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# Purchasing Criteria in Technology Licensing: An Empirical Study with some Benchmarking Implications

## ABSTRACT

*The study discusses purchasing criteria from the viewpoint of a licensee in technology licensing. The criteria expressed with 46 variables are ranked empirically. Furthermore, the paper shows the dimensionality of purchasing criteria rankings. The results are finally discussed in the context of benchmarking.*

## INTRODUCTION

The author has for several years studied various phenomena in and around custopreneurial strategies. *Custopreneurship* refers to various methods of integrating *customers* as *entrepreneurial* resources, such as: utilizing part-time or full-time network marketers, activating old members to recruit new ones in club-type marketing, using celebrity names as marketers, recruiting franchisees and *licensees*. In all these commercial practices customers are used as resources.

In business format franchising, for example when running a franchised pizzeria, franchisee customers have many roles: they work as marketing resources (advertising, etc.), sales resources, production resources, development resources, quality control resources and financial resources. In licensing, licensee customers normally work at least as production, marketing and sales resources. Licensing has been actively used for many years in metal, pharmaceutical, foodstuffs, tobacco, entertainment and leisure industries. Nowadays, it is a widely-spread strategy also in software, electronics and biotechnological businesses.

For the purposes of this paper, *technology licensing* refers to a contractual agreement in which an independent organization (licensor) sells the rights to the use of technology in the form of products, processes, technical and marketing know-how, patents and trademarks to another company (licensee) for payment of royalties and/or other compensation (McDonald & Leahey, 1985).

*What are the criteria* employed by licensees in making their *purchasing decisions* while acquiring a license? How are the various criteria *ranked*? These important questions have not yet been studied with true diligence. So far, a majority of licensing studies have concentrated on international business and economics (Contractor 1981, 1985 & 1990; Horstmann & Markusen, 1987; Adams et al., 1988; Tang & Yu, 1990). In these studies the interest has often been in the product life-cycle explanation of international trade and investment or in licensing as a step towards or an alternative to foreign direct investment. Other studies have highlighted the legal considerations of licensing contracts, whilst other efforts have been aimed at strategic issues, mainly from the licensor's viewpoint. Prior licensing research has unfortunately neglected the viewpoint of a licensee.

Despite of past research activities, on the whole academic research in the field of licensing is limited and hardly current (Fu & Perkins, 1995). In spite of the increasing importance of technology licensing, there is little empirical research available investigating the purchasing criteria employed by the licensees and would-be licensees while licensing in new technology. The present study hopes to make a contribution towards a better understanding of the criteria employed by Finnish companies, both PLC's as well as SME's. By doing this, we may provide valuable insights into the criteria and actions that licensee firms need to consider to succeed in their search for potential licensor firms and licensed technologies. Another focus is on the ways in which *benchmarking* could be utilized in enhancing the competitiveness and continuous improvement of the internal practices among Finnish firms licensing in new product technology.

As purchasing criteria are investigated, our view is that of a licensee. The aim is to create an instrument which could be later used in multicultural and multinational research on licensing in three or four different countries and which will be experimented on here. This first ex-

ploratory study is made in Finland. From the very beginning, a number of US and Finnish licensing experts have kindly given their comments on our study plan and the various versions of the questionnaire. Their support is acknowledged with gratitude. While the main aim is to experiment with the new instrument, the paper also sets out to give some first answers to the following questions:

- 1) How do licensees rank various purchasing criteria when acquiring a license?
- 2) Can we find some underlying dimensions from the ranking perceptions, and if so, could these constructs be used for grouping purposes in order to describe purchasing criteria with some basic dimensions?

## LITERATURE REVIEW

### Potential Advantages for Licensees

Licensing of technology is no longer confined to the situation of a mode of entry into foreign markets. Firms appear to be using the full range of options available to them for the proactive use of technology (Capon & Glazer, 1987). A bulk of past theoretical and empirical studies have identified various advantages and benefits that firms can gain from technology licensing.

Gold (1987) argues that a firm's *new product development could be accelerated by licensing in technology* from other companies; in relying on external technology the company reduces product development time, since the technology is already fully developed and proven in the licensor's markets, and thus only needs to be adapted by the licensee. Besides time this saves money by compensating high research cost (Goodman, 1990, p. 326). Internal R&D can be used for fewer projects which means that more resources can be put on fewer products. The desire to speed up the development of new products, gain market entry, diversity and to obtain licensor support have all been found to be powerful inducements to license in technology (see e.g. Killing, 1977; Lowe & Crawford, 1983; Crawford, 1985). Licensing allows the firm to skip the predevelopment and often the development stages of new product development (Wind & Mahajan, 1988, pp. 304–310). Other benefits include increased revenue to the licensee due to trademark and patent production which usually accompany the licensed product (Meyer et al., 1985). An established trademark gives the licensed product instant market recognition, implied quality, reputation and market acceptance. A trademark also helps the licensee to avoid the high cost of money and time involved in building a brand from scratch.

Technology licensing is usually accompanied by a patent providing the licensee with a *territorial monopoly* (McDonald & Leahey, 1985). The revenue potential of this monopoly has been found to be one of the main motivations for licensing, especially in the pharmaceutical

and chemical industries (Contractor, 1983). Companies also acquire technology licenses to build new internal product development capability (Caves et al., 1983; Patsalos-Fox, 1983). New technological skills acquired through licensing may be diffused into other areas of the firm to improve its current and future operations. New products and processes resulting from the increased technical competence of the firm will have a strategic impact on firm's increased competitive advantage (Killing, 1978). Firms may also employ technology licensing to purchase products to fill gaps in the product range and to meet the offerings of current competitors (Patsalos-Fox, 1983; Crawford, 1985).

Another benefit that is gained by firms from acquiring technology through licensing concerns the opportunity to obtain *ongoing access to information* about new technological developments and to keep pace with new products (Killing, 1978). This benefit becomes even more important in an environment of discontinuous technological breakthroughs. Technology licensing helps the firm to avoid the costs of product obsolescence by providing an avenue for quick access to new technology (Teece, 1988).

In addition, results of a host of previous studies have shown that a major benefit of licensing relates to its *low development and market introduction cost* compared with internal development (Lowe & Crawford, 1983; Crawford, 1985). Cost reduction arises from the support the licensor provides in manufacturing, quality control and marketing, and from the use of spare capacity. Last but not least, the licensed product is usually proven in the licensor's or other licensee's market (Lowe & Crawford, 1983; Shahrokhi, 1987), thus there is less need for expensive market testing before product launch. This reduces the risk of failure (Goodman, 1990).

### **Potential Disadvantages for Licensees**

Besides advantages, new product technology involves many disadvantages and risks especially to small and medium-sized companies. One of the main motives behind a firm's decision to license out technology is the exercise of control over the technology (Contractor, 1983). New product technology licensing might involve loss of control over strategic decisions, such as pricing, production quantity and quality, which tend to reduce the capacity of the licensee to generate revenues from the licensed technology (Sen & Rubenstein, 1989). Similarly, McDonald & Leahey (1985) have indicated that a firm might incur new product technology licensing costs such as licensor-imposed restrictive conditions on purchase of materials, limitation on exports and grant-back provisions that could require the licensee to transfer improvements back to the licensor free of charge. Many scholars argue that such restrictive conditions may affect the licensee's competitive advantage, lead to a loss of control over strategic decisions in the use of the licensed technology and dependence on the licensor for future technology (Gold, 1982; Sen & Rubenstein, 1989).

New product technology licensing can also have adverse effects on the morale of internal R&D staff, since it may be seen as an indication of top management's lack of confidence in their ability to develop new products (McDonald & Leahey, 1985; Sen & Rubenstein, 1989). This may lead to low morale among the licensee's internal R&D staff, which may lead to the creation of a "not invented here" syndrome, thus increasing the problems and costs of exploiting the licensed technology. This could ultimately retard the licensee's internal ability to innovate to improve its long-run competitive advantage (Gold, 1982).

Finally, Svensson (1984) and Ford (1985) have indicated that technology licensing involves many acquisition and implementation costs relating to lump sum and /or royalty payment to the licensor, adaptation of the licensed technology, overseas travel and negotiations. These issues as well as the potential licensee-licensor conflicts are problems which might eventually diminish licensing success. Moreover, the licensed new product technology may be mature and less competitive, since licensors are sometimes reluctant to license out their latest innovations for fear of direct competition.

While the above-described findings provide valuable insights into the perceived advantages and disadvantages of companies licensing-in technology, it must be noted that much of the past research concerns the mere enumeration of the advantages and disadvantages (Atuahene-Gima & Patterson, 1992, p. 54). More empirical research is needed to link these perceptions to the successes or failures of the licensing companies.

### **Licensees' Cost-Benefit and Satisfaction-Dissatisfaction Perceptions**

In a study on the perceived benefits and costs of licensing to 183 small Australian engineering firms licensing in technology, Atuahene-Gima (1993, p. 226) found the following reasons (benefits) explaining why small firms licensed new product technology (ratings of importance on a scale from 1 = "moderately important" to 7 = "extremely important"):

- 1) Gain competitive advantage (Mean=5.8/SD=1.6)
- 2) Increase sales and market expansion (5.5 /1.6)
- 3) Gain technological knowledge quickly (5.3/1.8)
- 4) Fill product portfolio gaps (5.1/2.0)
- 5) Upgrade internal skills (5.0/1.8)
- 6) Reduce new product development risk (5.0/1.9)
- 7) Gain speedy market entry (4.9/1.8)
- 8) Keep pace with competition (4.6/1.9)
- 9) Diversify product range ( 4.6/2.0)
- 10) Gain fast return on investment (4.4/2.1)

- 11) Access to a proven product (4.3/2.0)
- 12) Save resources for other internal developments (4.3/2.1)
- 13) Access to licensor holds patent (4.3/2.3)
- 14) Lower cost of new product licensing (3.8/2.0)
- 15) Access to future new product licensing opportunities (3.7/2.2)
- 16) Access to an industry standard (3.4/2.2)
- 17) Utilize spare capacity (2.9/1.9)

Turning to the perceptions of risks and costs of licensing in technology as reported by Atuahene-Gima (1993, p. 228), the mean values and standard deviations of the various cost items were as follows (statement ratings on a scale from 1= "strongly disagree" to 7 = "strongly agree"):

- 1) Difficulty of entering and exiting license agreements (Mean = 4.2/SD =1.8 )
- 2) Grant-back provisions lead to loss of future competitive advantage (4.1/1.7)
- 3) Lower margins on licensed products due to restrictions (3.8/1.8)
- 4) Choosing alternative new products for licensing is a complex process (3.6/1.5)
- 5) Loss of control due to restrictions (3.6/1.6)
- 6) High termination costs (3.4/1.7)
- 7) High search costs (3.3/1.4)
- 8) Discourages internal R&D staff (3.1/1.9)
- 9) Long and costly negotiations (3.0/1.3)
- 10) Uncertainty of correctness of the decision to license (2.9/1.6)
- 11) High cost of licensing new products (2.7/1.5)
- 12) Overwhelming paperwork (2.5/1.2)
- 13) Difficult to gain competitive edge (2.5/1.6)
- 14) New product licensing involves too many restrictions to make it worthwhile (2.3/1.3)
- 15) High adaptation costs (2.3/1.5)
- 16) New product licensing too complicated to be bothered with (2.0/1.2)

In another relevant study, Fu & Perkins (1995) examined how satisfied US licensors and licensees were with their prior technology licensing experiences and which factors influenced their satisfaction. Out of 336 executives that returned questionnaires, 82 informants represented firms licensing in technology. The informants were either presidents, CEO's or owners of companies. The sampled companies were mostly small and medium-sized companies representing 13 different industries engaging in technology licensing, including chemical, petroleum and rubber industries, computer and other commercial machinery industries, electrical, electronic and instrumental industries, software, engineering services, etc.

When examining participating licensee firms's satisfaction over their completed licensing transactions and what determined their satisfaction-dissatisfaction level, the following scores of the satisfaction measure emerged (the same 13 statement measure with a 5-point scale was employed with the licensors): individual items (in descending order):

- 1) *"Technology reasonably priced"* (Mean=3.3/SD=1.1),
- 2) *"Quality of technology excellent"* (3.3/1.26),
- 3) *"Delivery schedule was followed"* (3.1),
- 4) *"Negotiation took too long"* (2.8),
- 5) *"Too much co-ordination"* (2.57),
- 6) *"Affected own product sales"* (2.48),
- 7) *"Brought anticipated profit"* (2.49),
- 8) *"More manpower than expected"* (2.43),
- 9) *"Training/support sufficient"* (2.24),
- 10) *"External expertise easy to find"* (2.15),
- 11) *"Some protection not enforceable"* (1.88),
- 12) *"Too much follow-up services"* (1.85),
- 13) *"Not enough legal protection"* (1.84).

Finally, an "Overall Satisfaction" measure was scored at 3.62 (SD=1.1).

Fu & Perkins (1995) came to the conclusions that in a proper licensor-licensee partnership, firstly, there should be a good match between the partners so that the licensee fully appreciates, and is ready to generate revenue from the use of, the licensor's quality technology. This is seen as the first step to future satisfaction. Secondly, the price of technology should be reasonable to both parties, or otherwise at least one party might feel dissatisfied. This comes down to the question of how to split the economic rent of technology properly between the two parties. Thirdly, the transfer of the licensed technology should be completed as previously scheduled. These three lessons could be seen as universal, regardless of what industry one is in.

Licensing agreements should constitute a good foundation for the creation and maintenance of close and stable relations between the firms (Wiedersheim-Paul, 1982). Nevertheless in some cases companies seem unable to take advantage of the possibilities, and instead have more short run intentions (e.g. to make quick profits) with their licensing agreements. In this way, licensing is often seen as a substitute for a more desirable type of relation. But it is dangerous to regard licensing as a type of makeshift solution. This can lead to a badly planned licensing relation which is not maintained and thus breeding disbelief in licensing relations in general.

## **Benchmarking and Licensing**

Much has been written about benchmarking and the benefits that would accrue to organizations which implement it. It is widely suggested that benchmarking can improve the company's competitive position and reduce non-value-adding activities. Because of its great potential for growth, diverse nature and strong local and international competition, licensing sector needs to ensure that its operating techniques are equal to those of any world class performers. One technique which can be applied in licensing operations, both by licensor or licensee, is benchmarking.

To sum up, benchmarking includes the search for the best practices which will lead to superior performance. Benchmarking can focus on the company's internal operations, on external operations between competitors or on external operations between non-competitive organizations. The results of the ongoing self-assessment and comparison with market leaders provide a continuous improvement within the particular licensing operation. Nevertheless, benchmarking is not yet as widespread in the licensing sector as in other industries.

In order to better understand the advantages of benchmarking in licensing, we need to start with a working definition. McNair & Leibfried (1992, p. 1) describe benchmarking as follows: "an external focus on internal activities, functions, or operations in order to achieve continuous improvement". Macneil et al. (1994, p. 15) define benchmarking in more detail: "a method for continuous improvement that involves an ongoing and systematic evaluation and incorporation of external products, services and processes recognised as representing best practice". The essence of benchmarking deals with identifying the *best practice* and putting it to work to support the values creation process and to enhance performance against customer expectations (McNair & Leibfried, 1992, p. 19). What is common in all of these definitions is the idea of a continuous improvement through a desire to improve on the already existing performance of the firm.

Within the licensing sector the focus of improvement often revolves around the concept of a customer perspective (Thompson, 1993, p. 10). This is related to the basic philosophy for organizing a business that builds from the notion "that every individual has a customer, and that the business is really a chain of customers, integrated horizontally to provide final goods and services to the external customer" (McNair, 1993, p. 335).

It is also linked to satisfying customer requirements, whether the customer is internal or external to the organization (Fitzgerald et al., 1994, p. 38). Thus, while organizations may control and measure quality internally, it is the degree of "fit", between customers' expectations of the level of service to be delivered and their perceptions of the level of service actually provided, which is most important (Johnson, 1987). By using benchmarking in enhancing licensing operations, we can try to diminish the above-mentioned gap between the expecta-



tions and the real perceptions.

What are then the different types of benchmarking practices that can be exploited in licensing operations? Benchmarking process often involves three stages: internal-, industry- and generic benchmarking. *Internal benchmarking* starts with gaining a thorough understanding of the various functional areas within the organization. The process of internal benchmarking questions all existing practices through the value chain, that is, the processes which start with the receipt of a request from a customer and terminates when that request has been answered to the satisfaction of all concerned. The findings of this review should result in a challenge to the basis of management and the criteria for evaluating performance. Only activities which add value for customers in the long run should be supported, non-value adding costs and activities must not be accepted (McNair & Leibfried, 1992, pp. 15–17).

In short, to gain maximum benefits from the benchmarking process, a company must first understand and clearly document its already existing procedures and practices. Internal benchmarking is both a way to improve existing performance and the critical first step in all external benchmarking projects. Internal evaluation provides the information necessary to focus on the key aspects of the organization's performance: to identify inherent, structural and performance drivers and to establish opportunities for improvement. This improvement comes about through communicating to the other parts of the organization the specific improvements and identified areas of best practices. The process involves the detailing of common elements in similar operations, isolating those which can, and should, be standardized and starts the first round of constructive discussions about what to change.

The next phase in the benchmarking process is competitive or *industry benchmarking* which focuses on key production or service methods and on characteristics which can provide a competitive advantage over the company's direct competitors. This benchmarking activity involves comparing your business with competitors who demonstrate the best practice in the way similar products or services are produced. Benchmarking is focused on investigating the ways in which the work is being carried out.

The third and final stage is called process or *generic benchmarking*. It is an operation undertaken between companies in different industries sharing some common 'process' in various operations, such as purchasing, marketing, production, sales, and repair and maintenance (Maciariello & Kirby, 1994, pp. 504–505). Generic benchmarking is employed to establish performance standards and detect trends across a number of related firms (Hazell & Morrow, 1992, p. 45). The difference between industry and generic benchmarking can be distinguished by separating the product, which has direct competition within the industry, and the business, which participates within a mixture of various organizations in a similar market segment.

To recap, internal benchmarking is confined to the business, whereas industry bench-

marking remains within the industry, while generic benchmarking has no boundaries. Therefore, it represents the most sophisticated and complex type of benchmarking, demands a lot of time and resources, requires solutions to the most difficult of conceptual problems, and promises the greatest returns by identifying the core issues, the solution to which can place the business ahead of the competition in the field. Generic benchmarking requires the establishment of major benchmarking partners from whom valuable and often unpredictable lessons can be learned (Evans, 1994, pp. 161–162).

Going through the above-described three stages of benchmarking can provide licensing firms with a focus for developing a responsiveness to customers' needs that will prove vital for continuous improvement. Moreover, the continual self-assessment and comparisons with market leaders typical of benchmarking lead to continuous improvements in the core processes and practices. In this improvement, the role of licensing could be very important, especially bearing in mind the notion of the "best practice".

### **SAMPLE AND METHODOLOGY**

In order to pretest and further develop the instrument, it was sent to a group of well-established US and Finnish licensing experts for review and subsequent comments for improvements. The commentators represented academic institutions in both countries and Finnish companies oriented to international business through licensing in technological knowhow.

The mail sample for pretesting the questionnaire was developed by contacting Finnish companies licensing-in new product technology. The sampled firms included both Public Limited Companies (60%) and SME's (40%). These represented various industries, including electronic, chemical, software and engineering industries. Eighty-four informants were sampled, most of them either R&D managers, finance directors, CEO's or owners of companies. Forty-two per cent of the companies were engaged in both in-licensing and out-licensing. The annual sales of the companies varied between 10 million FIM (some 89.5 million GBP) and 100 million FIM (approx. 895 million GBP). The informants were contacted personally over the phone. Besides telephone interviews, the respondents were asked to fill in a mailed (or faxed) questionnaire. In this first mailing 38 usable questionnaires were received, the response rate being 45.2%. Over 90% of the respondents were 30 years of age or older. Their work experience with their respective companies averaged some 11 years.

Due to the sample limitations and bearing in mind the exploratory nature of the study, it was decided that the analysis would be carried out with some basic descriptive methods and factor analyses. As the number of variables was just over 40, factor analyses were made with forced 3-, 4-, and 5-factor solutions. Factoring was made with the SPSS Principal Component

Analysis and the rotated matrices were calculated by using the Varimax method. The 4-factor solution offered the clearest structure and it was used for the final interpretation. In general, all four factors were easily interpretable and the communalities of the variables were quite high. Therefore, all variable loadings exceeding 0.50 in any of the factors were accepted for interpretation.

## RESULTS

The respondents (n=38) ranked the criteria with a 5-point Likert type scale (from 1 = "Not at all important" to 5 = "Very important"). Not surprisingly, the criteria related to strategic advantages received the highest scores:

Variable	Mean	SD
1) Easy access to high technology	4.35	0.75
2) Relative advantage(s) gained at the expense of the competitors	4.27	0.83
3) Juridical clarity of the licensing agreement	4.23	1.03
4) Connection with the development strategy of your business	4.19	1.10
5) Direct negotiations between the licensee and the licensor (no middleman)	4.15	0.78
6) Ongoing licensing fees and the way they are determined	4.15	0.97
7) Keeping up with the latest developments in the field	4.15	1.01
8) Rigidity of contract terms as experienced by the licensee	4.12	0.99
9) Open atmosphere in licensing negotiations	4.04	1.08
10) Estimated remaining time of the benefits gained from the license	4.04	0.77
11) Uniqueness of the licensed product, service, etc.	4.00	0.98
12) Geographical boundaries in the licensing agreement	4.00	1.06
13) Transfer of international know-how to your company	4.00	1.10
14) Time and effort saved in research and development	3.92	0.80
15) Clear division of responsibility exists between the licensor and licensee	3.92	0.93
16) Well-documented licensing agreement	3.88	1.11
17) Support and guidance provided by the licensor	3.85	0.97
18) Cost reductions gained	3.85	1.01
19) Increased productivity	3.84	0.97
20) Period of the validity of the licensing contract	3.81	1.02
21) Insufficient in-house research and development resources	3.76	0.88
22) Potential stipulations regarding minimum licensing fees	3.73	0.87
23) Blocking the competitors out of the same benefits	3.73	1.15
24) Conditions regarding multi application of the licence	3.72	0.89
25) Training provided by the licensor	3.69	0.88
26) Reduction of own development risk	3.68	0.99

27) When licensing is regarded as an investment, the internal rate of return is good (more than 10 %)	3.65	0.69
28) Establishment of cooperative relationship with the licensor	3.65	0.69
29) Size of the initial licensing fee	3.64	0.95
30) Guarantees by the licensor on the performance level of the licensed article	3.62	1.10
31) Better marketability	3.62	1.10
32) Reputation of the licensor	3.58	1.03
33) Terms of renewing a licence	3.54	0.90
34) When licensing is regarded as an investment, the payback period is short (less than 2 years)	3.54	1.03
35) Opportunity to use cross-licensing (a two-way technology transfer)	3.42	1.21
36) Research and development activities are boosted	3.31	1.16
37) Strict terms of licensing agreement	3.19	0.90
38) Raising of quality standards	3.15	1.08
39) Level of product standardization	3.08	1.02
40) Obligations of reporting to the licensor	3.08	1.02
41) Chance to sell the license to a third party (sublicensing)	3.00	1.23
42) Versatility of the licensed product, service, etc.	2.81	0.80
43) Financial position of the licensor	2.77	0.95
44) Transfer of international know-how to your country	2.58	1.10
45) Overcoming obstacles of import trade by using licensing	2.58	1.17
46) Public grants and subsidies received for taking up a license	2.04	0.96

"Easy access to high technology" scored highest. Other high-scoring variables were "Relative advantage(s) gained at the expense of the competitors" and "Juridical clarity of the licensing agreement". The respondents underlined the importance of a good connection between the development strategy of business and the licensed knowhow - not forgetting the fees and how they are determined. "Keeping up with the latest developments in the field" and "Rigidity of the contract" were also regarded as important issues. It was interesting to realize that some variables regarded by licensing doctrine as important criteria were scored reasonably low. The five lowest ones were scored under 3, suggesting that they were seen as far less important. The versatile use of the license for various purposes was not perceived very important. Surprisingly, the financial position of the licensor did not receive high scores either. Nationwide considerations, public grants and subsidies seemed to play only a minimal role in the respondents' decision making.

### Factor Analysis

In the factor analysis, the Varimax rotation produced four clearly interpretable factors which explained cumulatively as much as 55.2 per cent of the total variance. Before the analysis, it

was decided that the loadings accepted for the final interpretation must be high, i.e. over .50. This was considered important due to the sample size. The interpretation was made by using the top variables that loaded .50 or higher in any of the four variables. The first factor "Contractual Terms and Competition Issues" explained 30.4 per cent of the variance. The top variables were as follows:

Variable	Loading
37) Conditions regarding multi application of the licence	.78
10) Period of the validity of the licensing contract	.78
38) Geographical boundaries in the licensing agreement	.75
45) Clear division of responsibility exists between the licensor and licensee	.74
19) Connection with the development strategy of your business	.72
47) Rigidity of contract terms as experienced by the licensee	.71
32) Strict terms of licensing agreement	.59
18) Establishment of cooperative relationship with the licensor	.57
13) Juridical clarity of the licensing agreement	.57
23) Easy access to high technology	.54
15) Reputation of the licensor	.53
43) Direct negotiations between the licensee and the licensor (no middleman)	.51
39) Level of product standardization	.51

The second factor consisted of variables related more or less to resources. Accordingly, the factor was named "Resource Issues". It explained 9.6 per cent of the total variance. Some extremely high loadings were discovered.

Variable	Loading
4) Time and effort saved in research and development	.92
31) Insufficient in-house research and development resources	.75
40) Guarantees by the licensor on the performance level of the licensed article	.74
44) Training provided by the licensor	.73
17) Reduction of own development risk	.69
14) Support and guidance provided by the licensor	.64
33) When licensing is regarded as an investment, the payback period is short (less than 2 years)	.63
46) Open atmosphere in licensing negotiations	.60
30) Cost reductions gained	.57
29) Keeping up with the latest developments in the field	.55

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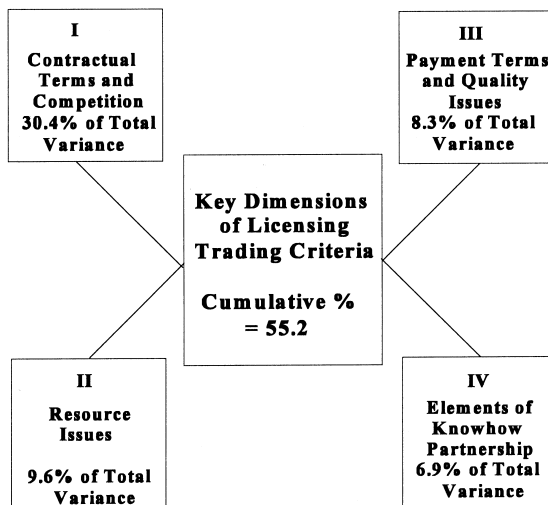
In the third factor, payment and quality issues were dominating. This factor, called "Payment Terms and Quality Issues", explained 8.3 per cent of the total variance.

Variable	Loading
11) Size of the initial licensing fee	.77
25) Research and development activities are boosted	.77
26) Raising of quality standards	.74
16) Ongoing licensing fees and the way they are determined	.62
27) Better marketability	.61
35) Public grants and subsidies received for taking up a license	.54

The fourth factor draws attention to the co-operative advantages of knowledge-based partnership. Bearing in mind the very nature of licensing, this is not at all surprising. The factor explained 6.9 per cent of the total variance. "Obligations for reporting to the licensor" loaded negatively. Obviously it could be perceived as an extra burden or additional work created by the licensing co-operation, i.e. a disadvantage rather than an advantage. The fourth factor was called "Elements of Knowhow Partnership".

Variable	Loading
22a) Transfer of international know-how to your company	.83
18) Establishment of cooperative relationship with the licensor	.71
22b) Transfer of international know-how to your country	.67
41) Obligations of reporting to the licensor	-.51

Exhibit 1, below, summarizes the key findings of the factor analysis. Factors I and III are more related to the external and competitive environment: competition and quality advantages vs.



**EXHIBIT 1. Key Dimensions of the Factor Analysis**

financial and contractual obligations. The strategic advantages are naturally the driving force of licensing cooperation. They have been placed above the centrum. Factors II and IV demonstrate knowhow and other resources. They are the foundation on which licensing can be established. Therefore we have placed them at the bottom.

The key results are given here as four tentative propositions:

P1 = *Contractual Terms* and *Competition Considerations* are important decision making criteria when obtaining a technological licence. In addition to the empirical data of the present study, this hypothesis is supported by e.g. Atuahene-Gima (1993, p. 226).

P2 = *Improving the Resource Base* and *Availability* is another vital decision criterium in purchasing a technological licence. This proposition is also suggested by Goodman (1990, p. 326).

P3 = *Payment Terms* as connected with *Perceived Quality* are also important decision-making criteria in obtaining a technological licence. In accordance with Svensson (1984) and Ford (1985), the empirical findings here strongly enhance this hypothesis. Interestingly, in the US study by Fu & Perkins (1995, pp. 907–920), payment and quality issues were the two most important determinants of licensing satisfaction

P4 = *Technology Transfer* leading to *Knowhow Partnership* is a vital decision criterium in purchasing a technological licence. Parallel with Patsalos-Fox (1983) and Killing (1978), the empirical results supported the proposition that knowhow partnership could be regarded as a vital decision criterium.

## DISCUSSION

The experiment with the new licensing research instrument has yielded some encouraging and rather promising results. First of all, we have now at least a slightly better, although yet little vague, understanding of what might be the buyers' most relevant decision making criteria when acquiring a license. They appear to emphasize the strategic issues of technological expertise. Their target seems to be the extending of the knowledge base of the company by fostering knowhow-related partnership.

Second, the contractual and financial issues also tend to be important and should not be left without their due consideration. Contractual terms are strongly related to competition issues which became very evident in our factor analysis. This result is only natural in the present business society, strongly dominated by the ideas of free market competition and strategic cooperation.

Third, a reasonably clear factor structure indicates that the instrument has at least some consistency and internal validity. The scale must be re-tested with a much bigger sample before stronger conclusions can be drawn. The further analysis will be made soon in a multinational setting.

Fourth, the high standards of deviations in the items dealing with cross- and sublicensing indicate that there are differing opinions regarding the importance of doing other than one-off-type business with licensing. The ideas of these forms of licensing did not score very high, on the contrary some respondents scored them very low. This may well be caused by the lack of knowledge and skill with regard to seeing the full potential of licensing opportunities. If this preliminary view holds true in the later analyses, it will offer interesting training challenges for business, management and entrepreneurship education.

### **IMPLICATIONS RELATED TO BENCHMARKING**

Benchmarking is fast becoming one of the most important quality management tools and ideologies. The continual self-assessment and comparisons with the market leaders, typical of benchmarking, lead to continuous improvements in the core processes and practices. At the same time, benchmarking can provide the licensing sector with a focus for developing a responsiveness to the customers' needs that will prove vital for continuous improvement. The business world does not stand still, continuing action is needed to generate effective measures to retain a competitive advantage, move towards competitive excellence, and ensure long run success. Benchmarking if used correctly can provide this measure.

The key concept in benchmarking is "best practice". Best practices are related to many different things, but most often to processes in various operations, such as sales, production, logistical operations, repair and maintenance, customer service, etc. Sometimes, if the best practices are very novel and innovative, they may be patented to enhance the competitive and commercial value. In this type of a situation, buying a licence offers a good opportunity for benchmarkers. They can gain an easy access to the best practices in a particular industry. Furthermore, selling a licence gives an opportunity to make money without losing the best practices of one's own.

However, a few words of warning are needed. Benchmarking should not be seen as a cure for all business ills. It is a part of the broad process of continuous improvement, and as such it is a catalyst for change. Aspects of benchmarking which should be considered are that while benchmarking can enable a company to match a competitor's performance, it may not identify practices for improving it markedly. Care should also be taken to avoid a mindset which views copying as being more important than inventing. This discussion leads us to the



fifth and very tentative proposition, P5 = Best practices as identified by useful benchmarking processes are patterns and, per se, sources of technology licensing.

## FINALLY

Thinking about the great potential and monetary dimensions of the two activities, licensing and benchmarking, the combination of the two has indisputable research, educational and practical implications in business. Most of all, the paper should help licensors to know their customers' needs and motives somewhat better. It is always good for salespeople to know how the customer thinks and how s/he ranks various purchasing criteria. Accordingly, it is also very important to pay more attention to the criteria of best licensable practices and how the licensees would rank them, before making the final purchasing decision.

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