, and the scientist could foresee a considerable income. But the proposed contract contained clauses that would restrict him in his future work in a quite unacceptable way. The consequences of one of the clauses was that the licensee could even prevent him from changing his job. DIC had the most unreasonable clauses taken out of the contract proposal, but if the scientist would have demanded total freedom in his future research, then the license fee would have been much lower.

CONCLUSION

44. Determining the value of intellectual property assets is a complicated issue, because the price is influenced by innumerable factors. No price tag can be made, but there are a few rules of thumb to help you find your way. But even they are just very rough instruments, and they can not replace the best instrument of all: good common sense.

45. Determining the right price of an invention involves more psychology and human understanding than mathematical skills. At the end of the day the real price will be determined by a person either accepting or rejecting a price, and in most cases, he will rely even more on his feelings than on his logical calculations.

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