

IP Survey Finds 'Gap' In Information

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Companies organizing in more sophisticated ways to capitalize on intellectual property, but performance measurement lacking

The trend is clear. More and more companies are recognizing the importance of intellectual property as a strategic asset requiring focused management attention. Patenting activity has increased, the title "intellectual asset manager" is becoming commonplace. Progressive companies have created separate divisions or subsidiaries to manage intellectual property as a profit center. CEOs and CFOs are eager to learn how intellectual property can be used to support business objectives and generate shareholder value.

At the same time, managers have very little information with which to benchmark intellectual property performance and management practices. Our Intellectual Property Management Survey represents the first attempt to gather such information across a broad range of industries. With input from successful intellectual property executives, we developed 34 questions broken down into four sections with objectives as shown in Exhibit A.

Recognizing the pioneering nature of this effort, we developed the survey to cover a fairly broad range of issues rather than delving too deeply into any particular topic. We hope that the results of this survey will lay the foundation for more in-depth studies of key topics in the future.

In reviewing the survey results, the real story lies in the omissions. Some companies appear to be quite sophisticated in managing intellectual property and seem to fully understand its impact on overall corporate value. Others, while they may claim that intellectual property is important to their business, appear to be mixed in the traditional management of intellectual property as a cost center, not bothering to measure its impact or importance.

Finally, before continuing on, some disclaimers are appropriate. The survey results are based on the responses received from the respondents. No attempt was made to control the number of responses or types of companies responding in order to obtain a particular level of statistical reliability. Any tabulations of the data and results should be considered as supplementary to the current body of knowledge surrounding intellectual property man-

agement. The authors neither approve nor authorize the use of the information in this report for the purpose of statistically verifying or rejecting any hypothesis regarding intellectual property management practices or for the purpose of extrapolating or inferring those results upon any industry or general population of companies.

THE RESPONDENTS

The survey questionnaire was sent to 2,475 Learning Innovations Society members. We received a total of 186 responses, representing a variety of industries as shown in Table 1.

We were somewhat surprised by the strong showing of subsidiaries responding to our survey. Given that subsidiaries may have different management objectives than "top-level" corporations, we have broken out their responses separately in a limited number of our data compilations. Each table or figure is marked as such if subsidiary responses are broken out separately.

We also seemed to get a reasonable distribution of companies according to patent portfolio size. Just over half of the respondents were from companies with less than 200 active U.S. patents while approximately 25% of the respondents had more than 1,000 active U.S. patents, one of which had more than 2,000. In addition, 40 approximately 24% of the respon-

Survey Section	Objective
Company Background Information	To obtain enough company-specific information to that meaningful comparisons can be made (e.g. by company size or industry).
Intellectual Property Management Strategy	To obtain information related to the strategies employed in the development, management, and protection of value from corporate IP.
Intellectual Property Management Organization Structure	To obtain an understanding of how companies have organized themselves to maximize the value of their IP development and utilization.
Intellectual Property Financial Measures and Performance Targets	To obtain an understanding of how some performance IP performance, if at all.

EXHIBIT A

*Mr. McClaned is a Principal, IPC Group LLC, and Mr. Lindsay is an Associate. The survey was developed and conducted by the authors on behalf of the Intellectual Property Planning and Asset Utilization Committee of the U.S. CPA and Canadian Chartered Accountants. Mr. McClaned is co-Chair of the committee.

RESPONDENTS BY SIC/INDUSTRY		
SIC Code #	Description	Response
28	Drug Industry	45
2813	Pharmaceuticals and allied products	45
2836	Laboratories and academic institutions	45
286	Biotech and other electrical	15
80	Research, development, and testing services	15
210	Manufacturing - Includes food, paper, chemical and other products	30
213	Manufacturing - Includes auto, computer, electronic and other products	10
7	Services - Primarily computer related	10
800	Services - Health, engineering, accounting, etc.	10
35	Computer and office equipment	10
36	Transportation equipment	10
4	Transportation, communication, electric, gas, and sanitary services	10
1	Mining and construction	10
Other		10
Total		100

(1) SIC Code 1 does not include results presented in SIC 28 and 80.

(2) SIC Code 80 does not include results presented in SIC 28.

(3) SIC Code 1 does not include results presented in SIC 28, 35 and 80.

(4) SIC Code 8 does not include results presented in SIC 80.

(5) See Appendix B for detailed list of SIC codes provided to survey companies.

Table 1

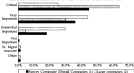
INTELLECTUAL PROPERTY MANAGEMENT STRATEGY

data indicated that their company filed more than 100 U.S. patent applications annually.

In addition, nearly half of the respondents indicated that they were from companies with more than \$1 billion in revenue in 1996. However, 36% of the respondents were from companies with less than \$50 million in total revenues. Finally, 44% of the respondents indicated that their companies had less than \$50 million in annual R&D expenditures while 17% indicated that their companies had more than \$1 billion in annual R&D expenditures.

To help the reader better understand the intellectual property management strategies that companies are currently employing, we looked at how companies develop and acquire intellectual property and examine patent decision-making processes. We also looked at policies concerning licensing, licensing out and patent enforcement; identified the primary decision-makers for intellectual property issues; and established who receives credit for IP issues.

SENIOR MANAGEMENT'S VIEW OF IP IMPORTANCE



(1) Small Companies defined as companies/revenues with < \$500M in revenue

(2) Large Companies defined as companies/revenues with > \$500M in revenue

Figure 1

As a starting point we looked at awareness of IP issues both at the respondent level and from the perspective of senior management.

Awareness

Often times, IP management success begins with awareness of the importance of IP at the highest levels of management. When asked about the importance of intellectual property to their business, 89% of the respondents indicated that intellectual property was critical or very important. In addition, as Figure 1 shows, 79% of the respondents indicated that they felt senior management viewed intellectual property as very important or critical to the business. However, nearly 25% of the respondents indicated that senior management's view of IP was that it was only somewhat important or not important. These results tend to indicate that IP awareness programs, especially at larger companies, may go a long way in supporting an IP management initiative.

Intellectual Property Development/ Acquisition

A key to the success of any business strategy is the development and acquisition of the appropriate assets. The survey results indicate the following about intellectual property development and, more specifically, patenting:

- Patenting activity is rising for most companies.
- The majority of large (over \$500 million in revenue) companies have a formal process for determining the appropriate legal protection that should be sought for new inventions.
- The majority of companies do not have formal process for assessing the value or importance of their technology assets.

Patenting Activity

The survey asked respondents to identify how patenting activity had changed at their company over the last 10 years. As Figure 2 indicates, the majority of respondents have seen increases in their company's patenting activity. The primary exception to this rule has been the Chemicals and Allied Products in-

HOW HAS YOUR COMPANY'S PATENT ACTIVITY CHANGED OVER THE LAST 10 YEARS?

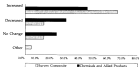


Figure 1

dustry group, where the majority of respondents indicated that patenting activity has either decreased or remained static over the last 10 years. A reason for this difference may be the chemical industry group's heavy reliance on corporate-owned manufacturing know-how and trade secrets to create a competitive advantage.

Intellectual Property Protection and Licensing Decisions

The majority (64%) of the re-

spondents indicated their companies have a formal process for determining the type of intellectual property protection that should be sought for new inventions. As may be expected, respondents from large companies, those with more than \$500 million in revenues, were more likely (71% vs. 52%) to have a formal process than respondents from smaller companies.

Ideally, one would expect intellectual property protection and maintenance decisions to be linked

to the importance or value of the technology to the business. However, more than 30% of the respondents do not have a formal process to assess the importance or estimate the value of their intellectual property. This begs the question: If most companies do not have a formal process for determining the value or importance of their inventions to the business, what criteria are they using to make legal protection decisions?

In an attempt to answer this question, the survey asked the respondents to rank the importance of each of the reasons shown in Table 2 for obtaining patent protection on a scale of 1 to 10 (10 being the most important and 1 being the least important).

It is interesting to note that small companies seek licensing opportunities and alliances as more important reasons for obtaining patents than protecting current and new markets. Not surprisingly, the opposite holds true for large companies. This may indicate that small companies may be more inclined to expand through strategic partnerships using intellectual property as a trading asset. Large companies,

REASONS FOR OBTAINING PATENTS

Reason for Obtaining Patents	Survey Companies	Sm. Companies	Log. Companies	Chemicals Industry	Drug Industry
Proprietary position in new markets	7.1	7.8	7.1	7.1	6.7
Protect current markets	7.4	6.8	8.2	8.2	7.8
Obtain future design freedom	6.4	6.2	6.2	7.2	6.1
Avoid litigation	5.3	5.2	6.2	6.2	6.1
Block competition from entering market	5.7	5.8	6.8	6.1	7.1
Create licensing opportunities	5.8	7.0	7.4	7.9	6.9
Form basis for alliances ⁽¹⁾	6.8	7.0	7.7	4.4	6.0

(1) Small Companies defined as companies/revenues with < \$500 MM in revenues.

(2) Large Companies defined as companies/revenues with > \$500 MM in revenues.

(3) Chemicals Industry companies < 20% of total in Table 1.

(4) Drug Industry companies in SIC Code 28 in Table 1.

Table 2

LICENSING-OUT POLICIES

Licensing-out Policy	Survey Companies	Industry (all)	Small Companies (2)	Large Companies (3)	Enterprises
All IP available for licensing	46.7%	37.0%	40.0%	25.0%	100.0%
IP not in use available	26.3%	27.0%	17.0%	35.0%	0.0%
IP not used in core Company available	35.0%	26.0%	26.0%	40.0%	0.0%
Licensing used to avoid litigation	3.0%	4.0%	3.0%	6.0%	0.0%
Licensing done through IP	18.0%	21.0%	15.0%	15.0%	0.0%
Licensing to non-competitor regions	8.0%	11.0%	8.0%	15.0%	0.0%
IP not available	7.0%	7.0%	7.0%	7.0%	0.0%
Other	11.0%	12.0%	8.0%	15.0%	0.0%

(1) Industries defined as Survey Companies excluding Laboratories.

(2) Small Companies defined as companies/revenues with < \$500 MM in revenues.

(3) Large Companies defined as companies/revenues with > \$500 MM in revenues.

Table 3

LICENSING-OUT REVENUE BY LARGE COMPANY LICENSING POLICY

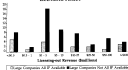


Figure 3

on the other hand, may be more inclined to protect current markets and "go it alone" if significant investments in technology have already been made.

Another interesting contrast is between the chemicals and drug industries. While both seek protecting current and new markets as the most important reasons for awarding patents, the drug industry places more emphasis on the ease of patents for licensing and alliances. This may indicate that manufacturing know-how and trade secrets may be more important in forming alliances in the chemicals industry as opposed to patent protection.

Licensing-Out Policy

To gain an understanding of what types of technologies are made available for licensing, respondents were asked to select the statements in Table 3 that best describe their companies' licensing-out policies.

Surprisingly, nearly half (46%) of the respondents indicated their technology licensing-out policy was

to make all technology related intellectual property available for licensing. Excluding university respondents, this percentage dropped to 37%, which is still higher than any other choice. Meanwhile, only 2.5% of non-university respondents indicated that their intellectual property was not available to license.

One might expect higher licensing-out revenues for companies that consider all intellectual property "fair game" for licensing as opposed to those who only license non-core technologies. However, of the eight companies that reported over \$200 million in annual technology-related licensing-out revenue, only three of these indicated that all intellectual property is available for licensing.

In an attempt to evaluate the correlation between licensing policies and performance, we compared the total licensing-out revenue generated to the company's licensing policy for large companies (i.e. those with more than \$200 million

in annual revenue).

These comparisons highlight the inherent difficulties in benchmarking licensing performance based solely upon licensing revenue. While easy to quantify, a company's total licensing revenue can vary greatly due to company size, patent portfolio size, licensing policy and quality and the structure of the agreements entered into. For example, licensing revenue would not capture value achieved through cross-licensing or equity compensation.

Licensing-In Policy

In addition to licensing-out policies, respondents were asked to select which of the statements in Table 4 best characterize their licensing-in policy.

On average, nearly 62% of those surveyed indicated that their company's licensing-in policy was to actively seek licenses to fill technology gaps. Interestingly, licensing-in policies for the most part did not prove to be a function of company size or industry segment. The primary exception was the drug industry (SIC code 283) in which 93% of the respondents indicated that technology was actively sought to fill technology gaps.

Additionally, when respondents from the drug industry were asked about the composition of their current technology portfolios, on average, nearly 25% of their companies' technology portfolios were a result of licensing-in or cross licensing. This is almost double the average respondent's licensing-in percentage and may be a result of the high R&D expenditures and amount of uncertainty that surrounds development and FDA approval in the drug industry.

LICENSING-IN POLICY

Licensing-In Policy	Survey Companies	Small Companies (1)	Large Companies (2)	Drug Industry (3)
Licensing actively sought	57.5%	50.0%	50.0%	93.0%
Done to avoid litigation	13.2%	3.6%	14.6%	4.8%
IP not invented at source is not licensed in	4.3%	7.1%	2.3%	2.3%
Licensing done through IP	12.1%	11.6%	12.1%	7.7%
Licensing done through cross-licensing	13.9%	11.6%	14.6%	2.3%
Other	18.8%	21.1%	12.3%	17.3%

Note: Percentages may be > 100% because respondents could select more than one answer.

(1) Small Companies defined as companies/researchers with < \$100 MM in revenue.

(2) Large Companies defined as companies/researchers with > \$100 MM in revenue.

(3) Drug industry defined as SIC Code 283.

Table 4

CORPORATE DIVERSITY GROUPS INVOLVED IN MONITORING FOR INFRINGEMENT

Monitoring Group	Survey Companies
Legal monitoring program	14.4%
R&D monitor	46.4%
Marketing and sales monitor	36.7%
Legal department monitor	31.2%
Technical/computing group monitor	2.4%
No formal plan	41.4%
Other	9.9%

Note: Percentages may be in 100% because respondents could select more than one group.

Table 3

INFRINGEMENT LITIGATION POLICY

INFRINGEMENT Litigation Policy	Survey Companies	Small Companies (S)	Large Companies (L)
Litigate at all costs	13.4%	7.9%	20.7%
File a complaint with hope of forcing infringer	19.6%	26.7%	12.4%
Approach infringer with hope of negotiating a licensing agreement	46.4%	44.7%	44.8%
Ignore small infringer	3.4%	5.3%	2.3%
Other	17.3%	15.4%	20.9%

(S) Small Companies defined as companies/revenues with < \$500 million in revenue.

(L) Large Companies defined as companies/revenues with > \$500 million in revenue.

Table 4

Patent Enforcement Policy

Only 14% of the respondents indicated that their companies had a formal patent infringement monitoring policy or program. On the other hand, 41% of the respondents indicated that their companies did not have a formal monitoring program or plan. Surprisingly, of the respondents who indicated that senior management viewed intellectual property as being "critical" to their company, about 39% did not have a formal monitoring program or plan. When asked which functional group within the company were involved with infringement monitoring, the groups in Table 3 were identified.

In addition to infringement monitoring, we also explored patent infringement litigation policies. As indicated by Table 4, the majority (69%) of the respondents approach a potential infringement situation with the hope of negotiating a license.

While patent infringement enforcement policies seem to be fairly consistent across the various industry segments, respondents from larger companies (over \$500 million in annual revenue) are more than three as likely (20.7% v. 7.9%) to have a policy to litigate at all costs to stop infringers. In addition, larger companies are less likely to

ignore minor infringers than are smaller companies. Others considering the cost of a patent litigation through trial can easily exceed \$1 million and the disproportionate amount of time that it would require from management at small companies, this result is not surprising.

IP MANAGEMENT CENTRALIZATION/DECENTRALIZATION (Location of IP Management Group)



Figure 4

PRIMARY DECISION MAKING GROUPS FOR COMPANIES/UNIVERSITIES WITH A CENTRALIZED IP MANAGEMENT FUNCTION

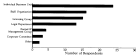


Figure 5

INTELLECTUAL PROPERTY MANAGEMENT ORGANIZATION STRUCTURE AND CREDIT

First of the survey questions were focused on intellectual property management organization. These questions asked about intellectual property management responsibilities, decision-making authority, and credit for financial returns. The results highlight some of the most interesting and sometimes political aspects of managing and extracting value from intellectual property.

As Figure 4 illustrates, most respondents are from companies where

intellectual property management is centralized (i.e. part of the corporate function, as opposed to residing within individual business units).

While primary management responsibility appears to be centralized, ultimate decision-making authority appears to be somewhat fragmented across multiple groups within the companies. For those respondents who indicated a centralized management structure, Figure 5 shows the breakdown of groups having primary decision-making authority.

These results highlight a potential disconnect between management responsibility and decision-making authority. This poses a

challenge for many licensing executives who may be held accountable for the success of the licensing function but must work within boundaries set by individual business units, the R&D organization or the legal group. For example, access to critical know-how and technical resources that may be critical for a successful licensing program may be difficult to extract from the business units due to lack of support.

One of the solutions that many companies employ to deal with this situation is to give credit from licensing revenues back to the business units. For large companies, those with greater than \$500 million in annual revenue, nearly 60% of the respondents indicated that licensing revenues were credited back to the business units. Only 26% of the respondents indicated that the licensing group received credit for licensing revenues.

The same point is highlighted in Figure 5. Credit is given to the individual business unit for 42% of the companies with greater than \$5 million in annual licensing revenue and 32% of companies with less than \$5 million in annual licensing revenue. A significant number of the respondents fell into one of these categories. The first category is where credit is not formally given.

DIVISIONS CREDITED WITH FINANCIAL RETURNS FROM IP BASED ON LICENSING-OUT REVENUE

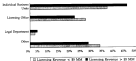


Figure 4

DOES YOUR COMPANY HAVE A FORMAL PROCESS FOR ASSESSING THE VALUE OF INTELLECTUAL PROPERTY?

NAIC Code (1)	Description	Yes	No
28	Drugs	17	12
28 (2)	Chemicals and allied products	7	12
29	Universities and academic institutions	8	12
36	Electronic and other electrical	13	17
803	Research, development and testing services	6	6
2 (2)	Manufacturing — Includes food, paper and other products	10	8
3 (2)	Manufacturing — Includes auto, computer, electronic and other products	10	8
8 (2)	Services — Primarily computer related	4	4
8 (3)	Services — Health, engineering, accounting, etc.	1	1
367	Computer and office equipment	1	1
37	Transportation equipment	1	4
4	Transportation, communication, electric, gas and utility services	1	1
8	Mining and construction	1	1
Unknown		1	1
Total (n)		88	136
Percentage		32%	77%

(1) NAIC Code 1 does not include results presented in NAIC 28 and 29.

(2) NAIC Code 2 does not include results presented in NAIC 28.

(3) NAIC Code 3 does not include results presented in NAIC 36, 37 and 38.

(4) NAIC Code 4 does not include results presented in NAIC 37.

(5) See Appendix A for detailed list of NAIC codes to survey candidates.

(6) Out of the 136 respondents to the survey, 1 included did not answer this question. Percentages are based on the number of respondents answering the question.

Table 7

to any party. Second and third, when credit was assigned, it was either assigned to multiple individual business units or an overall corporate level.

Finally and interestingly, companies with the chemical industry distinguished themselves from the survey composite. Nearly 75% of the respondents indicated that the individual business units were credited with licensing revenues. This is probably because many licenses in this industry require significant attention of business unit resources to transfer know-how and provide technical assistance.

INTELLECTUAL PROPERTY PERFORMANCE, PERFORMANCE METRICS AND REPORTING

Formal Intellectual Property Assessment Processes

Intellectual property managers who understand and effectively communicate the value of their company's intellectual property assets to senior management are at a distinct advantage when trying to gain support for IP management initiatives. On the other hand, those who tend to focus only on more easily quantified metrics (e.g. licensing income, maintenance costs, etc.) may be missing important points on how intellectual property contributes value to the business enterprise.

To explore this issue, the survey asked the question: "Does the company have a formal process of method (e.g. valuation process, patent filing system, etc.) for

assessing the importance or value of technology-related intellectual property?" To our surprise, over 70% of the respondents answered "no" to this question. This ratio was consistent for both large and small companies. Table 7 shows the breakdown of responses by industry category.

The results for the drug industry highlight an apparent contradiction. Only 38% of the drug industry respondents indicated that their company had a formal process for assessing the value or importance of intellectual property. At the same time, over 70% of drug industry

Is there an explanation for this apparent anomaly? It is possible that because intellectual property contributes such a large portion of corporate value, drug companies do not view intellectual property assessment as a distinct, formal process that can be separated from the overall strategic planning process.

Perhaps there is a lesson to be learned here. Intellectual property should not be valued, assessed or "rated" in the abstract. The most effective processes for extracting maximum value from intellectual property assets are those that closely integrate intellectual property

R&D METRICS

R&D Metric	Percentage of Respondents Using Metric
Percentage of successful projects	21.4%
Licensing income received	14.6%
Number of new technologies	11.0%
Number of patents issued	11.0%
Market share for new products	10.9%
Formal project valuation	8.7%
Other	4.0%

Note: Percentages may equal a 100%. Respondents could select more than one choice.

Table 6

INCREMENTAL MARKET SHARE DUE TO "CROWN JEWEL" PATENT PROTECTION

Incremental Percentage Earned Due to Patent Protection	Percentage of Respondents
0% - 5%	4.9%
5% - 10%	1.9%
10% - 20%	4.2%
20% - 30%	3.2%
30% - 40%	0.9%
Unknown	0.7%

Table 9

respondents indicated that senior management viewed intellectual property as being "critical" in the company, a much higher percentage than any other industry group.

management with overall corporate strategy.

Intellectual Property Performance Measures

The survey asked how technology-related intellectual property performance was reported to management. More than 57% of the non-university respondents indicated that their companies formally report intellectual property performance to management. Figure 7 indicates how, if at all, the survey composite companies report intellectual property performance to management.

In addition, 36% indicated that their companies did formally measure their return on R&D. For those that do measure return on R&D, Table 8 illustrates the most common

HOW COMPANIES REPORT IP PERFORMANCE TO MANAGEMENT

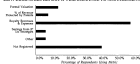


Figure 7

PRICE PREMIUMS DUE TO "CROWN JEWEL" PATENT PROTECTION	Percentage of Respondents
Increased Percentage Based Due to Patent Protection	
0% - 5%	33.3%
5% - 10%	1.9%
10% - 20%	32.6%
20% - 30%	5.9%
>30%	26.2%
Unknown	19.9%

Table 10

LICENSING-OUT REVENUE V. U.S. PATENT PORTFOLIO SIZE
 Licensing-out Revenue (\$ millions)

Portfolio Size (K)	<\$0.1	\$0.1 - 1	1 - 10	10 - 20	\$20-50	\$50-100	\$100-200	>\$200
n=50	20	3	10	5	5	1	1	1
50 - 100	7	0	7	0	0	0	1	1
100 - 200	0	0	0	0	0	1	0	1
200 - 500	0	0	1	0	0	1	0	0
500 - 1,000	0	0	0	0	0	0	0	0
1,000 - 5,000	0	0	0	0	0	0	0	0
>5,000	0	0	1	1	0	0	0	0
Totals	27	3	19	10	10	4	2	2

(K) Portfolio size determined by number of patents reported by each respondent. Respondents not listed in survey either question were excluded from this analysis.

Table 11

LICENSING-OUT REVENUE BY INDUSTRY SEGMENT
 Licensing-out Revenue (Millions)

Industry (K)	NA Code	>\$0.1	\$0.1 - 1	1 - 10	10 - 20	\$20-50	\$50-100	>100
Survey Companies	NA	23	1	10	5	5	0	0
Manufacturing (C)	28	1	1	4	1	1	0	0
Chemicals and Allied Products (C)	28	0	1	0	0	0	0	0
Drugs	283	11	1	11	0	0	0	0
Manufacturing (E)	33	1	0	0	0	0	0	0
Electronics	36	1	0	0	1	1	0	0
Transportation Equipment	37	0	0	0	1	1	0	0
Computer and Other Equipment	367	1	1	0	1	0	0	0
Services (M)	80	4	0	0	0	0	0	0
R&D and Testing Services	870	0	0	0	0	0	0	0
Universities		0	0	0	0	0	0	0

- (C) See NA Code description in Table 1.
- (E) NA Code 3 does not include results presented in NA 28.
- (M) NA Code 80 does not include results presented in NA 80.
- (M) NA Code 7 does not include results presented in NA 36, 37 and 38.
- (U) NA Code 8 does not include results presented in NA 80.

Table 12

RESPONDENTS WITH GREATER THAN \$25 MILLION IN LICENSING REVENUE

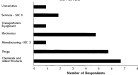


Figure 8

measures reported.

Market Share and Price Premiums

Our survey explores the respondents' understanding of how their companies' key patents create value through increased market share and price premiums. We asked: "For products protected by the

company's most important patents (i.e. "crown jewels") what incremental market share (and price premium) is gained due to having that protection?" Not surprisingly, as Table 9 indicates, more than 50% of the respondents did not know the answer to these questions.

It is important to note that these results should not be solely relied upon for purposes of valuing individual patents in any context. The market share advantage in price premiums, if any, may vary greatly depending upon the scope of protection afforded by a particular patent and a multitude of micro- and macro-economic factors that may affect a product's performance in the marketplace. Further, these survey results do not represent a statistically valid sample of companies in general or for any particular industry.

PATENT PORTFOLIO COST V. R&D SPENDING
Cost of maintaining the company's patent portfolio (Millions)

R&D Spending (a)	< \$1.0	\$1.0-1	\$1-2	\$2-5	\$5-10	\$10-25	\$25-50	> \$50
n=63	2	4	7	10	12	12	4	2
\$50 - 100	2	4	4					
\$100 - 200	4	11	10					
\$200 - 1,000	2	2	1					
\$1,000 - 5,000	2	2	1					
> \$5,000	1							
Totals	21	24	26	10	12	12	4	2

R&D Spending is in millions. Respondents who did not answer either of the two questions were not included in the summary totals.

Table 13

Licensing-out Revenue

While licensing-out revenue captures only a portion of an intellectual property portfolio's value, it is easy to quantify and is tracked by most companies. Tables 11 and 12 and Figure 8 show beneficiaries of licensing-out revenue relative to U.S. patent portfolio size and industry segmentation.

In general, respondents with large U.S. patent portfolios re-

ceived higher licensing-out revenues than respondents with smaller portfolios. However, as the survey results show, portfolio size is not always a good indicator of the potential for licensing-out success as indicated when companies with relatively small portfolios indicated significant licensing revenues.

Patent Portfolio Costs

Similar to licensing-out revenue,

most companies are able to track expenses related to maintaining their intellectual property portfolios. We asked respondents to consider all costs associated with obtaining, maintaining, and enforcing the patent portfolio, including filing costs, maintenance fees, litigation and enforcement costs, licensing related expenses, but not R&D costs. Table 13 summarizes the number of respondents to this question according

PATENT PORTFOLIO COST BY INDUSTRY

Cost of maintaining the company's patent portfolio (Millions)

Industry (a)	NAICS Code	< \$0.5	\$0.5-1	\$1-2	\$2-5	\$5-10	\$10-25	\$25-50	> \$50
Survey Company	NA 8	6	7	6	0	1	2	4	1
Manufacturing (2)	20	1	1	1	0	0	0	0	0
Chemicals and Allied Products (2)	28	0	0	0	0	0	0	0	0
Pharm	283	0	0	0	0	0	0	0	0
Manufacturing (4)	281	0	0	0	0	0	0	0	0
Electronics	36	0	0	0	0	0	0	0	0
Transportation Equipment	37	0	0	0	0	0	0	0	0
Computer and Office Equipment	364	0	0	0	0	0	0	0	0
Services (3)	88	0	0	0	0	0	0	0	0
R&D and testing services	873	0	0	0	0	0	0	0	0
Inventories	88	0	0	0	0	0	0	0	0

(a) See NAICS Code description in Table 1.

(b) NAICS Code 1 does not include results presented in NAICS 28 and 36.

(c) NAICS Code 28 does not include results presented in NAICS 283.

(d) NAICS Code 37 does not include results presented in NAICS 36 and 373.

(e) NAICS Code 88 does not include results presented in NAICS 873.

Table 14

PATENT PORTFOLIO EXPENSE ALLOCATION

Survey Company Results

Computer and Office Equipment



Figure 9

to the level of R&D expenditures.

The data in Table 2 was compiled in an attempt to shed light on the question that is frequently asked: For a given level of R&D spending, how much should a company spend on patent protection? Based on the wide-disparity of responses (as well as a couple of questionable outliers), it is clear that this data must be compiled with more precision and consistency in order to draw any useful conclusions.

Table 3 summarizes the number of responses to this question according to the cost by industry.

Figure 3 shows a breakdown of patent portfolio expenses by category.

For the most part, these expense ratios were fairly consistent among

the industries surveyed. One-exception to this was the computer and office equipment industry where the company respondents indicated that litigation expenses were nearly equal to the costs of maintaining the portfolio. Not surprisingly, 40% of the respondents from this industry segment indicated that their company's patent enforcement policy was to "litigate at all costs."

CONCLUSION

This survey only scratches the surface of many issues related to intellectual property management. Certainly, one broad conclusion to be drawn from these results is that there is a wide range of sophistication regarding intellectual property

management within each industry, particularly in the area of performance measurement. This apparent "gap" in sophistication highlights the need for further education and discussion on this topic.

We encourage your input and feedback on how these survey results may be further analyzed to provide more useful information to IES members and other intellectual property managers. Also, we would like your views on what topics should be covered in future surveys regarding intellectual property management.

Finally, the authors would like to thank IES members who helped develop the survey questionnaire and, especially, those who took the time to participate in the survey.