



Portfolio Report

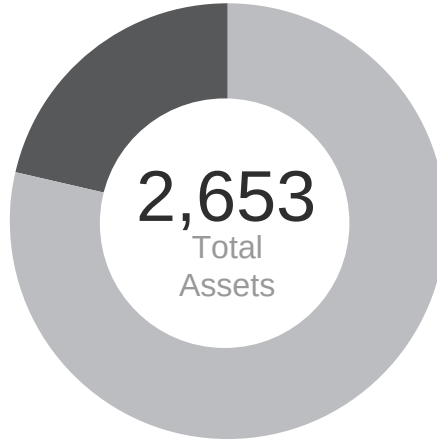
ORGANIZATION:

Yahoo!

ASSETS ANALYZED:

2,653

Date Range
6/8/1996 - 6/9/2016



PATENTS:
1,757

APPLICATIONS:
896

PROJECTED USPTO FEES:

\$24.6M

All Assets

\$10.8M

Assets with Highest Severity Issues

\$8.0M

for Patents

\$2.8M

for Applications

44%

of Portfolio Assets have **HIGH** severity issues

1166

Portfolio Assets have **HIGH** severity issues

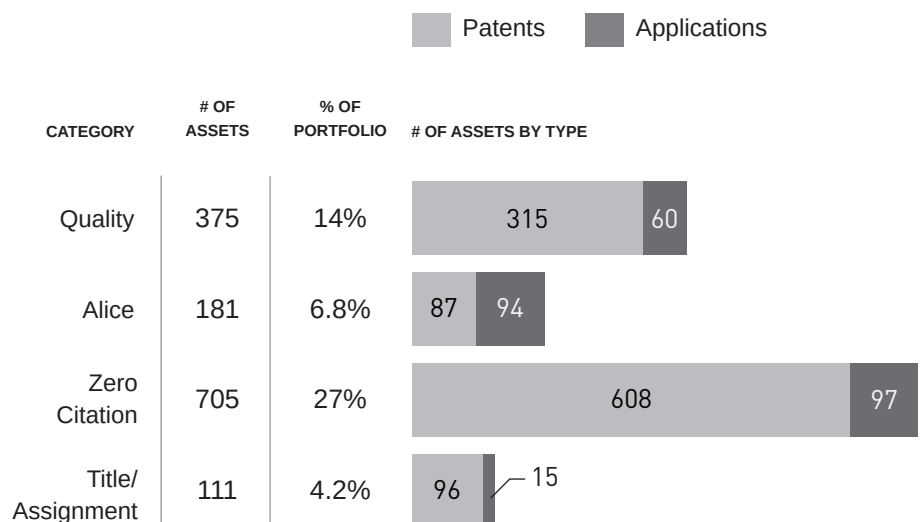
934

Patents

232

Applications

HIGH SEVERITY ISSUES BY CATEGORY



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Issue Summary

Number of assets with issues of any severity by category

Assets

Category	Assets	% of Portfolio	USPTO Fees
Quality	2381	90%	\$21.5m
Alice	1013	38%	\$9.1m
Zero Citations	1210	46%	\$14.0m
Title/Assignment	451	17%	\$3.6m
Unique Assets	2585	97%	\$23.9m

Patents

Category	Patents	% of Patents	USPTO Fees
Quality	1646	94%	\$12.9m
Alice	645	37%	\$4.7m
Zero Citations	725	41%	\$7.7m
Title/Assignment	307	17%	\$2.1m
Unique Assets	1732	99%	\$13.8m

Applications

Category	Applications	% of Applications	USPTO Fees
Quality	735	82%	\$8.7m
Alice	368	41%	\$4.4m
Zero Citations	485	54%	\$6.2m
Title/Assignment	144	16%	\$1.6m
Unique Assets	853	95%	\$10.1m

Assets By Category Count

Number of assets with issues of any severity by count of issue categories

All Assets

Category Count	Assets	% of Portfolio	USPTO Fees
0 Categories	68	3%	\$0.7m
1 Categories	836	32%	\$6.8m
2 Categories	1101	42%	\$10.5m
3 Categories	575	22%	\$5.9m
4 Categories	73	3%	\$0.7m

Patents

Category Count	Patents	% of Patents	USPTO Fees
0 Categories	25	1%	\$0.2m
1 Categories	584	33%	\$4.0m
2 Categories	745	42%	\$6.7m
3 Categories	363	21%	\$3.2m
4 Categories	40	2%	\$0.4m

Applications

Category Count	Applications	% of Applications	USPTO Fees
0 Categories	43	5%	\$0.5m
1 Categories	252	28%	\$2.8m
2 Categories	212	24%	\$4.3m
3 Categories	212	24%	\$2.7m
4 Categories	33	4%	\$0.3m

Quality Issues Summary

Number of assets with Quality issues by severity

All Assets

Severity	Assets	% of Portfolio	USPTO Fees
Low	950	36%	\$9.2m
Moderate	1056	40%	\$9.5m
High	375	14%	\$2.8m
Total Assets	2381	90%	\$21.5m

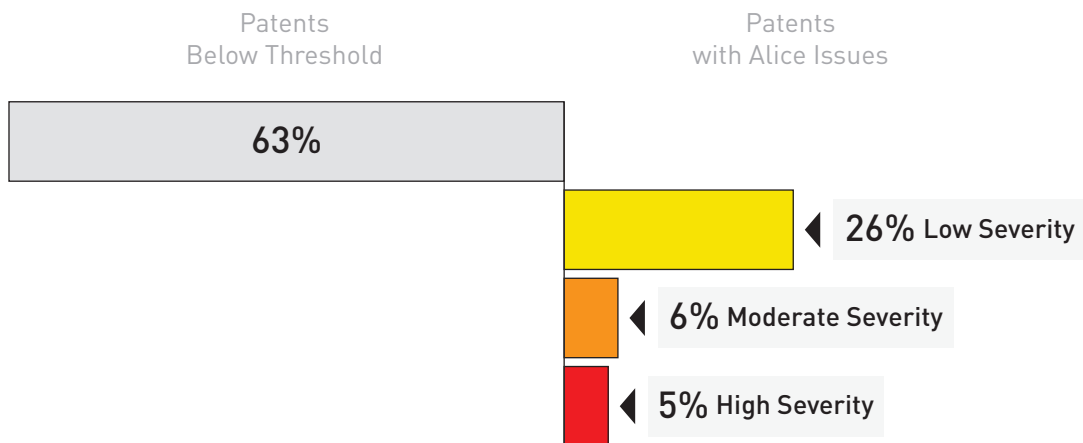
Patents

Severity	Patents	% of Patents	USPTO Fees
Low	609	35%	\$5.1m
Moderate	722	41%	\$5.6m
High	315	18%	\$2.2m
Total Patents	1646	94%	\$12.9m

Applications

Severity	Applications	% of Applications	USPTO Fees
Low	341	38%	\$4.1m
Moderate	334	37%	\$3.9m
High	60	7%	\$0.6m
Total Applications	735	82%	\$8.7m

Alice Issues - Patents



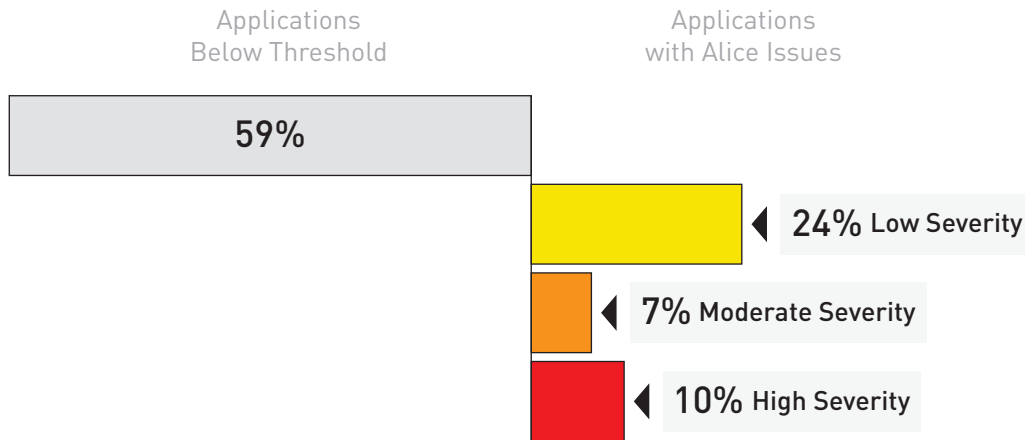
Alice Issues vs. Projected Fees

	Patents	% of Patents	USPTO Fees
Low Severity	461	26%	\$3.4m
Moderate Severity	97	6%	\$0.7m
High Severity	87	5%	\$0.6m
Patents with Alice Issues	645	37%	\$4.7m

Alice Issues vs. Citation Count

	Below Alice Issues Threshold	Low/Moderate Severity Alice Issues	High Severity Alice Issues
≥30 Citations	84	71	14
Zero Citations (> 3 years)	394	183	31

Alice Issues - Applications



Alice Issues vs. Projected Fees

	Applications	% of Applications	USPTO Fees
Low Severity	213	24%	\$2.5m
Moderate Severity	61	7%	\$0.7m
High Severity	94	10%	\$1.2m
Applications with Alice Issues	368	41%	\$4.4m

Alice Issues Vs. Citation Count

	Below Alice Issues Threshold	Low/Moderate Severity Alice Issues	High Severity Alice Issues
≥30 Citations	15	7	1
Zero Citations (> 3 years)	44	35	18

Citation Summary

Patents



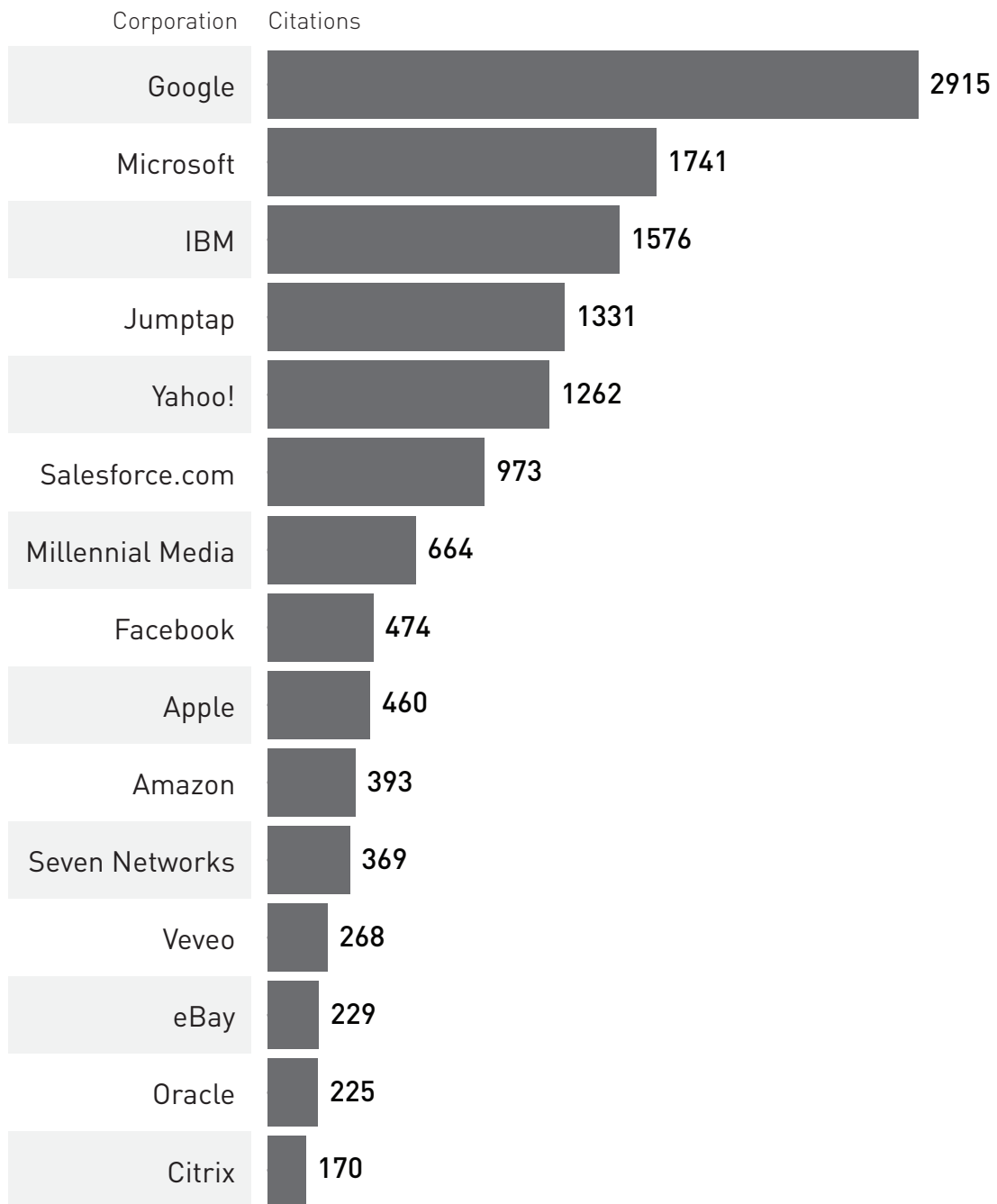
	Patents	Citations	% Citation	USPTO Fees
Entire Portfolio	1757	21657	100%	\$14.0m
30+ Citations	169	16366	76%	\$0.3m
1-29 Citations	863	5291	24%	\$5.9m
Zero Citations <3 years	117	0	0%	\$1.4m
Zero Citations >3 years	608	0	0%	\$6.3m

Applications



	Applications	Citations	% Citation	USPTO Fees
Entire Portfolio	896	3561	100%	\$10.6m
30+ Citations	23	1330	37%	\$0.2m
1-29 Citations	388	2231	63%	\$4.2m
Zero Citations <3 years	388	0	0%	\$5.0m
Zero Citations >3 years	97	0	0%	\$1.2m

Citations by Corporation



Title/Assignment Issues

All Assets

Title/Assignment Severity	Assets	% of Portfolio	USPTO Fees
None	2202	83%	\$21.0m
Low/Moderate	340	13%	\$3.2m
High	111	4%	\$0.4m
Total Assets	2653	100%	\$24.6m

Patents

Title/Assignment Severity	Patents	% of Patents	USPTO Fees
None	1450	83%	\$11.8m
Low/Moderate	211	12%	\$1.8m
High	96	6%	\$0.3m
Total Patents	1757	100%	\$14.0m

Applications

Title/Assignment Severity	Applications	% of Applications	USPTO Fees
None	752	84%	\$9.1m
Low/Moderate	129	14%	\$1.4m
High	15	2%	\$0.1m
Total Applications	896	100.0%	\$10.7m

Topic Summary

Topic	Class	Assets
Database and File Management	707	930
Financial, Business Practice, Cost/ Price Determination	705	593
Multicomputer Data Transferring	709	263
Operator Interface Processing	715	209
Artificial Intelligence	706	76
Telecommunications	455	63
Information Security	726	35
Image Analysis	382	32
Speech Signal Processing, Linguistics, Language	704	30
Multiplex Communications	370	30
S/W Development, Installation, and Management	717	24
Interactive Video Distribution	725	22
Graphics Processing and Selective Visual Display	345	16
Vehicles, Navigation, and Relative Location	701	14
Digital Processing Systems: Support	713	12

Methodology

Core Technologies

The TurboPatent® Patent Portfolio Report leverages three key technologies:

1. Natural Language Processing (NLP). The NLP is based on the Apache Open NLP open source project, specially tuned and optimized to apply to the typical language and style of patent applications. NLP techniques are used throughout the analysis of the claim language and disclosure text to identify claim terms (noun phrases) and part names.
2. Big Data. The TurboPatent® Patent Portfolio grades all submitted content on a “curve” that was determined by analyzing a random sample of approximately 6000 recently granted applications. Quality metrics, and weighted summary scores are presented with corresponding percentile ranks, within the sample population.
3. Machine Learning. The Alice Risk section of the report is based on a machine learning model trained on the outcomes of the examination process in tens of thousands of cases impacted by the Alice decision and subsequent changes in examination standards and practices.

Issue Types and Severity Levels

The TurboPatent® Patent Portfolio Report analyzes the assets included with respect to four distinct factors: forward citation counts, Alice Issues, technical quality, and chain-of-title. Each factor is summarized by up to four levels of severity: none/below threshold, low, moderate, and high. The cover page presents summary information of all included assets, exclusively with respect to the highest severity level of each factor. Breakout pages present additional detail on the full range of severity levels of each factor.

Citation Analysis

When the applicant or the Examiner identifies an existing asset that may limit the scope of a later-filed application, the existing asset is “cited” in any patent that matures from the later-filed application. Thus, the number of these “forward citations” may be a measure of the existing asset’s technological significance.

The TurboPatent® Patent Portfolio Report includes forward citation counts for each asset. Citations are parsed from USPTO data for all patents granted after the initial asset in the portfolio. Citations by the examiner and applicant are treated equally. The Report identifies a high-severity issue when an asset has been publicly available for at least three years, but has zero forward citations.

Alice Issues

The Alice-analysis score compares an asset's claim text to business-method claims that were disposed before and after the Supreme Court's decision in *Alice Corp. v. CLS Bank International* (2014). Scores below 0.25 indicate a high similarity to pre-Alice business-method claims and are therefore identified as severe issues. Scores above 0.25 indicate increasing similarity to positively disposed, post-Alice business-method claims and are therefore identified as moderate or low-severity issues. In a population of cases disposed in the last 12 months, those with severe Alice-score issues had twice as many negative dispositions as cases with low or moderate Alice-score issues.

Technical Quality

The TurboPatent® Patent Portfolio Report analyzes the text of each asset for technical quality in the areas of antecedent basis for claim terms, support for claim terms in the disclosure, consistency of figure references in the disclosure (consistent pairing of part names with reference characters), claim order and format issues, and unique profane terms. Percentile ranks for each individual factor are determined based on scores from a random sample of approximately 6000 recently-granted patents. The individual factors are presented in the TurboPatent® Patent Portfolio Report data table. The individual factors are also combined into a Weighted Quality Score. Scores in the lowest 10% are identified as severe. Scores in the lowest 25% are identified as “Highly Suggest Review”. Scores in the middle 50% are identified as “Suggest Review”. Scores in the top 25% are identified as “Review Optional”. Three factors can override the weighted score to cap it at 0.25: an Alice score below 0.25, antecedent basis issues in the lowest 10%, and unsupported claim terms in the lowest 10%. In the weighted quality score, antecedent basis and unsupported terms have equal weight, figure references issues and claim order and format issues have half as much weight, and unique profane terms have half as much weight again.

Chain of Title/Assignment Issues

The chain-of-title analysis attempts to uncover any discontinuities in the chain of title for each asset in the portfolio back to each named inventor. Spelling variations of an assignee's or an assignor's name are tolerated in this analysis. Four types of issue are reported.

The issue type "unrecorded inventor assignments" indicates that some, but not all, inventors have recorded assignments for the given asset. This issue is reported as "high" severity because correcting the issue may require contacting the inventor to secure an assignment.

The issue type "no recorded assignments from any inventors" indicates that no inventor assignments were recorded for the given asset. This issue is reported as "low" severity because correcting the issue may require merely re-filing a recorded assignment from a related asset.

The issue type "unrecorded transfer from assignees" indicates that an interest in an asset was transferred to a particular assignee, but the analysis failed to identify a record showing that that interest was transferred from that assignee towards Yahoo! Inc. This issue is reported as "high" because correcting the issue may require identifying and possibly securing an assignment from the assignee or its successor.

The issue type "unrecorded transfer to assignors" indicates that an assignor recorded the transfer of its interest in an asset, but the analysis failed to identify a record showing how the assignor obtained its purported interest. This issue is reported as "Low" in several cases where correcting the issue will likely require merely re-filing a recorded assignment from a related asset, but this issue is otherwise reported as "High" because correcting the issue may require identifying and possibly securing an assignment from the assignor's predecessor.

Expert Review

Natural language processing (NLP) techniques generate 3 of the 6 factors combined into the weighted quality score: unsupported claim terms, antecedent basis issues, and figure reference issues. By nature, the application of NLP to patent analysis requires a balance between reporting false positive and false negative signals. A strict interpretation of every rule would produce a storm of errors, many of which would come down to the stylistic choices of the drafter, which though comprehensible to a human reader would trigger an algorithmic warning. The TurboPatent® Patent Portfolio Report analysis is tuned to a degree of tolerance for stylistic variation to minimize false negatives, while still producing a percentage of false positives.

Following the report production process, the TurboPatent patent engineering team selects a random sample of 10% of the assets scoring at the highest severity level on technical quality and performs a machine-aided expert review, a “scrubbing,” to estimate the impact of false positives.

Disclaimer

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