A Survey Of Licensed Royalties

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Authors' survey gives insight into running royalty rates negotiated in 12-month period by firms

Trying to explain the factors that go into the valuation of an invention or technology only convinces people that licensing is three parts witchcraft and one part common sense. Inventors and top management want to know what their technology is worth to their organizations. Prospective patent licensees want to know what to pay for such technology. Licensing executives understand that the answer to these questions from both sides, is that it depends.

Technology transfer is not a "zero-sum game." A negotiation between licensor and licensee has to be a "win-win" situation. Both have to be fairly compensated. This article, and the survey underlying it, were designed to investigate how patent licensing executives deal with this challenge.

The authors decided that it would be an important addition to licensing technology knowledge if a survey were undertaken whose primary focus was on what comparable running royalty rates, both licensed-in and out, were negotiated by licensing executives within the past 12 months. The authors would like to acknowledge both the seminal work done in this area by McGavock, Haas and Patin in their June 1991 *les Nouvelles* article "Factors Affecting Royalty Rates" and the assistance provided by Arthur Andersen.

To this end, a patent licensing survey was composed and mailed to over 2,100 licensing executives worldwide. All executives were members of the Licensing Executives Society and were asked to answer 37 questions. A total of 428 useful surveys were returned and tabulated.

DEMOGRAPHICS OF THE RESPONDENTS

Three out of four of the respondents work in "for-profit" businesses while one out of four work in academia, research or government. Three-quarters are executives, owners or inventors in their organizations.

Over 70% of executives are located in the United States or Canada, 15% work in Europe, 3% work in Japan, and 3% in Australia. Of the "for-profit" respondents, 40% worked for companies that had less than $50 million in total gross revenues, 5% for companies grossing between $51 and $100 million, and 18% for companies grossing between $101 million and $1 billion.

The remaining 37% worked for companies that had gross revenues of $1 billion or more. The "non-profit" organizations had smaller gross revenues with about 44% working for organizations with revenues of $20 million or less and the balance, 56%, for organizations with sales greater than $20 million.

Some 39% of the respondents function as the main negotiator for their organization in the technology transfer licensing process. Some 20% are involved in the marketing of technology and 17% are legal advisors. In the past year, 96% of all respondents have negotiated at least one license, while 58% negotiated more than five licenses during that time period. Some 17% reported having five or fewer active technology licensing agreements, 46% had between 6 and 50 agreements, and 37% had more than 50 technology licensing agreements currently in force.

EXCHANGE OR TRANSFER OF TECHNOLOGY

The respondents were involved in a variety of different technology transfer vehicles. They reported that their organizations were involved in the following technology transfer areas (Table 1):

Licensing-Out	88%
Licensing-In	68%
Co-Development	61%
Strategic Alliances	58%
Joint Ventures	54%
Cross License	40%

Table 1

It is interesting to note that 5% of the respondents only licensed-in technology, while 24% only licensed-out, and the majority 71% did both. Of all respondents, 59% of their licensing-in agreements are with U.S.-owned businesses and 41% are with foreign-owned businesses. In contrast, the licensing-out agreements by the respondents are evenly divided between U.S.-owned and foreign-owned businesses.

Where Are U.S. Companies Licensing

Respondents whose organizations are based in the United States reported licensing technology to and from all corners of the world. The most frequently mentioned countries are listed in Table 2.

The dichotomy between where U.S. companies licensing-in and out overseas is considerable. While the United States is a net importer of goods from abroad, it appears to be a net exporter of technology know-

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	In	Out
USA	67%	84%
Japan	32%	55%
Great Britain	34%	43%
Germany	28%	42%
France	25%	38%
Canada	19%	36%
Korea	4%	23%

Table 2

how abroad. The largest differences in licensing-in and out were found with the Asia/Pacific countries.

THE LICENSING PROCESS

The number of departments involved in the negotiation, evaluation and approval of technology transfers was greater than expected. The respondents reported that within their organizations the following departments normally provided input and advice on technology licensing matters (Table 3):

Legal and Regulatory	70%
Research	60%
Licensing	59%
Technical and Engineering	55%
Sales and Marketing	50%
Finance and Accounting	38%
Manufacturing and Production	29%

Table 3

Given the number of departments consulted, it is remarkable how fast license agreements can be completed. The average time to negotiate a patent license (from initial inquiry to the consummation of the agreement) was three to 12 months, with the median time period being slightly less than six months.

There are several reasons for an organization to engage in technology licensing. The majority of respondents identified their organization's primary patent licensing strategies as the generation of royalty income.

Royalty Income	61%
Developing a Business Advantage	54%
Product Profit Maximization	44%
Increased Technical Proficiency	32%
Defensive	20%
Deterring or Delaying Others	13%

Table 4

With the exception of academic institutions, very few organizations reported that Royalty Income was their only licensing strategy. Furthermore, 69% of the pharmaceutical executives reported that Product Profit Maximization was their primary goal.

FINANCIAL MEASURES

There are various financial considerations relevant to determining an appropriate royalty rate. These considerations form the underpinnings of the respective bargaining postures of the parties. The pertinent financial measures frequently are used as initial starting points for negotiations. They can subsequently be used to project a range of negotiations and finally to fine tune those figures leading to a mutually satisfactory royalty from both the licensor and licensee perspective. The financial measures that surveyed organizations use in determining the appropriate royalty are as follows:

	In	Out
Discounted Cash Flow	56%	49%
Profit Sharing Analysis	52%	54%
Return on Assets	38%	27%
"25% Rule" as a Starting Point	24%	30%
Capital Asset Pricing Model	11%	10%
Excess Return Analysis	8%	7%

Table 5

In determining an appropriate royalty, Discounted Cash Flow and Profit Sharing Analysis are clearly more prevalent than the other measures in both licensing-in and out. This might be expected since the data for such analysis is more readily available to the licensee and this type of analysis is routinely used in investment evaluation decisions. On the other hand, the "25% Rule" is more easily used as both a starting point and a benchmark by smaller organizations without the in-house licensing expertise. The Capital Asset Pricing Model (CAPM) and Excess Return Analysis may be too sophisticated and academic for common use, and may be too difficult to present to the other side.

The respondents were asked to rank the importance of the following factors in their determination of the amount of initial upfront fees or running royalties to be paid or received. The responses are on a Likkert Scale where 1 equals "Not Important" and 5 equals "Very Important."

	In	Out
Nature of the Protection	4.3	4.2
Utility Over Old Methods	4.2	4.2
Scope of Exclusivity	4.1	4.1
Licensee's Anticipated Profits	3.0	3.4
Commercial Success	3.7	3.7
Territory Restrictions	3.7	3.5
Comparable License Rates	3.6	3.7
Duration of Protection	3.3	3.1
Licensors' Anticipated Profits	2.6	3.1
Commercial Relationship	2.6	2.6
Tag Along Sales	2.1	2.1

Table 6

These 11 factors were intentionally written to parallel the factors first elucidated in the case of *Georgia Pacific vs. U.S. Plywood Corp.*, now being used in the U.S. Federal Courts to determine appropriate royalty rates in patent infringement cases where there is no previously negotiated royalty rate or when an established royalty rate appears inappropriate. The authors believe that these *Georgia-Pacific* factors can be used as a useful check list to assist negotiators in the determination of an appropriate reasonable royalty rate.

LICENSING AGREEMENTS

Almost all licensing arrangements are reduced to writing as a way of evidencing the mutual assent to certain rights and obligations by the parties. Respondents were asked what terms and conditions they generally included in their licensing agreements.

The results show that eight of the 10 listed terms and conditions are normally included in most licensing agreements. The infrequent usage of the Non-Contest Clause may be due in large part to the illegality of this clause in certain jurisdictions. And the low usage of the Warranty

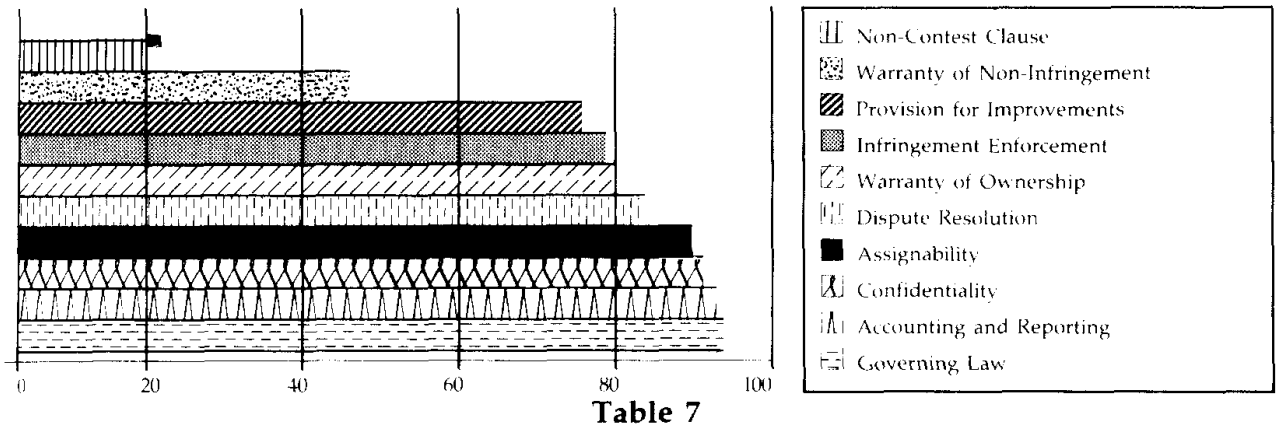

Table 7

of Non-Infringement condition may stem from the desire of licensors to limit their potential liability for eventualities over which the licensor has little control. The high frequency of dispute resolution clauses (over 80%) is higher than the authors anticipated.

METHOD OF PAYMENT

In return for the right to use and exploit the technology the licensee usually pays compensation to the licensor. This remuneration comes in many forms. When licensing-in, the respondents said the typical methods used in paying for technology were as follows using a Likkert Scale where 1 equals *"Never Use"* and 5 equals *"Frequently Used"*:

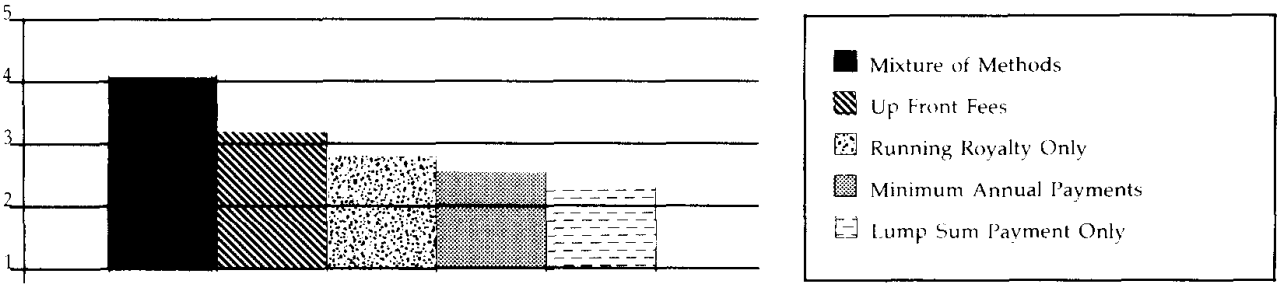

Table 8

Some 60% of licensees report paying Up Front Fees when licensing-in technology. This is usually done in conjunction with a running royalty. Of the 60% who do pay Up Front Fees, the median was between 3 and 10% of total anticipated royalty payments. It should be noted that 26% of the respondents paid less than 3%, while 22% reported paying over 10%. The conclusion is that the percent of royalties collected at the beginning of the license varies significantly. The use of running royalties either in combination with Up Front Fees or by themselves, evidences a strong preference for licensees to minimize upfront cash flow and to have the licensors bear some portion of the risk. This may be the reason that Lump Sum Payment Only was the least used of all methods.

The licensing-out respondents were more likely to receive upfront fees than licensing-in respondents (83 versus 60%) and their median upfront fee was higher (10 versus 6%).

ROYALTY BASE

The respondents listed the typical royalty bases to which a running royalty rate is applied. The licensing-in and licensing-out responses are on a Likkert Scale where 1 equals *"Never use"* and 5 equals *"Frequently Used."*

Table 9 shows that the most typical form of royalty used in licensing intellectual property is the running royalty times a royalty rate of net revenues. This finding parallels other empirical studies that have shown that from 80 to 94% of all licenses use running royalties as at least one form of payment.[1] Running royalties are preferred because they provide for recurring royalty payments that are proportional to use, or economic success of the intellectual property licensed, and offers a "built in" inflation adjustment factor.

As Table 9 shows, the parties to an intellectual property license usually agree to use net sales rather than gross or net profits as a royalty base. This is probably because the licensees generally do not desire to disclose their proprietary sales information to outsiders, and the licensors feel that the determination of gross or net profits depends on too many operational and accounting factors and is too easily manipulated.

PRODUCT DEVELOPMENT

There are many factors that go into establishing a running royalty for a willing licensee and willing licensor, including (1) where in the de-

1. "Determination of a Reasonable Royalty in Negotiating a License Agreement: Practical Pricing For Successful Technology Transfer." (*Marcus B. Finnegan and Herbert H. Mintz*), Clark Boardman Company, Ltd., 1978.

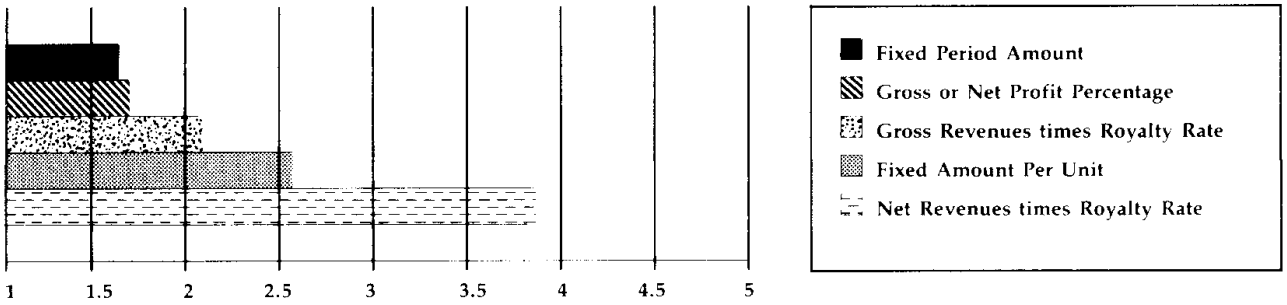

Table 9

velopment process the technology is, (2) how ingenious and commercially successful is the technology, (3) how profitable this technology is or will be, and (4) how easy is it to design around the patent claims.

When asked, "Does your organization license-in technologies that are not completely developed?" 10% answered "never," 52% said "sometimes," and 37% responded "frequently." The follow up question was, "What percentage discount rate would your organization use when evaluating technologies still in the pipeline?" They were asked to rate on a product development scale based on three phases. The Lab Phase is when research is completed and development of the concept is reduced to practice. The Detailed Design Phase involves conceptual ideas being fully developed, engineering designs completed and technology protection applied for. In the Pilot or Prototype Phase, the prototype has been tested and the product test marketed. At this point regulatory approvals are being sought. The percentage discounts, based on these phases, were as follows:

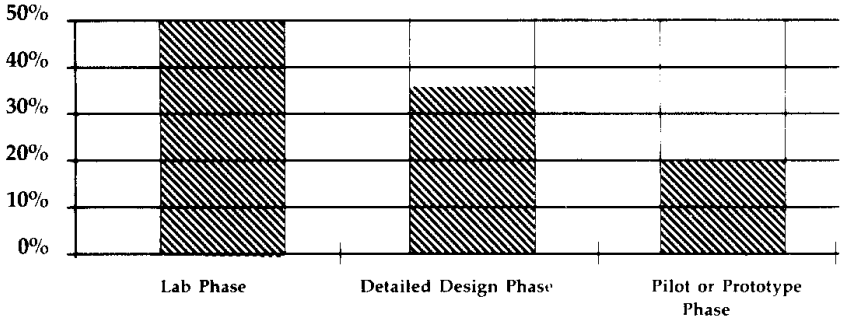

Table 10

Table 10 shows that the further along in the product or technology development cycle the technology is the higher the royalty the technology can garner. For example, if a fully developed patented technology was worth a 10% royalty then a comparable technology in the Lab Phase would garner a 5% royalty. The same technology in the Detailed Design Phase would receive a 6½% royalty, while if in the Pilot or Prototype Phase would receive an 8% royalty.

RUNNING ROYALTIES

Not all patents are alike. In fact, over 90% of the over 100,000 patents issued in the U.S. each year have little or no value to anyone other than the patent owner. On the other hand, some patents produce great value, *e.g.* the Gordon Gould Laser Patent. To measure a patent's innovativeness and the impact of that innovativeness on royalty rates, we designed a scale, which we call the Innovativeness Scale, as follows:

Revolutionary
Satisfies a long felt need or creates a whole new industry

Major Improvement
Significantly enhances quality or product superiority in an existing product, process or service.

Minor Improvement
Creates an incremental improvement in an existing product or service.

Using the Innovativeness Scale, respondents were asked to list the range (_____% to _____%) of running royalty rates their organization licensed-in during the last five years.

AVERAGE RUNNING ROYALTY — LICENSING-IN

	Low		High
Revolutionary	7	to	13%
Major Improvement	4	to	8%
Minor Improvement	2	to	5%

Table 11

The 7% for Revolutionary patents is an average of the lower number reported by the respondents. 13% is the average of the higher number reported by respondents. Since a few exceptionally high or low responses could have a tendency to skew the averages, the median running royalty rates were calculated and presented.

MEDIAN OF RUNNING ROYALTY — LICENSING-IN

	Low		High
Revolutionary	5	to	10%
Major Improvement	3	to	7%
Minor Improvement	1	to	4%

Table 12

Using the same innovativeness scale, respondents were asked what were the range of running royalty rates their organizations licensed-out during the last five years.

AVERAGE RUNNING ROYALTY — LICENSING-OUT

Revolutionary	7	to	14%
Major Improvement	5	to	9%
Minor Improvement	3	to	6%

Table 13

MEDIAN RUNNING ROYALTY—LICENSING OUT

	Low		High
Revolutionary	5	to	10%
Major Improvement	4	to	8%
Minor Improvement	2	to	5%

Table 14

We know that occasionally even what would be categorized as a minor improvement to an existing product or service will have a large economic payback and hence command a substantially higher royalty. Nevertheless, the results here, which are averages and medians of all the data, show a close correlation between the innovativeness of a product and the eventual running royalty the patent can be licensed for. The data also appear to show that LES members negotiate slightly higher rates when licensing-out than when licensing-in.

RELATIONSHIP OF PROFITS AND ROYALTIES

To analyze the relationship between anticipated gross profits and running royalty rates respondents were asked if their organizations were offered a license or a new product or service with 10 to 100% Gross Profits, approximately what running royalty rate on Net Sales would their organization be willing to pay.

Gross Profit Percentage	Net Sales running Royalty	Licensor's Portion of Licensee's Gross Profits
100%	15%	15.0%
80%	10%	12.5%
60%	6%	10.0%
40%	4%	10.0%
20%	2%	10.0%
10%	1%	10.0%

Table 15

Some 10% or higher of a licensee's gross profits tends to be the predominant rate that is being used by a majority of the respondents when consummating licenses. It is interesting that the profit sharing tops out at only 15%. The explanation for this might be that these are anticipated gross profits, which may not prove out, so the lower licensor's portion is a hedge compensating for the risk taken. Another explanation may be simply that licensors are uncomfortable paying running royalties at a rate that is higher than "normal."

COST SAVING TECHNOLOGIES

Respondents were asked, when they were evaluating "Cost Savings" technologies that will reduce manufacturing costs, or improve output or quality, what percentage of the cost savings would their organizations be willing to pay (as a licensee) or demand (as a licensor). Table 16 illustrates their responses.

Percent of Costs Saved	In	Out
1-10%	44%	23%
11-25%	44%	50%
25-50%	12%	26%
Over 50%	0%	1%
Total	**100%**	**100%**

Table 16

These amounts are lower than we anticipated. We were expecting the respondents to split the cost savings equally between licensors and licensees. The difference may arise because the licensee is bearing the majority of the risk that the cost savings are not achieved.

INDUSTRY DIFFERENCES

One of the respondents, Timo Ruikka, VP Nokia Telecommunications, underscores that any simplified licensing paradigm can not automatically be applied across the board: "Where the product of a given company is a system (*e.g.* airplane, nuclear power plant, telecommunications network) then the number of patents utilized in such a situation is fundamentally different from, say, the pharmaceutical industry where one patent equals the product."

To test whether there are significant differences in royalty rates between industries and more specifically the pharmaceutical and non-pharmaceutical industries, the authors sorted the survey results by industry. Pharmaceutical companies represented approximately 20% of the survey respondents.

The median running royalty rates for pharmaceutical and non-pharmaceutical organizations were as follows:

	Pharmaceutical	Non-Pharmaceutical
Revolutionary	10-15%	5-10%
Major Improvement	5-10%	3-7%
Minor Improvement	2- 5%	1-3%

Table 17

Clearly, Mr. Ruikka and others are correct. Industry does matter when setting running royalty rates. Because of the special circumstances in which each industry operates, economic realities often dictate the range of royalties within that industry. For example, pharmaceuticals generally invest significant sums in research and development and regulatory approval for new medications that often are exposed to the market exclusively through patent protection. However, although significant variations in royalty rates may exist between industries, there may also be a wide range of royalty rates within each industry.

The authors recognize that royalty rates from the past are seldom the touchstone to setting a royalty in a new situation. Royalties are seldom, if ever, "pure." Rather, they are contextual. They are forged in the crucible of arms-length negotiations where the royalty rate, although a vital component, is frequently not the only important issue.

Each royalty is only a single data point and the relevance of a prior negotiation by others to your case (even if for the same technology) depends crucially on the comparability of the issues and the economics. Seldom will they be "on all fours," and frequently all you will know is the category of technology (*e.g.* "medicine") and the royalty rate that resulted. Reducing this data to generalized ranges is a further dilution of it. Moreover, some "data" is merely hypothesizing *e.g.* "reasonable

royalty'' determinations in infringement or tax litigation. Although useful, this information does not have the same meaning or value as actual arms-length negotiated royalties.

Having thus disclaimed, we still feel that the past experiences of specific royalty agreements bargained for by others can be a useful guide, a reality check (''are we in the ballpark?'') and a reassurance. As a tool of persuasion, even generalities from the past (royalty ranges) may help not only with those on the other side of the table but on your side as well. And, at times, where the ability to generate a profitability prediction is limited, prior royalty rates may even be the best guide available.