Competitive Technology Report

Company: Appian Corporation
Date: October 2023

With this report, Quant IP assesses the competitive position of a company from a technological perspective.

Using forward looking patent data and Machine Learning, Quant IP uncovers strengths and weaknesses in the current technology portfolio, identifies all relevant technological competitors and benchmarks the company's technology portfolio accordingly.

Quant IP also identifies the technology trends with the most potential for disruption and quantifies the company's capabilities to manage them.

Our Solutions

Quant IP makes the untapped treasure trove of patent data available to the financial industry, delivering quantitative innovation insights, at the right speed and format for the use of financial decision-makers.

Fundamental Research

Using proprietary patent metrics, we create reports on every company on the planet with at least one patent, to help investors incorporate innovation into their decision making.

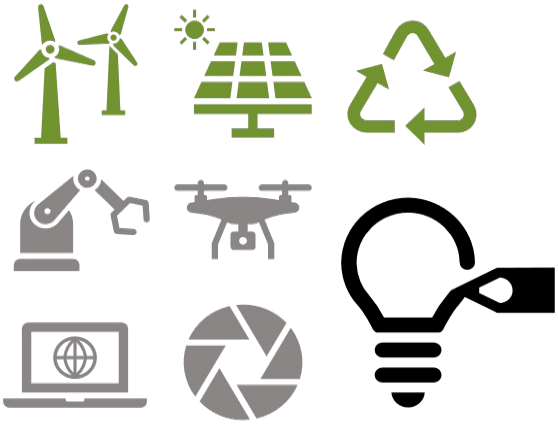
Determine the technological competitive position of companies, analyses of fields in the form of research reports.

More about Technology Reports

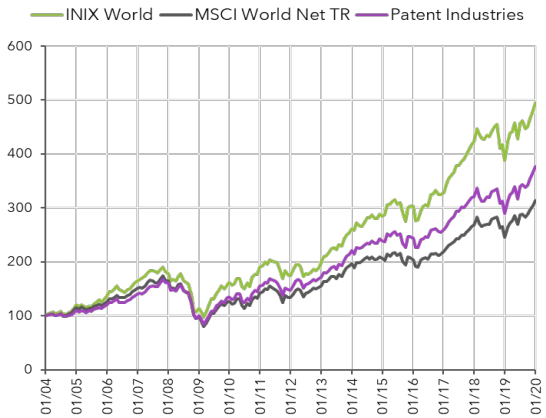
Thematic Investing & ESG

Using themes from our theme catalog or creating custom ones, Quant IP's API solution enables investors to conduct their own thematic research into innovation insights on technologies of interest.

Coupled with our Green Innovation offering, Quant IP helps investors filter for companies with exposure to certain themes or ones with the biggest impact on green innovation.



More about Thematic Investing



Data Feeds

Innovation leaders generate a long-term competitive advantage in both revenue and profit growth out-performance.

Quant IP Patent Data Packages allow investors to find alpha in company-level innovation metrics.

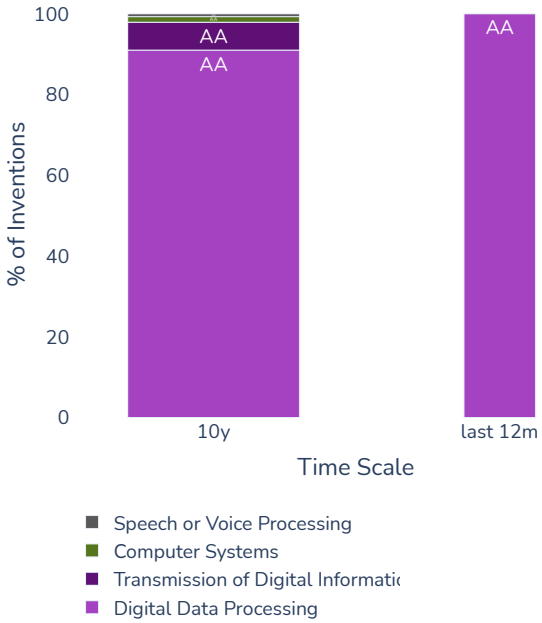
More about Data Feeds

Executive Summary

Appian Corporation ranks 44 in the Competitive Technology Benchmarking. The company does not show particular weakness or strength in terms of patent portfolio size, growth rates and patent quality.

Appian Corporation is most active in the technological fields “Digital Data Processing”, “Transmission of Digital Information” and “Computer Systems”. The company’s patent portfolio average quality rating is AA, meaning that, on average, Appian Corporation‘s patents are better than 81.3% of comparable patents from competitors.

Technological Footprint



Average Patent Quality

Technology Portfolio Evaluation

Innovation Activity
Green Innovation Activity
Top Inventors of the Company

Innovation Activity

Number of inventions
(last 20 years)

8

Green invention ratio (last 20 years)

not applicable

Annualized invention growth rate
(last 12 months)

14.3%

Annualized invention growth rate
(last 3 years)

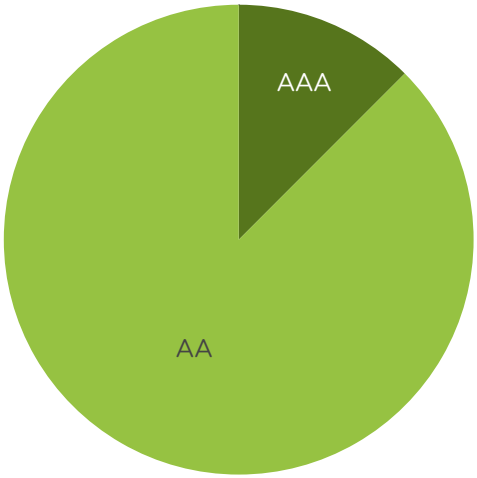
17.0%

Average Patent Rating

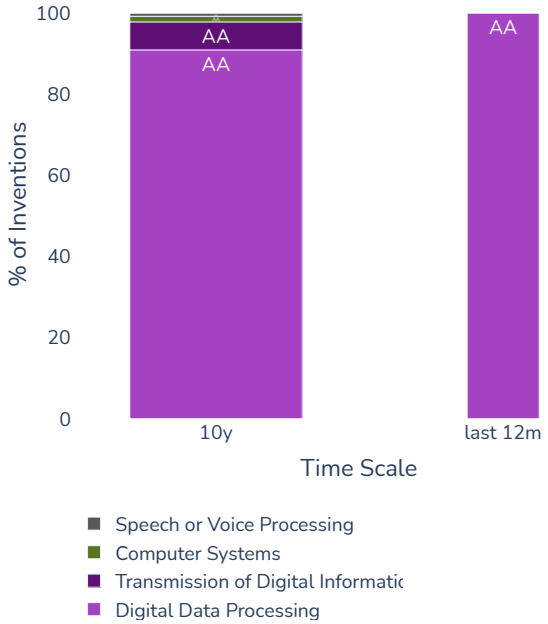
Combining expert domain knowledge with machine learning, Quant IP created Quant IP Patent Rating, the first indicator built on predictions of future patent success and therefore applicable from the first day of publication (see appendix).

Quant IP Patent Rating combines various indicators into one quality assessment quantifying the quality of a company's patents and the whole portfolio.

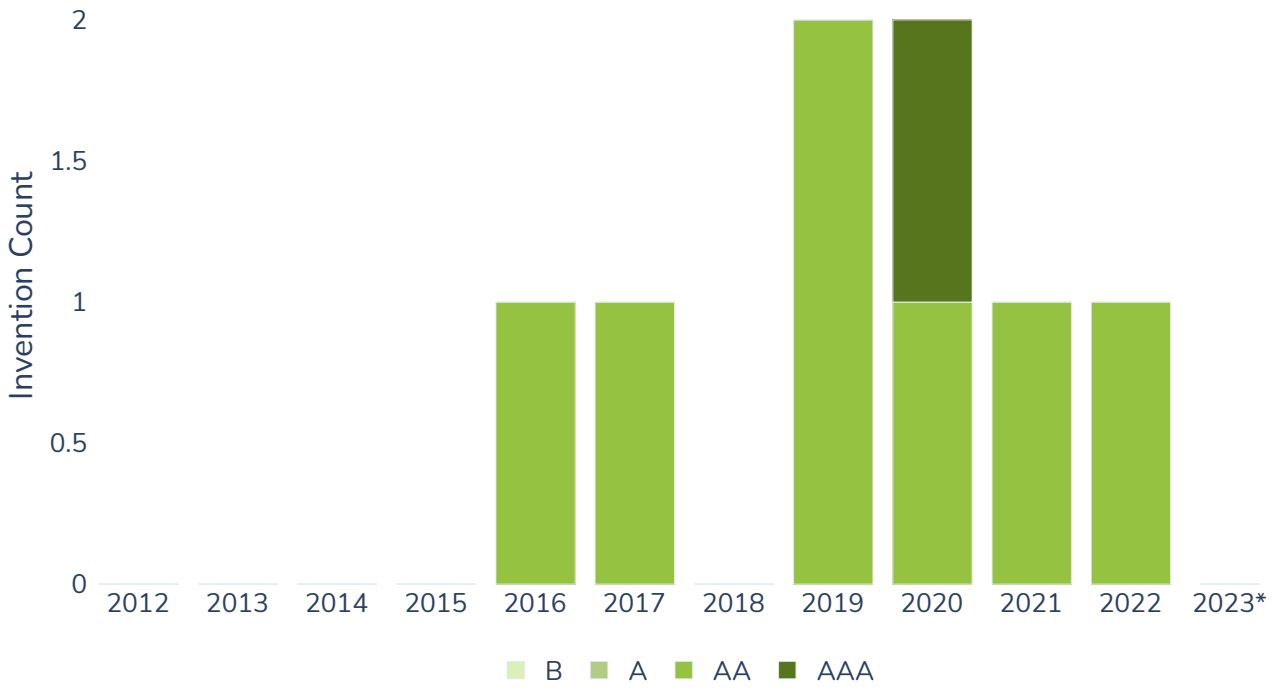
Patent Rating Distribution



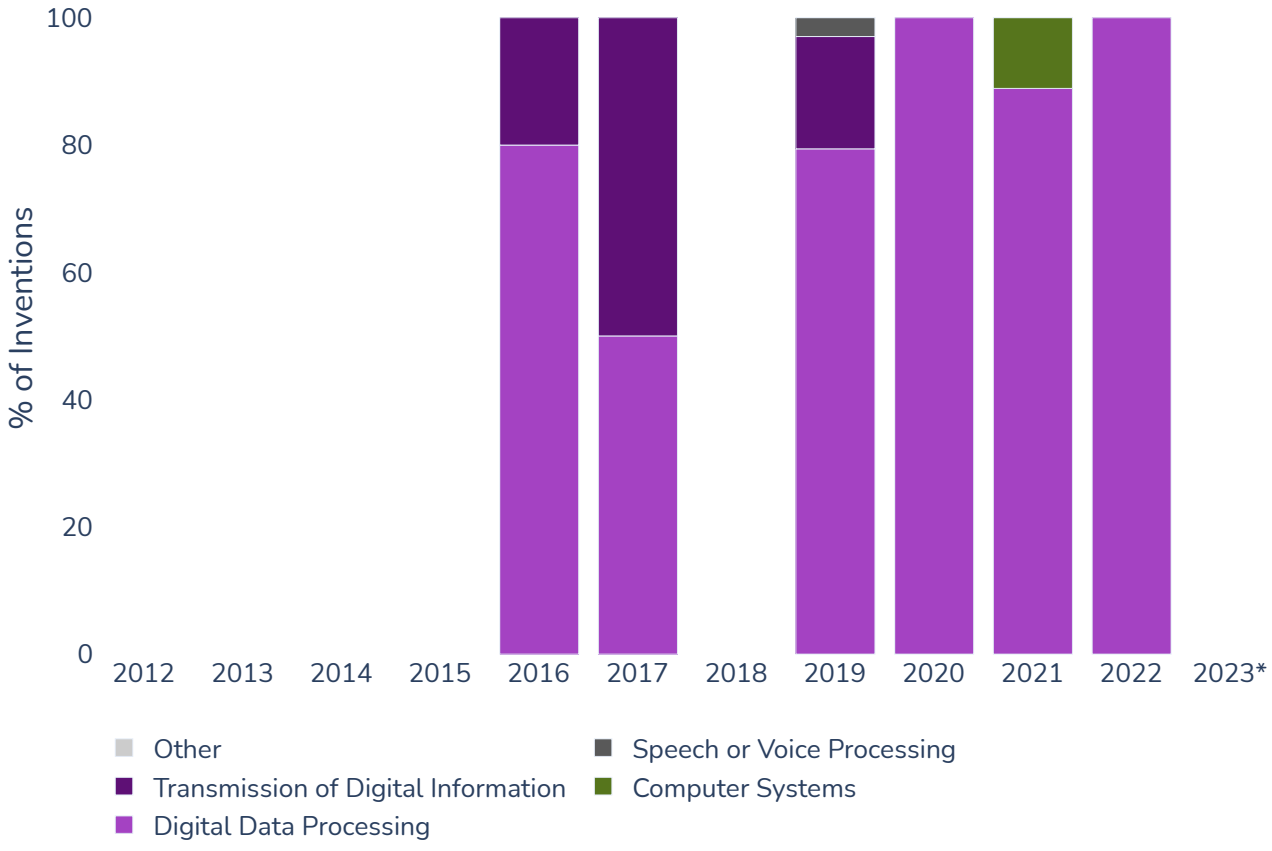
Technological Footprint (10y)



Patent Activity and Quality Over Time



Technology Footprint Over Time



Green Innovation Activity

Quant IP uses the Green Inventory definitions of the World Intellectual Patent Organisation (WIPO) to analyse green innovation activity that is relevant to the UN Sustainability Goals and are among the Environmentally Sound Technologies. Information regarding the green innovation of the company can be found below.

Number of green inventions (last 20 years)

0

Annualized green invention growth rate (last 12 months)

not applicable

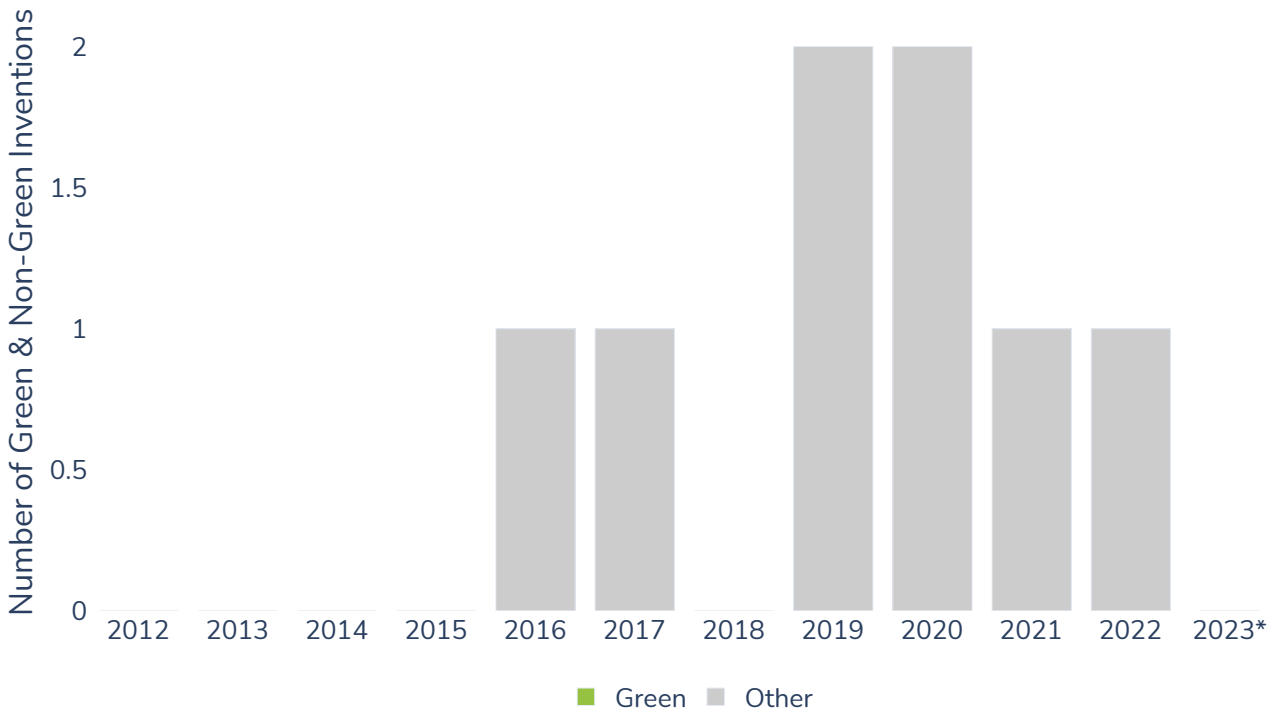
Green invention ratio (last 20 years)

not applicable

Annualized green invention growth rate (last 3 years)

not applicable

Green Invention Ratio Over Time



Green Technology Footprint Over Time

The graph below displays how the green innovation activity of Appian Corporation has been distributed over green technology areas defined by the WIPO.

Top Inventors of the Company

Inventors are the individuals named on patent documents who made the discovery or took the innovative step, often on behalf of the company. The table of inventors below can be used in order to understand the human resources behind the R&D of a company, as well as the HR risks. If an employee who is responsible for a high fraction of the total innovative output leaves a company, it can lead to a decrease in innovative strength. Looking for existence of inventors with high activity in both 3 year and 10 year time frames, can indicate a strong talent retention strategy.

Inventor Name	Inventions (3y)	Inventions (10y)	Inventions (3y) % of total	Inventions (10y) % of total	Quality Score
ANDRADE GARCIA, ANTONIO	1	2	33.3	25.0	81
ANTONIO, ANDRADE GARCIA	1	2	33.3	25.0	81
JOHN, ROGERS	1	2	33.3	25.0	79
ROGERS, JOHN	1	2	33.3	25.0	79
TSUI, CHARLES	1	1	33.3	12.5	83
INDRAJA, KARNIK	1	1	33.3	12.5	83
ALISON, COWLEY	1	1	33.3	12.5	83
COWLEY, ALISON	1	1	33.3	12.5	83
KARNIK, INDRAJA	1	1	33.3	12.5	83
CHARLES, TSUI	1	1	33.3	12.5	83

Technology Benchmarking

Technology Benchmarking – Overview
Technology Benchmarking – Details
Technology Benchmarking – Market Share
Technology Benchmarking – Evolution over 10 years
Technology Benchmarking - China Share

Technology Benchmarking – Overview

The graph below maps how Appian Corporation is positioned among its peer group based on Patent Portfolio Quality and the Tech Growth Rate. The bubble size correlates to number of inventions of the company. See appendix for specific definitions of Patent Portfolio Quality Score and Tech Growth Rate.

- 1 - Rubrik, Inc.
- 2 - Commvault Systems, Inc.
- 3 - MacroSAN Technologies Co., Ltd.
- 4 - Cohesity, Inc.
- 5 - VAST Data, Inc.
- 6 - Wuhan Deepin Technology Co., Ltd.
- 7 - Sigma Computing, Inc.
- 8 - Ventana Micro Systems Inc.
- 9 - Tianjin Nanda General Data Technology Co., Ltd
- **44 - Appian Corporation**

Technology Benchmarking – Details

The table below displays how the company ranks among its technological peer group. This peer group is defined based on the technological footprint of the company, which can lead to a fresh perspective on competitive analyses. A company that is not a direct competitor in the market, can still be a valuable benchmark if the technological footprints are similar.

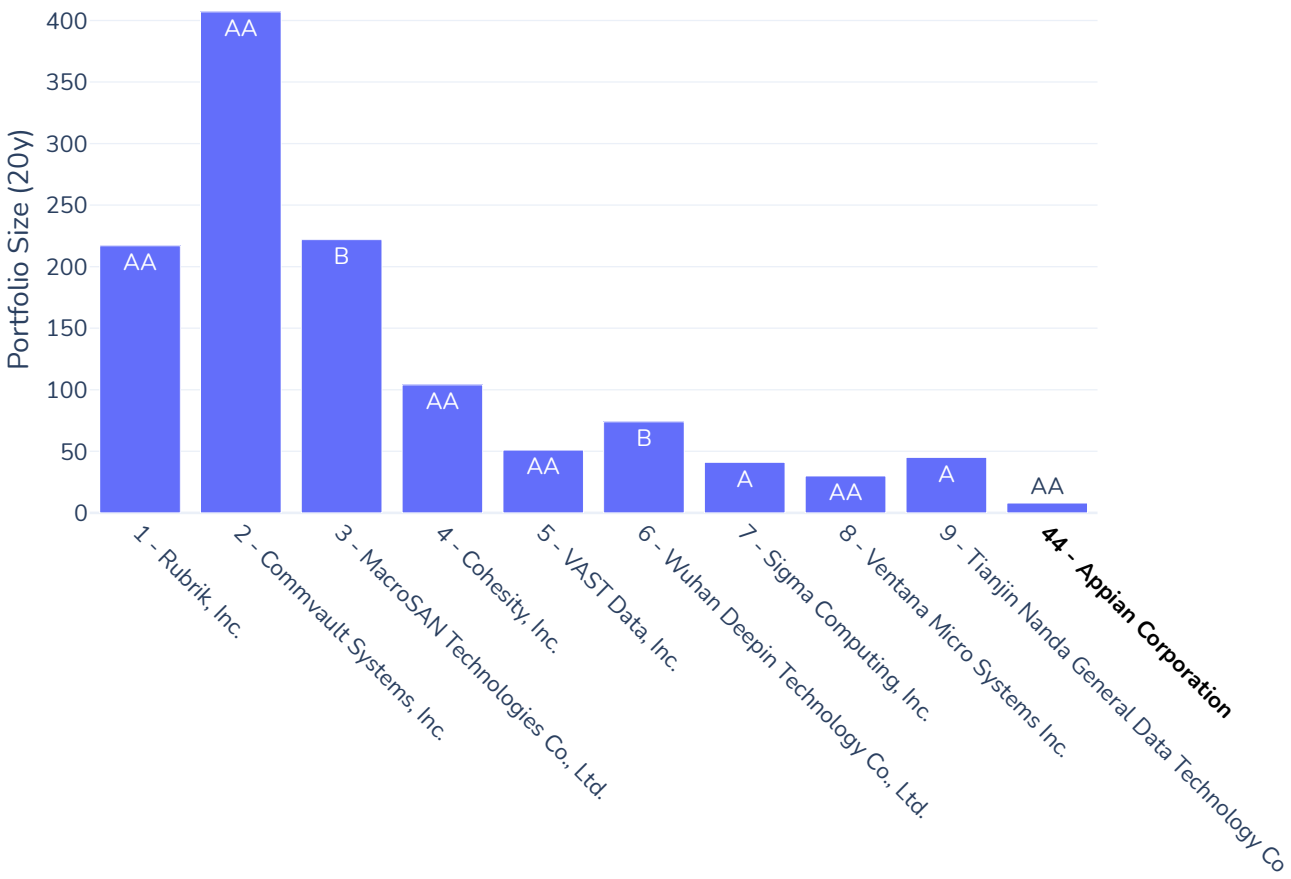
The ranking is an aggregation of how the company performs on size, growth and quality. The rank trend shows whether the company has been stepping up compared to competition or falling even further behind in the recent years, while the color of the company row shows whether the company is performing in the top 10% (green), bottom 20% (red) or in the middle (yellow), when the complete peer group is considered.

Company	Region	Portfolio Size (20y)	Absolute Growth (3y)	Relative Growth (%, 3y)	Quality Score	Rank	Rank Trend
Rubrik, Inc.	US / Canada	217	123	56.7	81	1	⇨
Commvault Systems, Inc.	US / Canada	407	82	19.5	89	2	⇨
MacroSAN Technologies Co., Ltd.	Asia	222	77	34.7	42	3	⇨
Cohesity, Inc.	US / Canada	104	48	46.2	77	4	⇨
VAST Data, Inc.	US / Canada	51	42	82.4	76	5	⇗
Wuhan Deepin Technology Co., Ltd.	Asia	74	52	70.3	46	6	⇗
Sigma Computing, Inc.	US / Canada	41	34	82.9	67	7	⇨
Ventana Micro Systems Inc.	US / Canada	30	30	100.0	83	8	⇗
Tianjin Nanda General Data Technology Co., Ltd	Asia	45	38	84.4	50	9	⇗
General Data Technology Co., Ltd.	Asia	171	37	21.6	47	10	⇨
ThoughtSpot, Inc.	US / Canada	37	27	73.0	82	11	⇨
Ocient Holdings LLC	US / Canada	27	26	96.3	88	12	⇗
Beijing Anpro Information Technology Co., Ltd.	Asia	31	23	74.2	64	13	⇗
Qumulo, Inc.	US / Canada	37	18	48.6	92	14	⇘
Beijing Kejie Technology Co., Ltd	Asia	26	26	100.0	43	15	⇗
Nanjing eCloud Technology	Asia	42	24	57.1	47	16	⇘

Co., Ltd.							
Shenzhen Landray Software Co.,Ltd.	Asia	33	19	57.6	54	17	⇗
Databricks, Inc.	US / Canada	26	14	53.8	77	18	⇗
Siteimprove A/S	Europe	14	12	85.7	81	19	⇗
Beijing Zhongke Weilan Technology Co., Ltd.	Asia	20	16	80.0	41	20	⇗
Suzhou Fengzhiding Information Technology Co., Ltd...	Asia	16	16	100.0	38	21	⇗
Nanjing Pengyun Network Technology Co., Ltd.	Asia	16	13	81.2	48	22	⇗
Lightbits Labs, Inc.	US / Canada	15	10	66.7	80	23	⇘
Comake Inc	US / Canada	10	9	90.0	85	24	⇗
MongoDB, Inc.	US / Canada	21	10	47.6	71	25	⇨
TmaxData Co., Ltd.	Asia	81	11	13.6	54	26	⇘
Neo4j, Inc.	US / Canada	11	9	81.8	76	27	⇗
Beijing VirtAI Technology Co., Ltd.	Asia	9	9	100.0	53	28	⇗
Aras Corporation	US / Canada	9	7	77.8	76	29	⇗
Appian Corporation	**US / Canada**	**8**	**3**	**37.5**	**81**	**44**	⇘

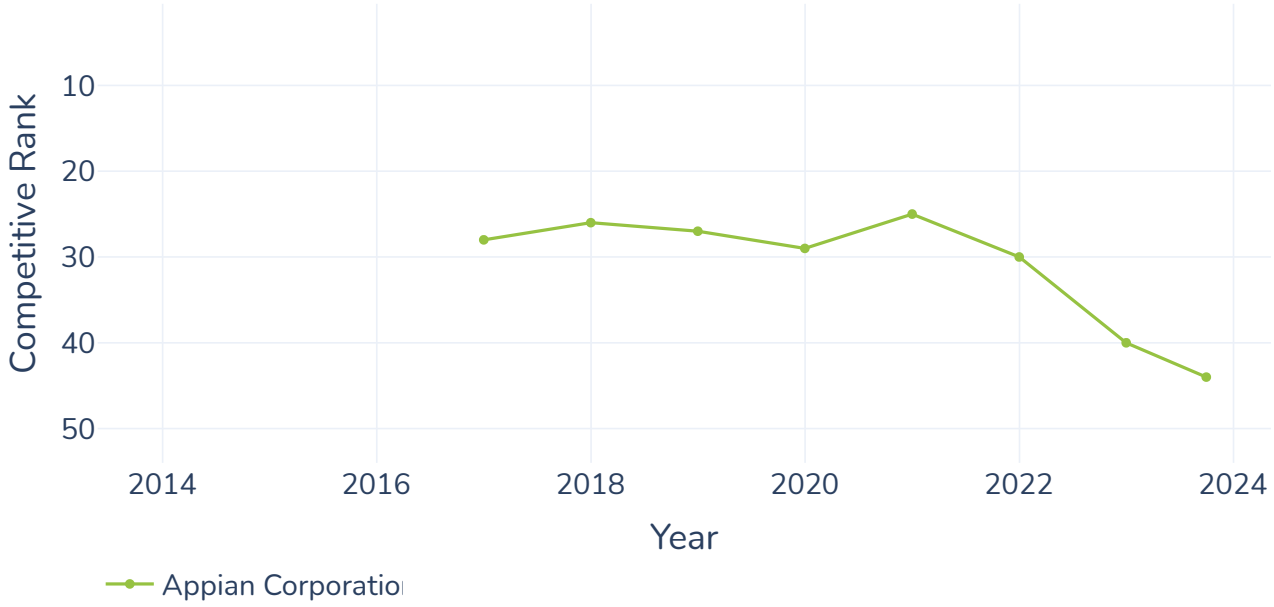
Technology Benchmarking – Market Share

This graph displays how the IP Portfolio Size and the Average Quality Score of the top members of the peer group vary, compared to Appian Corporation, helping spot dominant players and up-and-coming new entrants.



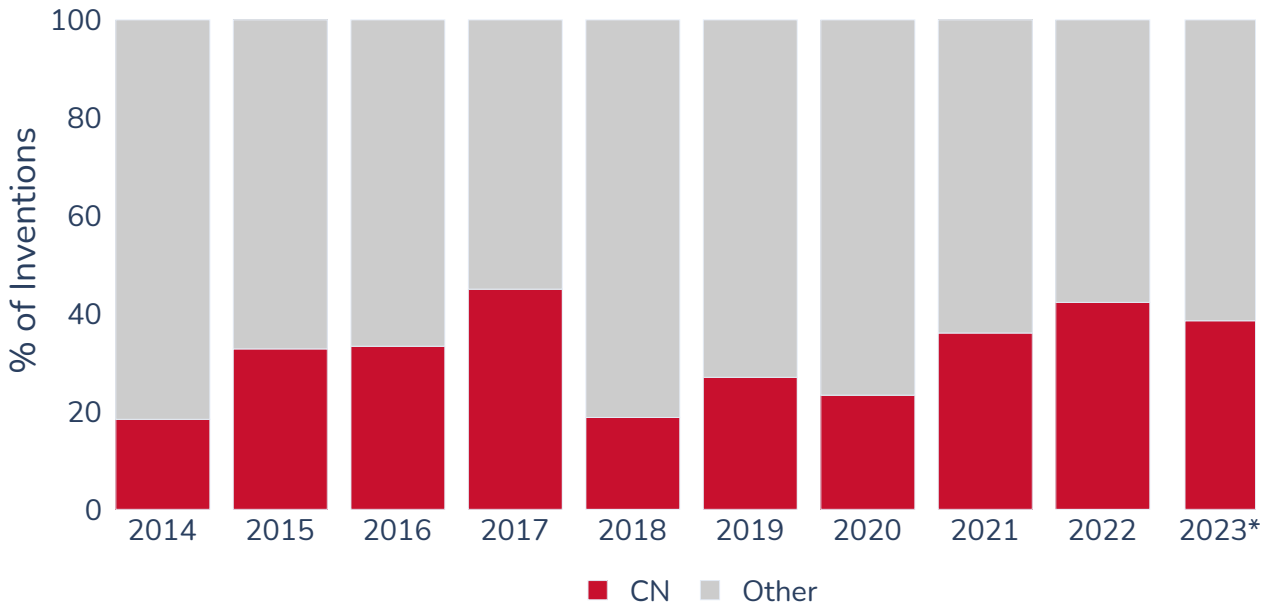
Technology Benchmarking – Evolution over 10 years

The graph below displays how the company was positioned within its peer group over time regarding its innovative output.



Technology Benchmarking - China Share

The graph below displays the fraction of inventions of to the company's peer group which are published by Chinese organisations. A higher ratio means that the Chinese companies have caught up in R&D and have a strong competitive presence in the relevant fields.



Technology Disruption Index

Technology trends and technology disruption index are not calculated for this peer group due to lack of suitable technology activity.

Appendix

Glossary
Patent Processes in a Nutshell: Introduction
Quant IP Patent Rating
Quant IP Benchmarking

Glossary

Invention - New product, process or apparatus or any new use thereof. To be patentable, an invention must be novel, involve an inventive step and be susceptible of industrial application.

Patent Application - Request for patent protection for an invention filed with a patent office. Aimed at legal protection for the invention in the patent offices' jurisdiction.

Pending Patent - Patent application that is filed and in process to receive a grant from the patent office.

Granted Patent - Patent application that is filed and has received a grant from the patent office.

Active Patent - Granted patent that is not expired or otherwise discontinued.

Patent Family - Set of interrelated patent applications filed in one or more countries to protect the same or a similar invention by a common inventor and linked by a common priority.

Priority - A priority is a right to file applications for the same invention at other offices within 12 months of the first application and yet claim the filing date of the first application.

Priority Date – Filing date of the earliest patent application of an invention.

Filing Date - The date when a patent application is first filed at a patent office.

Publication Date - The date on which a patent document is published. Most patents are published 18 months after filing.

Publication Number - The publication number is the number assigned to a patent application on publication.

Applicant - A person or an organization that has filed a patent application. There may be more than one applicant per application.

IPC – International Patent Classification, currently divides all technologies into approximately 70 000 areas.

Citations - A list of references containing cited and citing documents. As in academia, citations are used as an indicator for the quality of the invention.

Cited Document - Documents that are cited by a specific patent document by a patent authority or by the applicant. Also known as backward citations.

Citing Documents - Patent documents that cite a specific patent. Also known as forward citations.

Technology Field – A subset of IPC classifications or a number of patents which define a specific technology.

Technology Life Cycle – The time period in between two minima of patent filing activity related to a specific technology. A global maximum is present within the life cycle. Quant IP defines 6 phases within a cycle.

Technology Footprint – All technology fields of a collection of patent families displayed in percentage and weighted by size.

Disruptive Technology – Innovations/technology fields that significantly alter the way that consumers, industries, or businesses operate. Disruptive technologies show above average growth rates and higher than average impact.

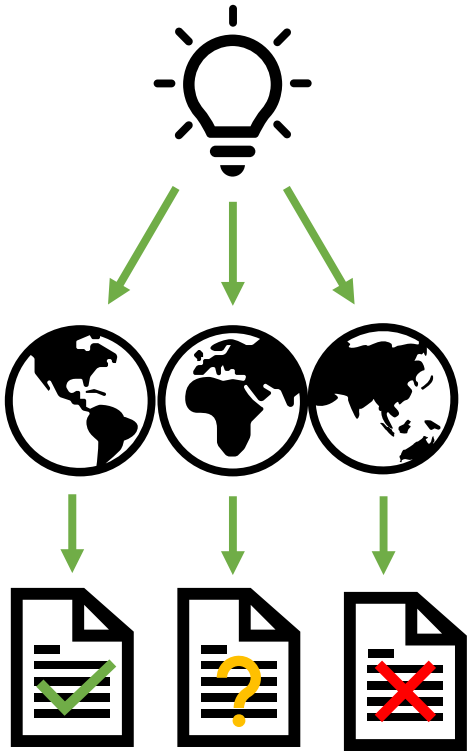
Patent Quality Score – Quant IP proprietary scoring algorithm predicting the success of a patent family, compared with similar patents.

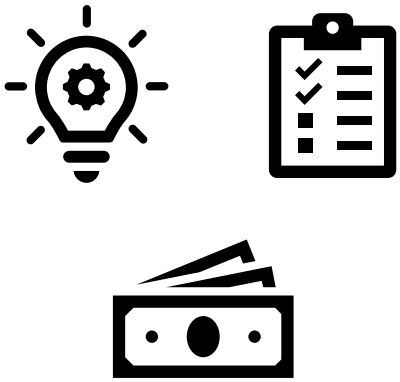
Patent Rating – Quant IP proprietary patent rating with 4 categories AAA (top 10%), AA (top 30%), A (top 50%) and B (bottom 50%), derived from the Patent Quality Score.

Patent Processes in a Nutshell: Introduction

The intellectual property domain can be complicated for professionals not involved in it at a daily basis. Here is a basic summary to explain the terms and include all you might need to know to understand this report.

- When a new discovery is made you can apply for a patent. This discovery is called an **invention**.
  - Each incremental discovery is an invention on it is own. Often, a single product consists of many inventions.
- You need to file for a patent in each country separately and creating **many patent filings** for **one invention**.
  - Each application comes with its own filing costs, results and upkeep costs, making it a strategic decision to internationalize.





- These patent documents are all linked to one invention. They are also called a **patent family**.
- Patent filings that are not yet granted are referred to as pending or as a **patent application**.
- If the patent offices grant the right, the patent becomes a **granted** or **active patent** until it expires.

Quant IP Patent Rating

Quant IP Patent Rating takes a purely quantitative approach and is based on proprietary algorithms to predict patent success in three critical areas. It is based on benchmarking inventions relative to similar ones and thus makes it possible to compare the quality of patents in all technical fields.

Quant IP Patent Rating is based on three Quality Scores defined as:

Grant Robustness: The average probability for a patent to be granted in 4 major jurisdictions (USA, EU, China, Japan), evaluated at the time of publication of the patent application.

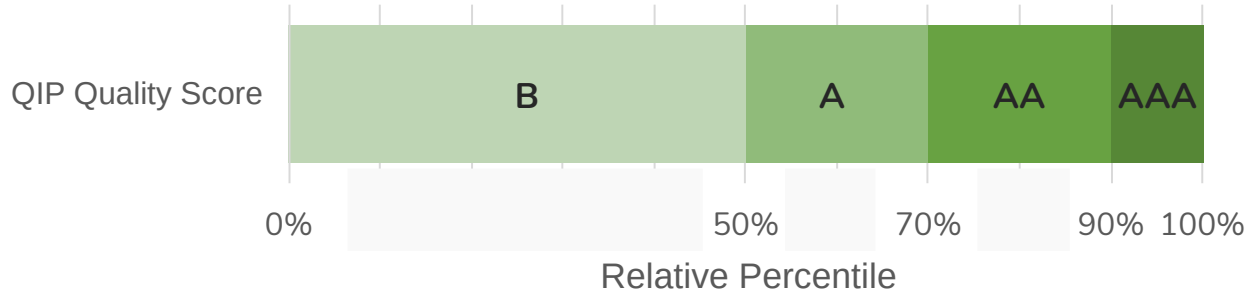
Market Potential: The predicted number of markets the rights for the innovation is secured within 2 years after publication date.

Citation Potential: The predicted number of forward citations an invention receives 5 years after filing.

Quant IP Quality Score is an aggregated score of the three scores above. Quant IP Quality Score is translated into Quant IP Patent Rating.

Quant IP Patent Rating percentiles based on the Quant IP Quality Scores for similar patents are defined as follows:

> **AAA** – Top 10%, **AA** – Top 30%, **A** – Top 50%, **B** – Bottom 50%
> Similar patents are determined using IPC classification codes, a standard developed by the European Patent Office to classify and categorize patent documents



Quant IP Benchmarking

Reference Applicant - The applicant of interest.

Quant IP Peer Group - All applicants that are active in the same technological fields as the reference applicant including the reference applicant. Quant IP uses several similarity metrics on patent level and company level (tech footprint) to derive a peer group of the technological competitors.

Competitor - An applicant in the peer group excluding the reference applicant.

Patent Portfolio – All patent documents assigned to an applicant.

Patent Portfolio Quality Score – Average Quant IP Quality Score for a portfolio of inventions .

Technology Growth Rate – Ratio of inventions published in the last 12 months over the relevant applicant portfolio.

Technology Benchmark – Ranked list of applicants inside the peer group based on technology competitiveness (innovation strength). The Benchmarking is based on the size of the relevant patent portfolio, the technology growth rate and the patent portfolio quality score.

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