Factors Affecting Royalty Rates

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Licensing practices, business strategy and factors affecting royalty rates: Results of a survey

Many organizations, although participating in technology transfer activities, may have little objective knowledge whether the prices they are paying or receiving for technologies are too high, too low, or on target. Some companies attempt to identify and use so-called standard industry royalty rates for licensing technology. However, statistically significant "industry rates" are generally not available; even if they were, they more than likely would neglect many of the economic considerations that should be factored into any specific royalty negotiation. In order to facilitate successful licensing programs, organizations need to understand and prioritize their own strategic, economic, and legal motivations as well as those of prospective licensing partners.

The Technology Licensing Survey was designed to address these challenges and to provide an opportunity for a licensing executive to examine how others view licensing within their organizations in terms of strategic and financial goals. It was also designed to reveal how companies are organized to achieve such goals. The survey results provide an objective benchmark for licensing professionals to evaluate their own programs and identify areas for improvement. Never before has data been compiled covering such a comprehensive set of economic and strategic licensing considerations.

The survey consisted of 38 questions divided into four sections:

1. Current Licensing Practices
2. Business Strategy
3. Factors Which Impact Royalty Rates
4. Participant Background

Before discussing any specific results of the survey, some disclaimers are appropriate. The survey results or observations cited herein should not be construed as being applicable to any specific licensing situation. Each licensing decision should be evaluated in light of the particular facts and circumstances existing. The survey results are based on the responses of 118 participants; response was entirely voluntary and at the sole discretion of each respondent. Consequently, no attempt was made to control either the number of responses or the type of companies responding in order to attain a particular level of statistical reliability. Any tabulation of the data and results should be considered as supplementary to the current body of knowledge regarding licensing practices in the United States. The authors neither approve of nor authorize the use of the information in this report for the purpose of statistically verifying or rejecting any hypothesis regarding licensing practices or for the purpose of extrapolating or inferring these results upon any industry or general population of companies. Although the authors do not represent the survey data as being statistically significant, it should be noted that the results of this survey are consistent with those of the smaller pilot survey reported in the May-June 1990 issue of Licensing Law and Business Report.

Primary Industry	No. of Respondents	Primary Industry	No. of Respondents
General Mfg.	21	Electronics	5
Other	21	Food/Consumer Products	5
Pharmaceutical	16	Computer (hardware, software)	4
University/ Gov't	14	Aerospace	3
Chemical	13	Health Care Equipment	3
Automotive	6	Telecommunications	1
Energy	6		

Table 1

As shown in Table 1, survey responses were distributed among a variety of industries.

Most of the organizations responding to the survey were quite active in licensing. Approximately half of the respondents indicated 25 or more licensing-out agreements; approximately half of the respondents indicated more than 10 licensing-in agreements. At the extremes, six respondents indicated over 500 licensing-out agreements while four respondents indicated more than 500 licensing-in agreements. Of the private industry respondents (those not indicating university or government agency as their primary industry), just under one fourth had annual revenues under $50 million; still, half

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LICENSING-OUT ROYALTY RATES BY INDUSTRY

	ROYALTY RATE CATEGORY						
	0-2%	2-5%	5-10%	10-15%	15-20%	20-25%	OVER 25%
PRIMARY INDUSTRY							
AEROSPACE		40.0%	55.0%	5.0%			
AUTOMOTIVE	35.0%	45.0%	20.0%				
CHEMICAL	18.0%	57.4%	23.9%	0.5%			0.1%
COMPUTER	42.5%	57.5%					
ELECTRONICS		50.0%	45.0%	5.0%			
ENERGY		50.0%	15.0%	10.0%		25.0%	
FOOD/CONSUMER	12.5%	62.5%	25.0%				
GENERAL MFG.	21.3%	51.5%	20.3%	2.6%	0.8%	0.8%	2.6%
GOV'T/UNIVERSITY	7.9%	38.9%	36.4%	16.2%	0.4%	0.6%	
HEALTH CARE EQUIP	10.0%	10.0%	80.0%				
PHARMACEUTICALS	1.3%	20.7%	67.0%	8.7%	1.3%	0.7%	0.3%
TELECOMMUNICATIONS				100.0%			
OTHER	11.2%	41.2%	28.7%	16.2%	0.9%	0.9%	0.9%

Figure 1-A

had annual revenues greater than $1 billion.

The level of experience of the survey participants was quite impressive. Of those responding to the question, just over 50% indicated over 10 years of licensing experience. Approximately 23% of the respondents indicated over 20 years of licensing experience.

LICENSING-IN ROYALTY RATES BY INDUSTRY

	ROYALTY RATE CATEGORY						
	0-2%	2-5%	5-10%	10-15%	15-20%	20-25%	OVER 25%
PRIMARY INDUSTRY							
AEROSPACE	50.0%	50.0%					
AUTOMOTIVE	52.5%	45.0%	2.5%				
CHEMICAL	16.5%	58.1%	24.3%	0.8%	0.4%		
COMPUTER	62.5%	31.3%	6.3%				
ELECTRONICS		50.0%	25.0%	25.0%			
ENERGY		66.7%				33.3%	
FOOD/CONSUMER		100.0%					
GENERAL MFG.	45.0%	28.6%	12.1%	14.3%			
GOV'T/UNIVERSITY	25.0%	25.0%	50.0%				
HEALTH CARE EQUIP.	3.3%	51.7%	45.0%				
PHARMACEUTICALS	23.6%	32.1%	29.3%	12.5%	1.1%	0.7%	0.7%
TELECOMMUNICATIONS							
OTHER	40.0%	37.3%	23.6%				

Figure 1-B

ROYALTY RATES IN DIFFERENT INDUSTRIES

Royalty rate ranges by industry based upon all survey responses are shown in Figures 1-A and 1-B. Examination of Figures 1-A and 1-B shows that royalty rates among pharmaceutical and health care equipment respondents tend to be the highest, while rates among automotive, chemical, and computer respondents tend to be the lowest. One may view these royalty rate ranges as indicative of common cost/benefit advantages of licensing in the respective industries. Although the results shown in Figures 1-A and 1-B may seem to indicate the existence of significant differences in royalty rates between industries, it would be imprudent to place too much emphasis on industry norms without independently evaluating the economics of each new licensing opportunity. One respondent stated that "average royalty rates in industries should have *no* influence, but I'm sure they do. A value determination must always be the most important factor in determining a royalty, i.e. what is the value (benefit) of the licensed technology to the licensee?"

In a discussion of so-called standard industry royalty rates, it is important to remember that royalty rates do not drive economic business decisions; rather, economic business decisions drive royalty rates. As an example of the relationship between standard industry royalty rates and what we might call standard industry economics, we will briefly examine the survey responses of pharmaceutical, health-care equipment, automotive, and computer industry respondents. According to survey results, approximately four-fifths of licensing-out royalty rates reported by automotive and 100% reported by computer industry respondents were less than 5%. *See* Figures 2-A and 2-B. In contrast, three-fourths of licensing-out royalty rates reported by pharmaceutical and health-care equipment industry respondents were greater than 5%. Similarly, for licensing-in, about nine out of every ten licenses for automotive and computer industry respondents were at royalty rates less than 5%, while less than six out of every ten licenses for for pharmaceutical and health-care equip-

LICENSING-OUT ROYALTY RATES

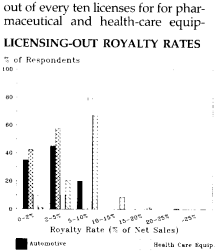

Figure 2-A

LICENSING-IN ROYALTY RATES

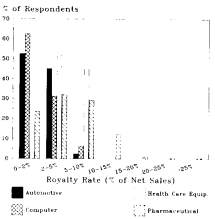

Figure 2-B

ment industry respondents were at royalty rates less than 5%. One might draw the conclusion that pharmaceutical and health care-equipment royalty rates, in general, are higher than automotive and computer royalty rates. However, it may be possible to attribute this difference to the difference in economics between these two industries. According to Robert Morris Associates' profitability studies, *RMA Annual Statement Studies 1990* Robert Morris Assoc. 1990), average before-tax operating profits in the pharmaceutical (SIC 2833-36) and health-care equipment industries (SIC 3827, 3841-43, 3851) were 5.8% and 5.4%, respectively. The average profits in the automotive industry (SIC 2451, 3711, 3713-15, 3792) and computer industry (SIC 3571) were 2.5% and 1.2%, respectively.

Outside of the average level of profitability in the above-mentioned industries, there may also be other economic considerations driving the value of technology transfer. A further explanation may lie in the process of developing and bringing a product to market in the pharmaceutical or health-care equipment industries as compared to the automotive or computer industries. Bringing a product to market in the pharmaceutical or health-care equipment industries often consumes extensive time and capital resources in obtaining government approval, such as approval by the Food and Drug Administration in the United States; without government approval, many products in these industries could not be sold.

In the automotive and computer industries, however, there is less government regulation and generally a shorter time period required to commercialize a new product. Therefore, a company that wishes to license a government-approved pharmaceutical product most likely would be willing to pay more for technology than if it wished to license an automotive product, assuming revenue and profit expectations were similar for the respective technologies. Like any other business decision, this type of cost/benefit logic can be employed in almost every licensing situation.

ROYALTY RATES
Licensing-Out v. Licensing-In

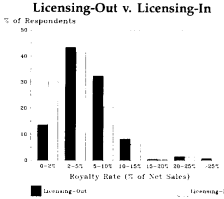

Figure 3

that the sample of survey respondents was not representative of the technology licensing community as a whole. In other words, the sample of licensing-out transactions probably does not correlate to the sample of licensing-in transactions.

One further observation was that company size did not seem to play a significant role in determining royalty rates. Based on the survey results, there is no distinguishable relationship between company size

IMPORTANCE OF VARIOUS FACTORS ON ROYALTY RATES

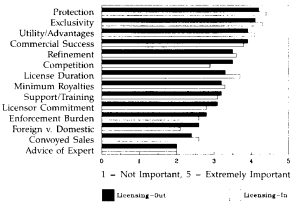

Figure 4

An interesting example of the increasing value of a pharmaceutical product as it approaches certification and market readiness can be found in the comments of one of the pharmaceutical industry respondents. When describing typical licensing-in royalty rates paid (as a percent of net sales), this respondent indicated that his or her company typically pays 0-2% royalties for process, formulation, or software technology, 2-5% for preclinical compounds, 5-10% for early-stage clinical compounds, and 10-15% for late-stage clinical compounds.

Further, overall results for all respondents across all industries tend to show that licensing-in royalty rates are, in general, lower than licensing-out royalty rates. *See* Figure 3. This would indicate that, on average, licensors are receiving more money than licensees are paying. Of course, it is impossible for licensors in aggregate to collect more royalties than licensees in aggregate are paying. This unlikely result is probably due to the fact and royalty rates charged or paid. This may contradict the notion that smaller companies have an inherent disadvantage in royalty negotiations with large companies. However, readers should note that the smallest company revenue classification in the survey was less $50 million. The above conclusion may not apply for companies that are significantly smaller than the $50 million level.

It is important to note that the survey focuses on licensing practices in a nonlitigious environment. Reasonable royalties in litigation involve certain assumptions that depart from real-world circumstances, such as the presumption of patent validity. Therefore, nonlitigious royalty rates, such as those summarized in Figures 1-A, 1-B, 2-A, 2-B, and 3, may not be comparable to reasonable royalties in litigation.

FACTORS AFFECTING ROYALTY RATES

Two questions in the survey dealt with factors affecting royalty rates,

one related to licensing-out and one related to licensing-in. Participants were asked to rank on a scale of 1 to 5 the importance of 14 different factors in their determination of royalty rates in each situation. The responses to the questions on factors affecting royalty rates are shown graphically in Figure 4.

The low ranking of "foreign vs. domestic licensing partner" confirms a finding that licensing professionals do not have a strong preference regarding foreign versus domestic licensing, which the authors observed during the pilot survey in 1989. However, why is it there is so little differentiation between foreign and domestic licensing partners? One possible explanation may be that globalization of the marketplace is becoming a more comfortable phenomenon for those involved in technology transfer. Perhaps there is a greater understanding of the economic benefits (or sometimes economic necessity) of expanding to foreign markets through partners more familiar with the culture, distribution systems, legal system, etc. of their countries. Perhaps also the forms of intellectual property protection offered by foreign countries have become stronger or better enforced.

The low ranking of convoyed sales opportunities (opportunities to sell peripheral nonlicensed products that would not have been sold but for sales of the licensed technology) may indicate at least two different things. It is possible that convoyed sales relationships are very difficult to identify, especially for new technology, and therefore do not carry much weight in negotiations. Another possible explanation for this low ranking may be some apparent confusion regarding the meaning of the term "convoyed sales" by survey participants. At least one survey response had a question mark next to the term "convoyed sales."

When the rankings of factors affecting royalty rates are examined by industry, a number of interesting patterns emerge. For example, by examining the responses of automotive and pharmaceutical industry participants, an observer will notice that a number of differences exist between priorities of different factors. *See* Figure 5 for a graphic depiction of the differences between the priorities of automotive and pharmaceutical industry respondents.

Automotive respondents, both for licensing-out and licensing-in, were much more concerned about whether or not a licensing partner was a competitor than were pharmaceutical respondents. This may indicate that pharmaceutical companies are more used to licensing arrangements with competitors than are automotive companies. As a test of this hypothesis, the authors examined automotive and pharmaceutical responses to the survey question dealing with the methods that companies use to transfer technology.

While only half of the automotive respondents indicated they were involved in cross-licensing agreements (licensing agreements in which parties exchange their technologies), three quarters of the pharmaceutical respondents indicated involvement in cross-licensing. Cross-licensing most commonly occurs between competitors, where it is more likely that desired technologies are found. Therefore, it would appear that performing technology transfer with competitors is a more common occurrence in the pharmaceutical industry than in the automotive industry.

When licensing-out, and to a lesser extent when licensing-in, automotive respondents placed a higher priority on "degree of support/training required" than did pharmaceutical respondents. This may be due to the variety of technology types used by the automotive industry and the relative homogeneity of technology types used by the pharmaceutical industry. That is, in the automotive industry, licensed products may include electronic products, mechanical products, processing techniques, etc., any of which may require additional training commitments.

In the pharmaceutical industry, licensed products are more likely to be products with which licensees are technically familiar (i.e., chemical compounds, delivery systems, etc.), which may not require much additional training. Another possible reason for the difference in emphasis in "degree of support/training required" may again relate to the trends in cross-licensing stated in the prior paragraph. Since pharmaceutical companies appear to be more likely to enter licensing agreements with competitors than are automotive companies, it may make sense for pharmaceutical companies to try to limit the interface of their personnel with a competitor's personnel. Thus, licensed pharmaceutical products may be more likely to be packaged in a way that reduces the amount of training and support required.

For licensing-in situations, automotive respondents placed a higher priority on "duration of license" than did pharmaceutical respondents. This might indicate that automotive industry licensees may be required to commit larger capital investments in production machinery, worker training, etc. than do pharmaceutical licensees. In order

PRIORITY DIFFERENCES
Automotive v. Pharmaceutical

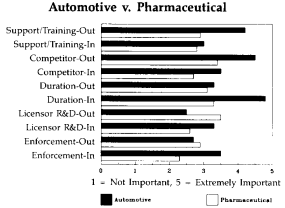

Figure 5

to allow sufficient time to earn a return on such capital investments, license duration would be a critical factor.

When "licensor commitment to ongoing R&D" is compared between automotive and pharmaceutical respondents, different results occurred depending on whether the technology was being licensed in or licensed out. When licensing-out, pharmaceutical respondents placed a higher importance on "licensor commitment to ongoing R&D" than did automotive respondents; when licensing-in, the opposite behavior occurred. This may indicate that ongoing pharmaceutical research and development commitments might be more costly or time consuming than similar automotive commitments, possibly due to the amount of government regulation imposed on the pharmaceutical industry.

It did not appear that company size affected the rankings of the factors affecting royalty rates. No discernible relationship linking priorities of different factors to company size was apparent.

ESTABLISHED RATES VS. PROFIT ANALYSIS

Respondents, when licensing-out, placed a greater weight on established royalty rates than on detailed profit analyses of either licensee or licensor. However, when licensing-in, survey participants placed greater emphasis on detailed profit analysis of the licensee than on established rates. *See* Figure 6.

LICENSING-OUT v. LICENSING-IN
Royalty Rate Determination Method

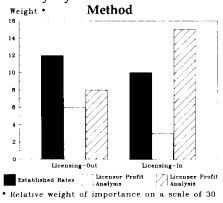

Figure 6

ROYALTY RATES BY ROYALTY DETERMINATION METHOD
Licensing-Out

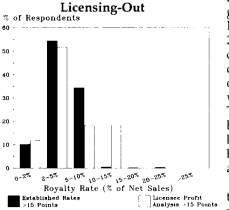

Figure 7

The latter result (regarding licensing-in) makes some economic sense in that technology licensees need to determine, among other things, if a particular license will provide an adequate profit. Since licensees will be making investments to prepare a technology for market (e.g., capital equipment, advertising, and marketing), they must be able to determine ahead of time if the technology in question will contribute to profit after paying a royalty. To this end, it is important for technology licensees to perform detailed analyses of expected profits prior to signing a licensing agreement.

The higher reliance on established rates by licensors, on the other hand, might be explained as follows. Licensors may see licensing-out situations, in some circumstances, as low-risk, incremental sources of revenue. In these situations, licensors do not have significant exposure and may be willing to "take whatever they can get" for a technology; there are no additional investments to cover since those investments have already been made and are thus sunk costs.

In an effort to determine if licensors who perform detailed profit analysis were generally rewarded for this preparation through higher royalty rates, the authors examined the survey data to determine the royalty rates charged by organizations that primarily chose (i.e., assigned a weight greater than 15 points out of 30) either established royalty rates or detailed profit analysis. The results of this examination were quite interesting. For licensors that primarily chose established industry royalty rates, less than 1% collected royalties greater than 10% of net sales. *See* Figure 7. However, approximately 20% of licensors that primarily chose either detailed profit analysis of licensor or detailed profit analysis of licensee collected royalties that were greater than 10% of net sales. Therefore, it appears that there may be some economic justification for licensors to perform profit analyses before entering into licensing agreements.

It is interesting to note some of the "other" considerations that respondents indicated. Aside from established rates and profit analysis, one respondent indicated that "the [licensing-out] rate is determined by the likelihood that it will most likely result in a license." Another indicated that licensing-out royalty rates at his or her company were set by determining the amount invested by the company. Yet another respondent indicated that sales potential was the driving factor in determining royalty rates. For licensing-in, three respondents indicated that the cost of avoiding litigation was used in determining the royalty rates they were willing to pay. Additional factors cited by respondents as "other" options included "relationship with licensing partner," "negotiations," "interrelated deals," and "analysis of protection against competitor."

METHODS OF STRUCTURING ROYALTY PAYMENTS

As was the case with the pilot survey, the most popular method

LOCATION OF LICENSING PARTNER

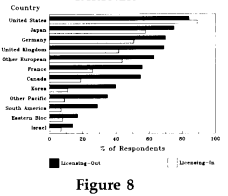

Figure 8

for structuring royalty payments was a percentage-rate-times-some-dollar-base calculation. Approximately half of the respondents to this question selected rate-times-base over such alternatives as lump-sum payments and amount-per-unit payments. At least one respondent indicated a combination of lump-sum and rate-times-base, while another indicated that the structure of royalty payments "varies from industry to industry and [by] technology." Still another respondent indicated that a target-payment structure is not predefined; rather, the "total cost of avoidance is [considered to be the] ceiling, then payment [is] negotiated case by case."

It is not surprising that there is sound economic logic behind a percentage-rate-time-some-dollar-base method for calculating royalties. For example, in periods of inflation, selling prices and, consequently, revenues are expected to increase. Under a lump-sum or amount-per-unit payment method, royalty payments may not properly account for inflation. If, however, gross or net sales is used as the base in a rate-times-base method, royalty payments will increase as selling prices increase. On the other hand, a per-unit royalty may be an effective means by which to shift the risk of inflation to the licensor.

According to survey responses, by far the most popular royalty base was net sales. Net sales was selected as the typical royalty base, both in licensing-in and licensing-out situations, by 70% of those responding; this choice was more popular than alternatives including gross sales, gross profit, and cost savings per unit. The most likely explanations for this selection are:

1. Net sales is a commonly understood term and is generally easier to account for on a product-line basis than gross profits or cost savings.

2. Net sales as opposed to gross sales allows a licensee provisions for returned goods and other miscellaneous credits.

3. Licensees are more likely to divulge sales information to licensors than profit information.

INDUSTRIES OF LICENSING PARTNERS

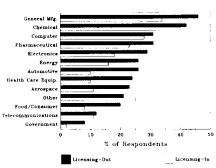

Figure 9

LICENSING TRENDS AND MISCONCEPTIONS

Licensing Is a Global Endeavor

Based on the responses of survey participants, technology licensing appears to be truly a global endeavor. Licensing partners were identified in all corners of the world, from the United States to Western Europe, Eastern Europe, the Far East, South America, and to many other locations. The nine most prevalent locations of licensing partners are shown in Figure 8.

It is interesting to note that there was a much higher percentage of private industry respondents that indicated they were licensing out technology to foreign licensees than those who indicated they were licensing in technology from foreign licensors. (The results described in this paragraph do not include university or government respondents. The authors thought that since licensing-in activities were disproportionately low among university and government respondents, inclusion of these respondents would skew the results.) For instance, for the second most-cited licensing partner, Japan, 76% of respondents indicated that they were licensing out technology to Japanese licensees while only 58% indicated that they were licensing-in technology from Japanese licensors. Similarly, for Germany, the third most-cited licensing partner, 70% of respondents indicated they were licensing-out technology to German licensees while only 51% indicated they were licensing-in technology from German licensors. This would seem to support a conclusion that, at present, U.S. companies might be supplying technology to foreign companies at a greater level than they are obtaining technology from foreign companies.

HOW ARE PRIVATE COMPANIES TRANSFERRING TECHNOLOGY?

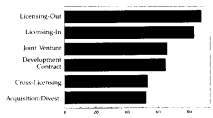

Figure 10

As shown in Figure 9, licensing is taking place across a wide variety of industries. Organizations indicating that they were licensing-in technology identified chemical, general manufacturing, and computer industries as the three most common source industries of technology, respectively. Organizations indicating they were licensing-out technology identified general manufacturing, chemical, pharmaceutical, and computer industries as being the four most popular industries of licensees, respectively.

Somewhat surprisingly, only 2% of survey participants indicated they were licensing-in technology from government agencies. Considering the large expenditures in government research and development programs, one might expect that there would have been more licensing-in from government.

% OF TOTAL REVENUE FROM PRODUCTS INCORPORATING LICENSED-IN TECHNOLOGY
Private Industry Respondents

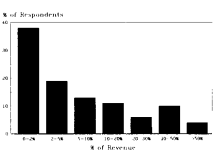

Figure 11

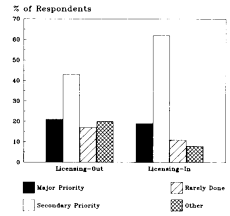

Figure 12

OTHER METHODS OF TRANSFERRING TECHNOLOGY

Based on the results of the survey, it appears that companies are using a variety of methods to transfer technology. Each of the following technology transfer methods was mentioned by at least 50% of private industry respondents: licensing-in, licensing-out, acquisitions/divestitures, joint ventures, development contracts, and cross-licensing. *See* Figure 10. the most prevalent form of technology transfer was licensing-out, with 88% of the private industry participants responding to this question selecting this option. The least prevalent form of technology transfer was acquisition/divestiture, with about half of the private industry participants responding to the question selecting this response.

It is interesting to note that private industry respondents indicated almost as much licensing-in activities (83%) as licensing-out activities (88%). However, as one might expect, among university/government respondents, only 15% indicated licensing-in activities while all of them indicated licensing-out activities.

Reliance on Licensed-In Technology

Approximately one-fifth of the private industry respondents indicated that more than 20% of their total revenues were derived from products incorporating licensed-in technology. *See* Figure 11. Twenty percent of total revenues is a significant amount; this indicates that many companies are already quite reliant on licensed-in technologies. Looking at the extremes, approximately two-fifths of the respondents indicated that only 0-2% of company revenue was attributable to products incorporating licensed-in technologies. At the same time, 4% of the respondents indicated that more than half of company revenues were attributable to products incorporating licensed-in technologies. Although these figures represent a snapshot at this particular time, this question will be an interesting one to monitor over time.

Licensing as a Secondary Priority

Most private industry respondents to two questions on licensing priority felt that licensing was a secondary priority in their businesses. Just over 60% of those answering indicated that licensing-in was not a first priority in technology acquisition; only 19% indicated that licensing-in was a major focus of their company. *See* Figure 12. Similarly, just over 40% of the respondents indicated that licensing-out was a secondary priority; only 21% indicated that licensing-out contributed significantly to company revenues. About one in six respondents indicated that they never or rarely license technology out; about one in nine rarely or never license technology in.

A number of interesting comments were included in answers to the above questions. Relating to licensing-out, one respondent indicated that "we license out to give our customers a second source of supply." Another respondent indicated that the primary purpose of licensing-out at his or her company was "as a necessary adjunct to a broader business strategy, e.g. in support of a joint venture or divestiture." At least two respondents indicated that licensing-out is only used by their companies to settle disputes. Finally, one respondent indicated that licensing-out was used by this or her company to assist franchisees.

Relating to licensing in, some companies cited "not-invented-here" reasons for not licensing in technology. One respondent stated that "licensing in is done only as an absolute necessity and only when no possible alternative can be found." Another indicated that licensing in is only used where needed to license out a complete package. Yet, one other respondent indicated that licensing in was only performed for defensive purposes.

As for future plans, most organizations indicated they planned to maintain or increase their level of licensing activities over the next five years. Forty-five percent of the respondents indicated that they planned to increase their licensing-out activities over the next five years; two-fifths indicated they planned to maintain their present licensing-out activity level over the next five years.

Similarly, 37% of the respondents indicated they planned to increase their licensing-in activities over the next five years and just over half indicated they planned to stay at about the same level of licensing-in activity over the next five years. For both licensing-in and licensing-out, very few companies indicated plans to become less active in licensing, 15% or less of respondents in each case.

Licensing Opportunities Outside a Company's Own Industry

One survey question was used to determine the current level of cross-industry licensing among survey participants. Responses to this question indicated that cross-industry licensing is fairly popular. Just over one quarter of the private industry respondents indicated they actively pursue prospective licensing partners across different industries when licensing. About 46% of the private industry respondents, however, indicated that they look only within their industry when purusing prospective licensing partners.

Since technology, in general, is advancing so quickly, companies that want to stay current in the licensing-out arena should encourage review of their technology portfolios frequently. Almost half of the respondents to the question on this issue indicated they reviewed their technology portfolios for

licensing-out opportunities more than once per year. However, over 20% of the survey participants indicated they only reviewed their technology portfolios less than once every five years; 10% indicated they never review their technology portfolios. Although the authors do not espouse any specific guideline relating to frequency of technology review, it would seem that those respondents who indicated reviews less than once every five years or no reviews at all (together nearly one third of all respondents to this question) should consider reexamining this policy if they want to optimize their licensing programs.

UNIVERSITY/GOVERNMENT ROYALTY RATES VERSUS INDUSTRY Licensing-Out

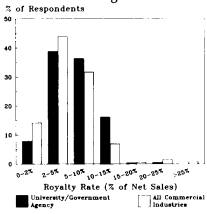

Figure 13

Companies Are Comfortable With Licensing

In one of the survey sections, the authors asked participants to indicate how concerned they were about a number of licensing-in and licensing-out issues. For licensing-out, participants were asked to rank each of the following concerns on a scale of 1 to 5:

1. Licensing-out allows competitors to get their hands on our technology.
2. It is difficult to monitor licensees' sales to account for royalties due.
3. Too much hand-holding is required to get licensees up to speed.
4. We make more money if we make the sales ourselves.
5. It is difficult to locate suitable licensee candidates.

PRIORITIES IN DETERMINING ROYALTY RATES
Universities/Gov't v. Industry Licensing-Out

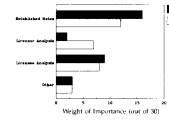

Figure 14

Somewhat surprisingly, none of the above statements, on average, was considered to be a major concern. On a scale of 1 to 5 (5 being major concern, 3 being neutral, 1 being not a concern), statement 1 received the highest average mark at 3.2. The lowest was statement 2, with an average of 2.3. This would indicate that, at least for those responding to this question, many of the common stigmas associated with licensing-out may no longer be hampering licensing activities. One "other" concern cited by a licensor respondent was "[the] biggest concern is having funds budgeted to market our technology to potential licensees."

Similarly, for licensing-in, survey participants were asked to rank the following concerns on a scale of 1 to 5.

WHICH FACTORS MOST IMPACT ROYALTY RATES?
Universities/Gov't v. Industry Licensing-Out

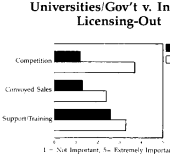

Figure 15

1. We're probably buying someone's outdated technology.
2. It's difficult to receive the proper level of training and support from the licensor.
3. Our company doesn't like using any technology we haven't developed ourselves.
4. The licensor may not renew the license agreement after we have invested in the technology.
5. We're not sure how well the technology will integrate into our business.
6. It is difficult to find the right types of technologies.

As was the case with the licensing-out concerns, participants were not overly concerned with any of the preceding points. The highest average rating was 2.9 given to statement 6; the lowest average was a 1.9 given to statement 4. At the extreme, approximately 40% of those responding assigned a value of 1 to statements 1, 3, 4, and 5. "Other" concerns cited by respondents to this question included, "[licensing-in] costs money and affects profits, particularly if several licenses are required for the same product," "will the technology perform as it is supposed to?" and "cost, exclusivity, and barrier to entry."

INDUSTRIES MOST COMMONLY LICENSED BY UNIVERSITIES AND GOVERNMENT AGENCIES

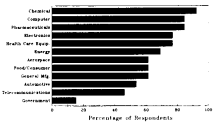

Figure 16

Licensing Performance of Universities and Government Agencies Compares Favorably to Private Industry

Universities and government agencies have long been a source of research and technology for commercial institutions. As such, the authors felt it would be of interest to determine how well universities and government agencies were performing in their licensing activities compared to corporate survey participants.

In all, 10 university respondents and four government respondents participated in the survey, making up the university/government cate-

gory. Not surprisingly, the university/government respondents were much more active in licensing-out than licensing-in. Thirteen respondents indicated licensing-out arrangements while only two described involvement in licensing-in.

Based on the results of the survey, there may be some indication that universities and government agencies achieved royalty rates in licensing-out activities comparable or somewhat higher than their commercial counterparts. Figure 13 shows that while universities and government agencies have about the same ratio of licenses in the 2-10% royalty range as commercial respondents, universities and government agencies have a higher percentage of licenses in the 10-15% range and a lower percentage of

SCOPE OF SEARCH WITH AND WITHOUT FORMAL LICENSING DEPARTMENT

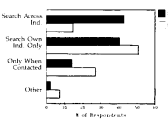

Figure 17

licenses in the 0-2% range. Although this data is not statistically conclusive and does not account for the types of technology being licensed or the industries to which technology is being licensed, it might suggest that universities and government agencies are doing well in negotiating licensing agreements. It may also indicate the high quality of technologies being developed by these institutions.

Another interesting result can be seen in Figure 14. In determining how much weight to place on established royalty rates versus profit analyses for licensing-out royalty rate selection, universities and government agencies placed a greater weight on established rates and profit analysis of licensee, and a lower weight on profit analysis of licensor than commercial counterparts. It makes sense that universities and government agencies place a lower emphasis on licensor profit analysis; generally, universities and government agencies will not have a commercial "next-best-alternative" to licensing.

In addition, university and government agency respondents indicated that convoyed sales, competitor versus noncompetitor, and support and training requirements were less important factors to them than the same factors were to commercial respondents. *See* Figure 15. This is also a logical result since universities and government agencies are not usually competitors in the commercial marketplace.

The authors also thought that it would be interesting to find out which industries are being served by university/government research. Figure 16 identifies the industries of university and government licensees. Based on survey results, it appears that chemical, pharmaceutical, and computer industries are the largest users of university and government research. All commercial industry categories were mentioned by at least 40% of the university and government respondents. This seems to indicate that university and government research is finding its way to most major industries.

One interesting comment from a university respondent was as follows, "Transferring technology to local industry is a desirable goal. [The] university seeks co-op relationships with industry which may increase research funding." Whereas industry participants generally are most concerned with profits when considering licensing options, universities tend to have objectives other than profits, as evidenced in the prior comment.

Licensing Decisions

Those responding to the survey indicated a number of different ways of organizing the licensing function. Just under half of the responding organizations indicated that they had formal licensing departments. Of the respondents indicating formal licensing departments, just over half indicated that five or fewer people were employed in their licensing departments. Yet, 13% of the organizations with formal licensing departments indicated that over 20 people were employed in those departments.

DEPARTMENTS CONSULTED FOR LICENSING DECISIONS

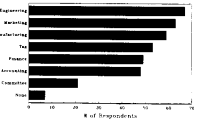

Figure 18

One interesting discovery was the possibility of a relationship between formal licensing departments and scope of search. In answering a previously described question on scope of search, organizations that had formal licensing departments were almost three times as likely to search for licensing partners across a wide range of industries as organizations that had no formal licensing department. Organizations without formal licensing departments were more likely to search for licensing partners only in their own industries or to license only when potential licensing partners contacted them than those Which did have licensing departments. *See* Figure 17. A dedicated licensing department may indicate that an organization places high strategic importance on licensing; such importance should translate into more substantial partner search activities than would be found in an organization in which licensing is a lower priority.

Since the process of selecting and implementing technologies in a licensing-in program or selecting and supporting technologies in a licensing-out program involves coordination with a number of departments within an organization, many companies indicated that they normally consult with those different departments in the licensing process.

Each of the following departments was mentioned by at least half of the respondents as being normally consulted in the course of making a licensing decision: en-

gineering, manufacturing/production, tax, and marketing. *See* Figure 18. Just under half indicated consultation with accounting and finance departments in making licensing decisions. One respondent indicated that "[it] depends on what we're licensing. Always consulted are the General Manager, Technical Director, and others as could best evaluate the licensing situation [at hand]."

It is important to keep in mind that no technology is a "winner" unless it is implemented successfully and utilized to its fullest potential. The approach that many of the survey respondents use in either consulting with various departments or maintaining an active committee when making licensing decisions helps to ensure that the needs and concerns of all affected parties are addressed prior to making the licensing commitment. Without such prior coordination, companies may find themselves with technologies that are too costly to use, too difficult to integrate into current operations, or inaccessible to those who could benefit most from their use.

Licensing Professionals Wear Many Hats

When licensing professionals were asked to describe their responsibilities with respect to licensing, most indicated that they, in effect, wear many hats. About 19 out of every 20 of those responding to this question indicated that they were involved in negotiating licenses. Approximately 40% of respondents indicated responsibility for pricing, technology search, and/or licensee search.

Involvement in Licensing

Earlier in this article, the authors discussed results showed companies of all sizes were involved in licensing and there did not appear to be noticeable discrimination against smaller companies regarding royalty rates. However, there are some distinctions in licensing activities relative to company size.

Based on survey results, it would appear that, in general, smaller companies are less likely to have formal licensing departments than are larger companies. Approximately five-sixths of private companies reporting 1989 revenues less than $50 million did not have formal licensing departments; nearly 60% of companies reporting 1989 revenues greater than $1 billion did have formal licensing departments.

As one might expect, there also seemed to be a general trend toward more licensing-in and licensing-out agreements as company size increased. Another somewhat interesting result became evident when we examined which departments were consulted when making licensing decisions by company revenue. As company size increased, companies relied more on input from members of engineering, manufacturing/production, finance, and accounting departments when making licensing decisions. Input from marketing department representatives was sought for licensing decisions by about two-thirds of responding companies, regardless of company size.

Finally there was no apparent difference in the relative weight allocated, for purposes of determining royalty rates, between established rates and profit analyses for different size companies.

Using the Survey to Improve Licensing Performance

The results of the Technology Licensing Survey described in this article, along with the survey form itself, can be useful tools in preparing for licensing decisions. The section of the survey form describing factors affecting royalty rates may be especially useful in helping to establish priorities for licensing specific technologies. The tabulated results described herein may be useful in estimating how a prospective licensing partner might prioritize the same set of factors. The authors encourage feedback and input from *Licensing Law and Business Report* subscribers. Also, the authors would be happy to provide a copy of the survey questionnaire to those who are interested. Please direct your comments, suggestions, and requests to the authors, editors, or publishers of *Licensing Law and Business Report*.