A.I. 100

Patent Activity Report

Analyzing the invention protection strategies of companies at the forefront of artificial intelligence

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An I.P. land grab is underway in artificial intelligence

The rapid pace of innovation and the influx of companies in this space make protecting intellectual property of the utmost importance. Organizations that understand their inventions are at stake, and thus develop strong patent portfolios, will prevail. Companies that secure patents will grow faster, with the likelihood of first round funding increasing by 53 percent, and second round funding increasing by 67 percent. Additionally, the likelihood of a successful exit skyrockets, with the chances of an IPO increasing by 153 percent and an acquisition increasing by 83 percent (Office of Chief Economist Report).

CB Insights recently published its 2018 A.I. 100 Report * – a ranking of the 100 most promising private artificial intelligence companies in the world. The following report provides analysis of the patenting activities performed by the companies listed in the CB Insights report. These companies push the limits of their industries through A.I.-focused inventions. This report reveals the organizations positioning themselves for continued success in the face of increasingly intense competition from domestic companies, as well as from the looming A.I. giant, China. But just as importantly, this report uncovers companies that are lagging behind their peers, putting their valuable inventions in jeopardy.

Methodology

The data presented in this report is based on publicly available USPTO data as of February 28, 2018. Patent applications that have not yet been published or were filed in countries other than the U.S. are not reflected in this report. Also, companies may own additional assets that have been acquired through acquisition, but USPTO assignment records do not always accurately reflect this.

*TurboPatent has no affiliation with CB Insights. All of the data presented in this report was collected from publicly available records provided by the USPTO.

Basic patenting statistics in this report

904 Number of A.I. 100 assets

73 Number of companies with at least one publication

27 Number of companies with zero publications

507 Number of other companies' assets that have been blocked by A.I. 100 companies

224 Number of companies that have been blocked by A.I. 100 assets

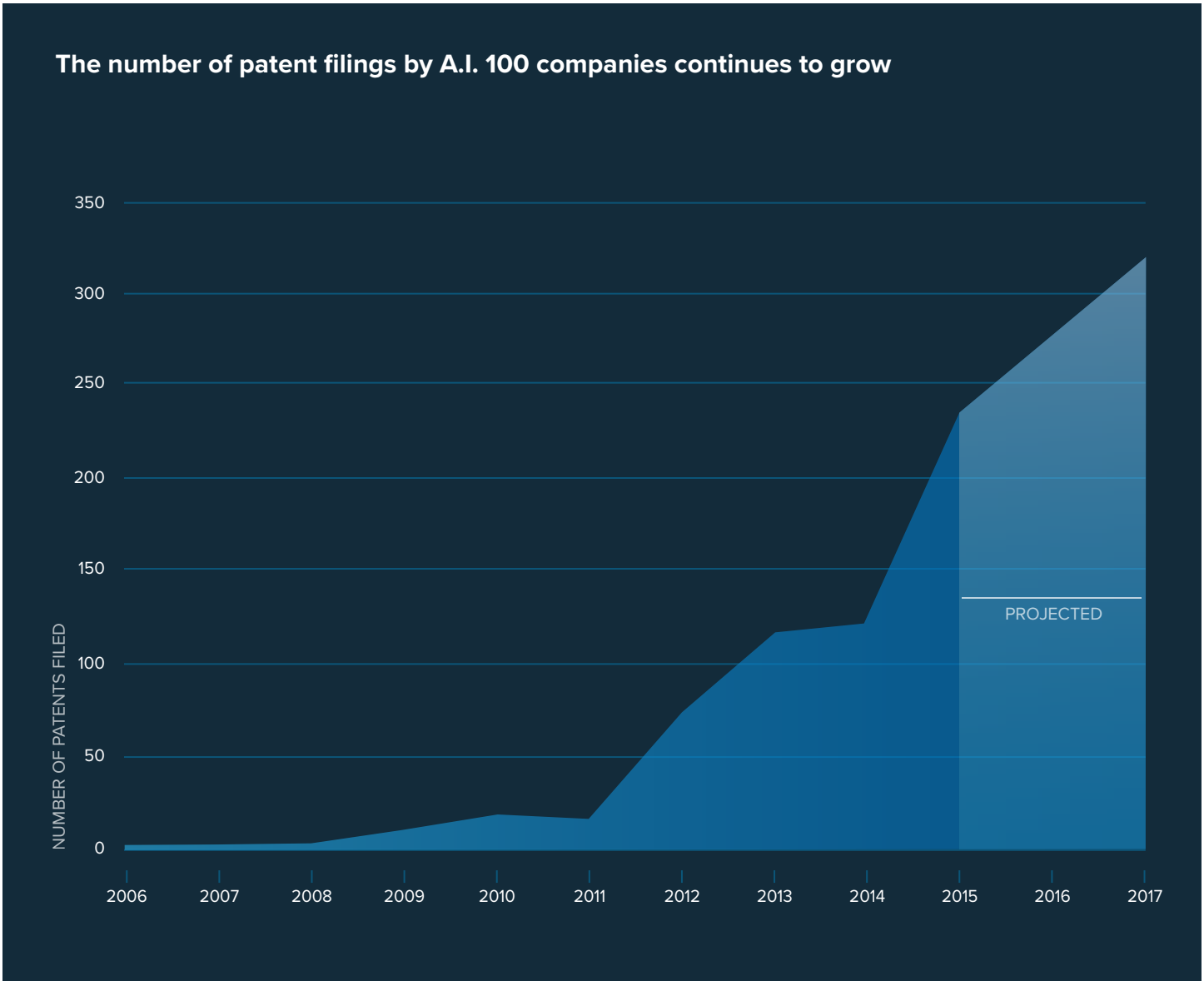
1567 Number of assets that have blocked A.I. 100 assets

691 Number of companies that have blocked A.I. 100 assets

A.I. 100 companies are protecting their inventions

Since 2006, the number of assets filed by A.I. 100 companies has consistently risen. Published patent application data can only be validated through 2015, due to the 18-month lag between when a patent application is filed and when it's published, but projections show continued growth. The upward trajectory of patent activity matches the staggering 14 times increase in the number of active U.S. startups developing A.I. systems from 2000-2016. Over the same timeframe, annual VC investment in A.I. startups has grown 6 times to nearly $3.5 billion (2017 Artificial Intelligence Index Report).

According to IDC Research, worldwide spending on artificial intelligence systems was $5.3 billion in 2015 and is projected to reach $19.3 billion in 2018 and $46.8 billion by 2020.



A.I. 100 companies ranked by number of published applications

A.I. 100 company	# of assets
Brain Corporation	107
Cognitive Scale	79
Shape Security	77
OrCam Technologies	61
Aquifi	53
SoundHound	43
InsideSales.com	32
Zoox	28
AiCure	27
MOOGsoft	27
CrowdStrike	25
Anki	19
Narrative Science	19
Invoca	17
AEYE	16
Amplero	14
Appthority	14
UBTECH Robotics	14
Kindred Systems	10
WorkFusion	10
ZestFinance	10
Datarobot	9
KYNDI	9
Neurala	9
Preferred Networks	9
CrowdFlower	8
Cybereason	7
Osmo	7
Prospera	7
SenseTime	7
SparkCognition	7
Vicarious Systems	7
Benson Hill Biosystems	6
C3 IoT	6
Captricity	6
Twiggle	6
CloudMinds	5
Socure	5
Applitools	4
Darktrace	4
Endgame	4
Face++ (Megvii)	4
Foghorn Systems	4
Insight Engines	4
Insilico Medicine	4
MAANA	4
Zymergen	4
Bytedance	3
Conversica	3
Mya Systems	3
Orbital Insight	3
Tamr	3
Versive	3
Arterys	3
FLYR	2
Gong	2
Mighty AI	2
Mythic	2
NAUTO	2
Sportlogiq	2
Trifacta	2
Appier	1
babylon Health	1
Cape Analytics	1
Descartes Labs	1
Flatiron Health	1
Freenome	1
LeapMind	1
Liulishuo	1
PerimeterX	1
Primer	1
Reflektion	1
Textio	1
Affirm	0
Afiniti	0
Algolia	0
Cambricon	0
Casetext	0
Cerebras Systems	0
Deep Sentinel	0
Drive.ai	0
Dynamic Yield	0
Element AI	0
Graphcore	0
Merlon Intelligence	0
Mobalytics	0
Numerai	0
Obsidian Security	0
Onfido	0
Petuum	0
Recursion Pharmaceuticals	0
Sher.pa	0
Shield A.I.	0
Shift Technology	0
Tempus Labs	0
Text IQ	0
Tractable	0
Upstart	0
Worky (Gloat)	0
Mobvoi	0

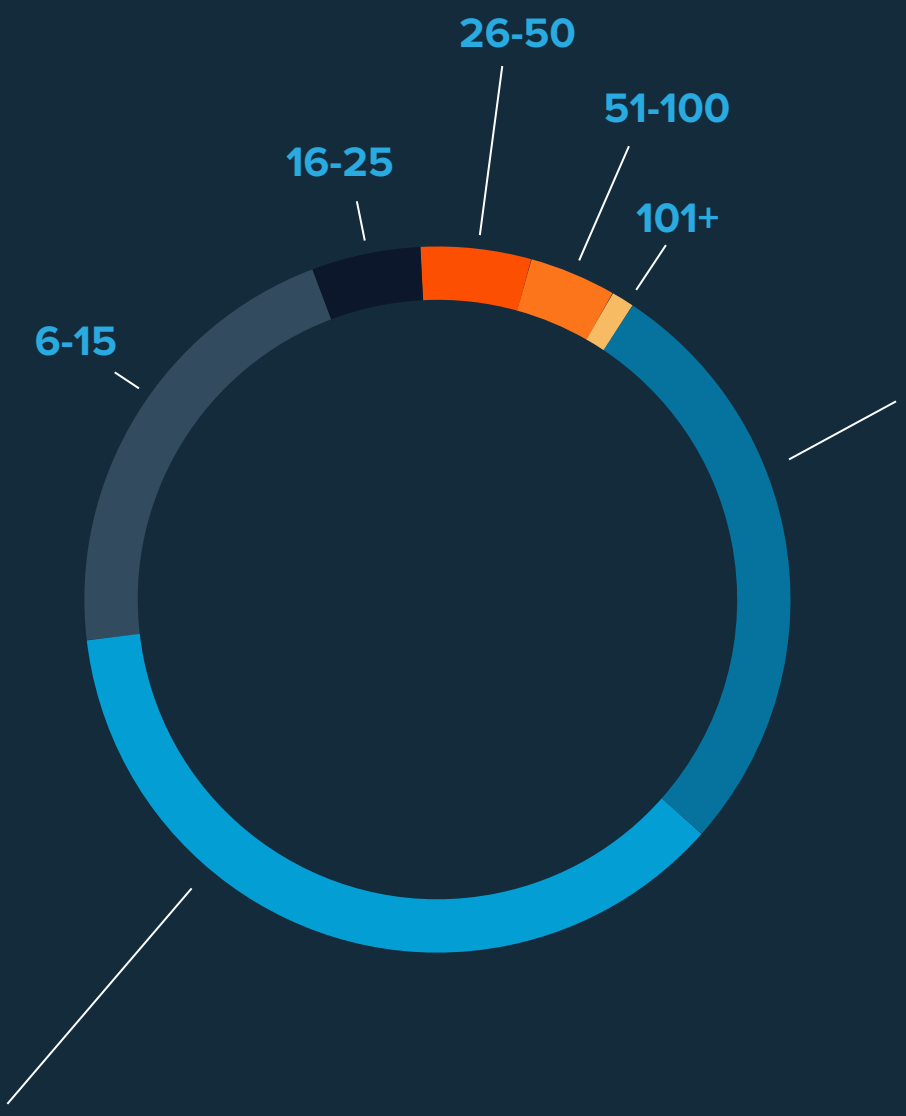
How many patents have A.I. 100 companies filed?

0 Patents

Affirm
Afiniti
Algolia
Cambricon
Casetext
Cerebras Systems
Deep Sentinel
Drive.ai
Dynamic Yield
Element AI
Graphcore
Merlon Intelligence
Mobalytics
Numerai
Obsidian Security
Onfido
Petuum
Recursion Pharmaceuticals
Sher.pa
Shield AI
Shift Technology
Tempus Labs
Text IQ
Tractable
Upstart
Worky (Gloat)
Mobvoi

1-5 Patents

CloudMinds
Socure
applitools
Darktrace
Endgame
Face++ (Megvii)
Foghorn Systems
Insight Engines
Insilico Medicine
MAANA
Zymergen
Bytedance
Conversica
Mya Systems
Orbital Insight
Tamr
Versive
Arterys
FLYR
Gong
Mighty AI
Mythic
NAUTO
Sportlogiq
Trifacta
Appier
babylon Health
Cape Analytics
Descartes Labs
Flatiron Health
Freenome
LeapMind
Liulishuo
PerimeterX
Primer
Reflektion
Textio



More patent applications are being filed each year, but the applications are not distributed evenly amongst the companies included in this report. Of the 100 companies, the largest concentration is between zero and five patents filed, with 64 companies falling in this category. Only 11 companies have 25 or more published assets, and only one has more than 100. The organizations on this list are inventing at a high rate, so the concentration of companies with few patents filed indicates an I.P. protection gap that is leaving inventions vulnerable. The only way to close this gap is to build a patent portfolio that safeguards valuable intellectual property.

The majority of companies are dedicating little attention to invention protection.

The I.P. land grab must be taken seriously by organizations inventing new technologies. Companies continue to stream into the A.I. space in the U.S., but this is also true around the globe, especially in China. The Chinese government has stated its goal to become the leader in A.I. by 2030. This will be accomplished by pushing Chinese companies to pursue patents. In fact, patent activity is growing in China at a rate of 21.5 percent, compared to an 8.3 percent increase worldwide and 2.7 percent in the United States. The U.S. is a first-to-file country, meaning the company that files a patent first will have the right to protect the invention. The urgency to build a patent portfolio is there; now organizations must act.

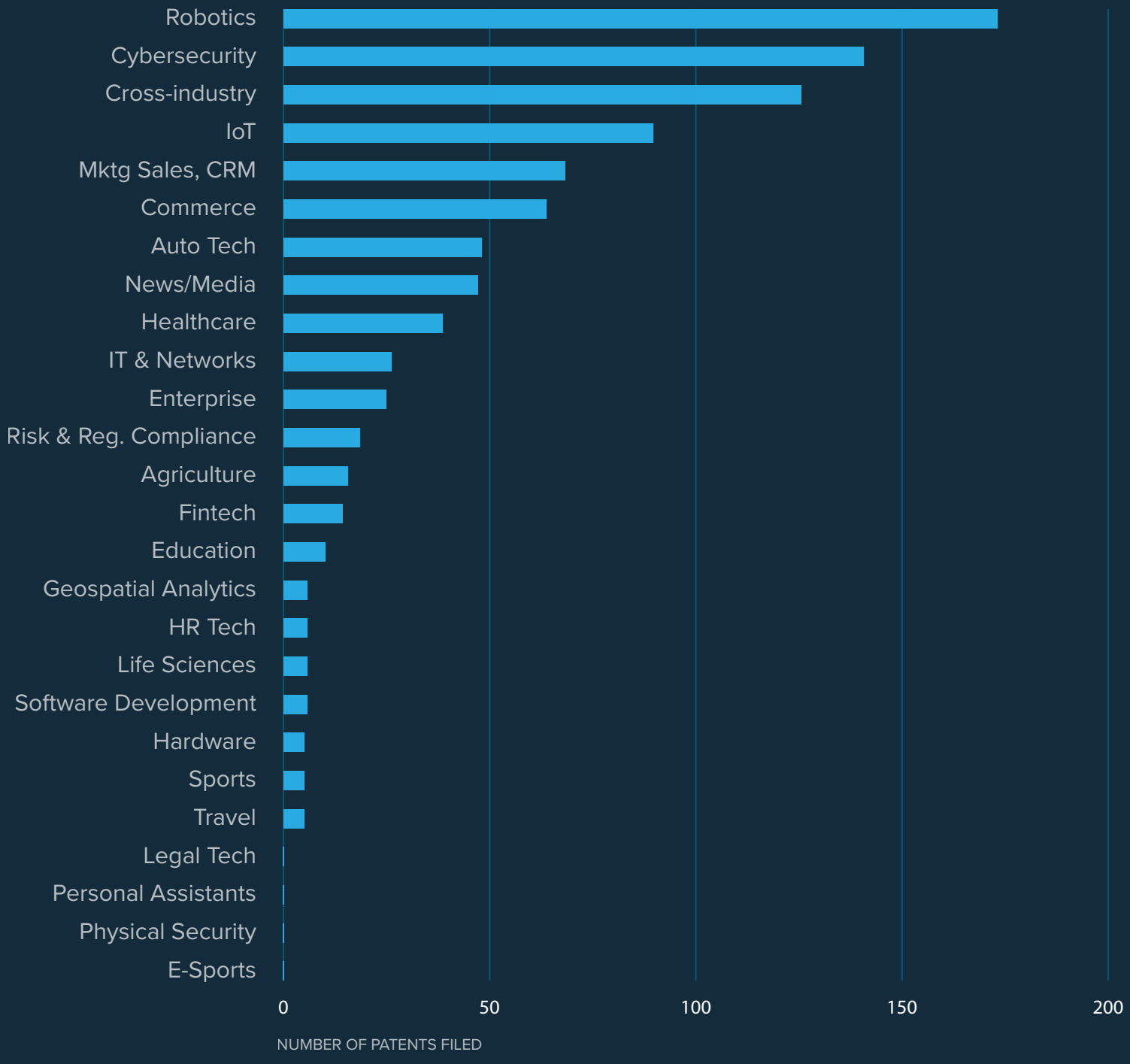
Patent activity in China is growing at 21.5 percent, compared to an 8.3 percent increase worldwide and 2.7 percent in the U.S. (WIPO)

The high number of companies with little or no patent activity may be a result of them being primarily early stage to mid-tier companies. Smaller organizations rarely have the manpower to employ an I.P. manager, and often mistakenly believe they lack the capital to pursue an I.P. portfolio. However, obtaining patents delivers significant benefits for these companies, such as the likelihood of first-round funding increasing by 53 percent and second-round funding by 67 percent.

Companies from most industries are beginning to file patents

The companies in this report represent 25 unique industries, as defined by CB Insights. The data shows most of the industries have engaged in patenting activity, with robotics, cybersecurity, and cross-industry setting the pace, and legal tech, e-sports and hardware lagging behind.

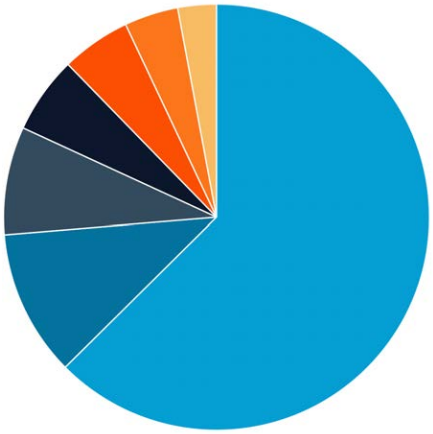
Few industries have extensive patent activity



Industry patenting numbers skewed by “prolific patenters”

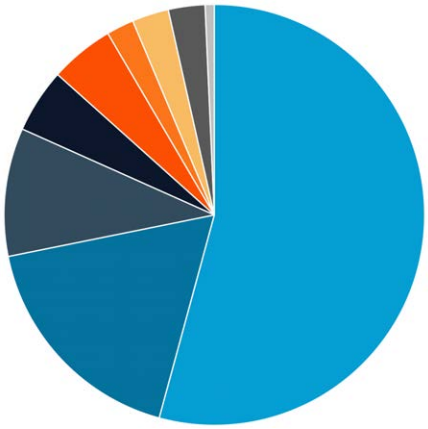
Even the top industries with seemingly busy patent activity are primarily driven by a few (or even one) prolific patenter.

Robotics patent activity



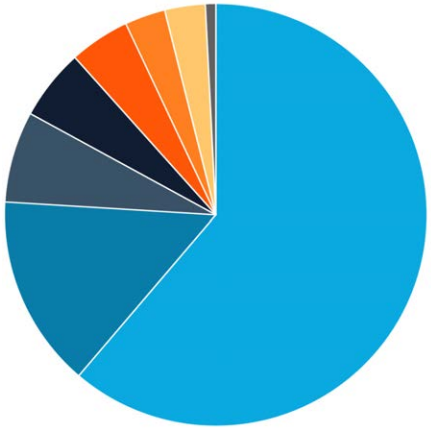
- Brain Corporation
- Anki
- UBTECH Robotics
- Kindred Systems
- Neurala
- Vicarious Systems
- CloudMinds

Cybersecurity patent activity



- Shape Security
- CrowdStrike
- Appthority
- Cyberreason
- SparkCognition
- Versive
- Darktrace
- Endgame
- PerimeterX
- Obsidian Security
- Shift Technology

Cross-industry patent activity



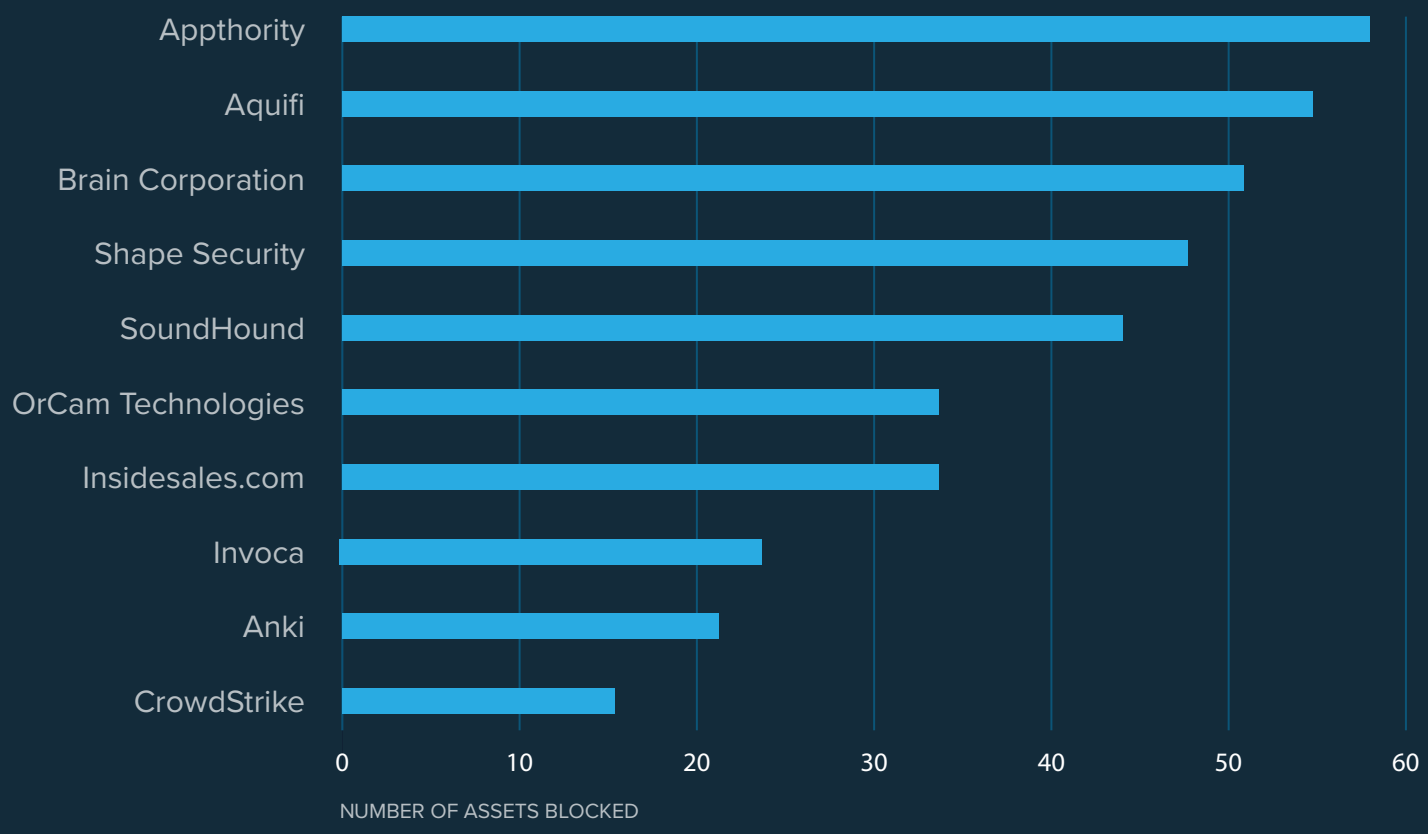
- Cognitive Scale
- Narrative Science
- KYNDI
- SenseTime
- Capricity
- Face++ (Megvii)
- Insight Engines
- Primer

Whose patent portfolios offer the most protection?

One way to gauge the effectiveness of a patent portfolio is use blocking reports to identify how well it is protecting inventions. Blocking reports pore through USPTO data to determine where one company's asset is blocking another company's asset. In other words, it is being used by a USPTO examiner as prior art to reject claims in the application. This illustrates the level of competition for patents in a particular area and clarifies the importance of filing patents before a competitor does so.

We ran reports to discover which A.I. 100 companies are blocking the most assets, and from whom, as well as which companies are blocking the most A.I. 100 assets. The data reveals that some of the world's most active patenting companies are seeking patents in A.I., including IBM, Microsoft and Google. A.I. 100 companies also appear in the list of most-blocked companies. In some cases, A.I. 100 companies have built portfolios quickly enough to block tech giants, (as well as A.I. 100 competitors), but often the opposite has occurred. This makes it clear that timely attention to protecting inventions is a key factor in securing a prominent position in the market.

A.I. 100 companies blocking the most assets



Companies most blocked by A.I. 100 assets

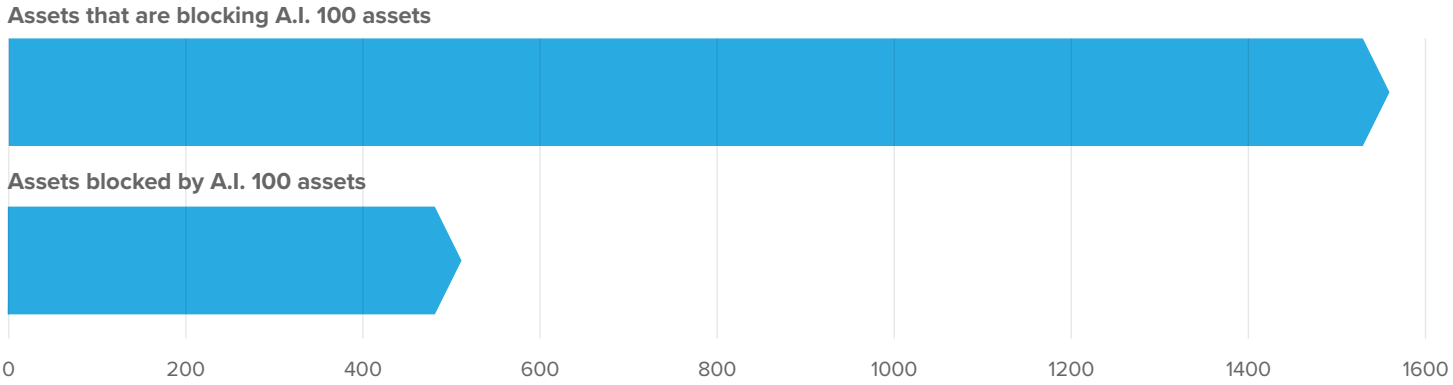
International Business Machines
Shape Security
Qualcomm
Google
Microsoft Technology Licensing
Brain Corporation
Samsung Electronics
Intel
Narrative Science
Anki

= *an A.I. 100 company*

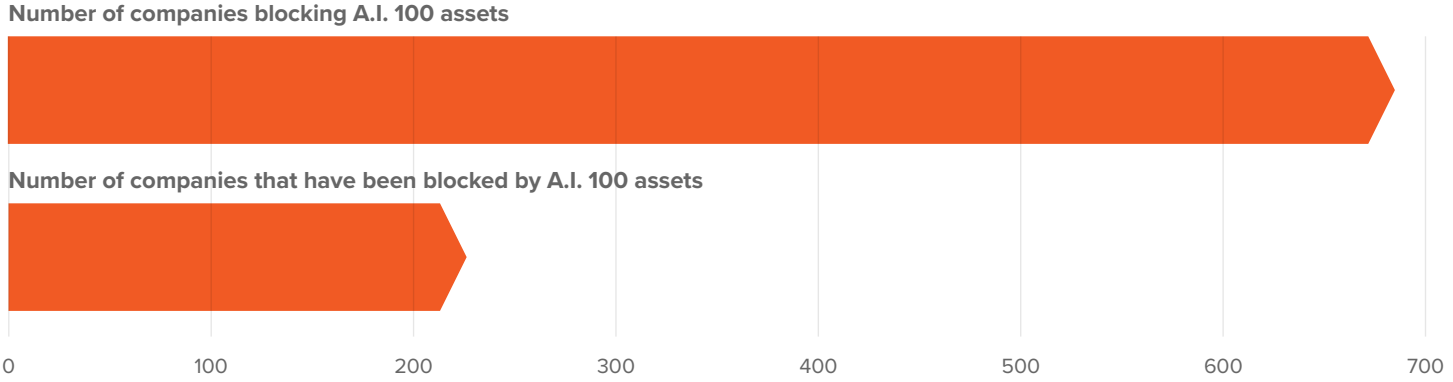
Top blocking A.I. 100 assets

Asset #	Company	Blocking count
8918881	Appthority	16
8819772	Appthority	15
8713684	Appthority	13
20120265573	CrowdFlower	12
8353737	Anki	11
8854433	Aquifi	11
8554605	CrowdFlower	11
7076533	InsideSales.com	10
8355903	Narrative Science	10
8972263	SoundHound	9

Blocking assets



Blocking companies



Protecting inventions is vital for success

Protecting inventions is of the utmost importance in A.I., so it was surprising to see such a pronounced I.P. protection gap – the space between the amount of invention and the number of patents. These gaps are often a result of companies not understanding the value of patents, or thinking they are unable to sacrifice the cost, hassle, and time required to obtain them.

Invention protection strategies are usually determined by the top of an organization (board of directors, CEO). Successful companies such as IBM, Google, and Microsoft make it a key factor in their overall strategy. These companies seek thousands of patents each year (hundreds in A.I.), making it especially important for small and mid-size A.I. companies to protect their inventions from these tech giants, as well as from their peers.

Companies often obtain patents to simply protect their inventions, but patents also provide a significant lift for companies working toward an IPO or an acquisition. In fact, patents increase the likelihood of an exit by IPO by 153 percent and increase the likelihood of an exit by acquisition by 83 percent.

84% of market value is represented by a company's intangible assets, such as I.P. (Ocean Tomo)

About TurboPatent

TurboPatent provides Automated Invention Protection services purpose-built for mid-tier companies that need to obtain patents but don't think they have the time, capital, and patience to do so. TurboPatent's U.S.-based patent engineers help companies source patentable ideas, then use proprietary tools to draft and file high-quality patents that receive half as many office actions as industry averages. This means clients receive higher quality patents that provide better protection in less time and for less cost.

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