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The effect of design space on patent grant and recognition for designs

Dr. Yongqiang Qi, Partner and Patent Attorney at Corner Stone, examines the latest judicial interpretation and what it means for design.

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LOT Network: why the largest portfolio in the world reduces risk from Patent Assertion Entities

Ken Seddon, CEO of LOT Network, Nigel Swycher, CEO of Cipher, and Kent Richardson, Partner at Richardson Oliver Law Group, provide an overview into the impact PAE's can have and how LOT Network can help.

LOT Network was formed in 2014 as the corporate solution to the patent assertion entity (PAE) issue. In six years, LOT has grown exponentially with over 425 companies joining in 2020 alone and now counts over 1,000 members in its community. All LOT Network members sign the exact same agreement that

preserves the traditional uses of patents, yet grants a license to the other members if, and only if, one of their patent assets ever falls into the hands of a PAE. Since formation, the aggregated portfolio captured under the LOT Agreement has grown to over 2.7 million active patent assets. As a result, LOT Network members have become immunized to the world's largest high-tech patent portfolio should any of those assets ever be transferred to a PAE.

While the growth of LOT Network is unprecedented, so too is the economic impact of the global pandemic. Covid-19 has triggered a recession that will likely increase the number of patents available for purchase by PAEs which in turn will inevitably lead to more litigation. The convergence of technology has only increased the total addressable market (TAM) for PAEs, and with the larger number of assets that are on the market for sale, PAEs are confident they can acquire assets and still achieve a reasonable ROI on their investment through litigation and licensing even if they acquire assets from LOT Network members.

Résumés

Ken Seddon, CEO of LOT Network

Previously, in his more than 20 years of experience managing all areas of intellectual property, Ken was with some of the largest patent holders in the world including Apple, Micron, Motorola, Intel, and ARM. Ken holds a BS in Computer Engineering from the Georgia Institute of Technology, a master's degree in Solid State Device Physics and a Juris Doctorate from Arizona State University.

Nigel Swycher, CEO and Co-founder of Cipher

Prior to joining Cipher, Nigel served as an IP lawyer with Slaughter and May of London for 20 years. Throughout his career Nigel has focused on the creation, defense, and exploitation of IP assets, and helping companies, their advisers and investors understand the importance of intangible assets. Nigel is a director of OROPO (the Open Register of Patent Ownership) and is recognized as an expert by the IAM Strategy 300.

Kent Richardson, Partner at Richardson Oliver Law Group

Kent counsels' clients on a variety of patent and business matters including patent buying, selling, licensing, valuation, prosecution, and operations. Kent's patent licensing and marketing experiences have resulted in more than \$600M of patent license bookings. Kent has served as an expert witness on patent monetization and licensing practices in cases in England and the United States. He holds a JD and a BSc in Computer Engineering from the University of Alberta, Canada.

1. Patent Assertion Entity Risk Understanding PAEs

Patent Assertion Entities (PAEs) are companies whose business model is to acquire patents and assert them against companies that sell products. By one estimate, PAEs are responsible for more than 90% of US high-tech patent litigation. Operating companies spend billions each year litigating and settling with such companies.

For years now, there have been attempts to address this problem through both judicial and

legislative patent reform. This includes legislative intervention with the enactment of the American Invents Act (AIA), and the implementation of *inter partes* review (IPRs). Efforts even included attempts to discredit the PAE business model by referring to them with the pejorative term "patent trolls".

While some of this has made a difference, the problem has not gone away. PAEs continue to be a real threat globally. In 2019, PAEs asserted over 1,400 patents in over 2,000 litigations worldwide. This includes PAE litigation in China and Europe (with a particular focus on Germany).

The painful irony of the corporate frustration with PAEs is that this is a problem of substantially their own making. PAEs rarely originate the patents that they use in their litigation campaigns. They acquire their patents from the very entities who complain about the problem – operating companies.

PAE acquisition strategies

As reported in the recent Richardson Oliver Law Group study for the first six months of 2020, it is resoundingly and increasingly corporate sellers that are supplying PAEs; over 70% of the 2,100 assets were supplied by operating companies. Chart 1 shows what percentage of the patents bought by PAEs came from which source. Although the volume for the first six months of 2020 was unusually high, operating companies generally supply the lion's share of patents on the secondary market, but in particular, they are the largest supplier to PAEs. Each year, corporations supply between 500 and 1,500 patents to PAEs through this channel.

Over the past six years, PAEs have bought 7,000 patents from operating companies this way. This may seem like a drop in the bucket. But the story does not end there. Once PAEs buy



Ken Seddon



Nigel Swycher



Kent Richardson

patents from an operating company, they tend to buy more patents; Richardson Oliver's analysis shows that PAEs continue to return to the same seller again and again once they have made the first purchase. Often these subsequent patent purchases are made privately - meaning that even if you had wanted to bid on them, the opportunity did not exist.

Richardson Oliver Law Group tracks patent sales and particularly focuses on patents on the quasi-public patent market – these are typically patents sold by patent brokers and repeat direct sellers. Every year, about 10-20K patent assets enter the market this way.

Whether used for patent licensing, defensive strategy through counter-assertion, or some other purpose, these patents have a much higher chance of being "used". PAEs continue to acquire assets from operating companies and expect to make a reasonable return on their investment by asserting them against operating companies.

Chart 2 shows how PAE purchases have increased over time. In the first half of 2020, PAE purchases jumped from below 50% of the purchases to almost 70%. Richardson Oliver believes that the increase is mostly due to corporate buying pulling back, and PAEs stepping forward. Whatever the cause, this is disturbing data for corporate counsel.

Understanding LOT Network

Since operating companies are the ones who are ultimately causing the PAE problem by selling their assets to PAEs, LOT Network was formed as a community of companies who agree to grant each other a non-exclusive, conditional license if any of their patent assets were ever transferred to a PAE. LOT members are free at all times to continue to use their

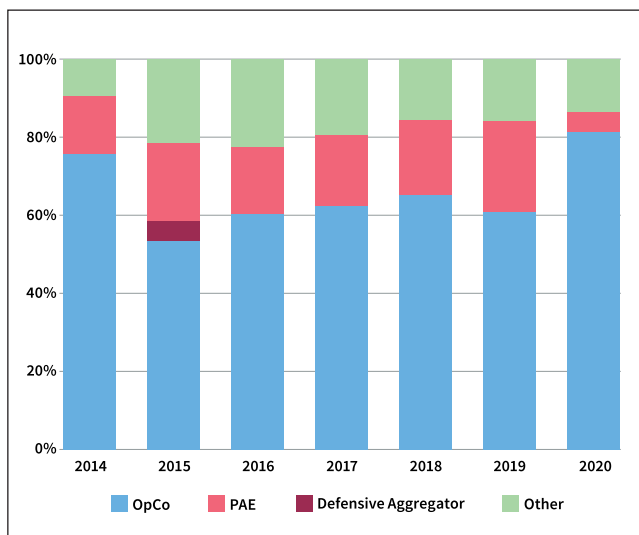


Chart 1 | Who supplies PAEs with patents

Source: Richardson Oliver Law Group

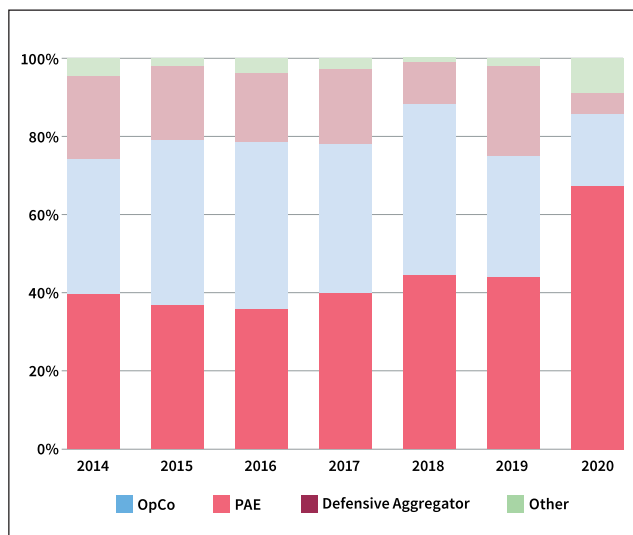


Chart 2 | Percentage of patents bought by PAEs

Source: Richardson Oliver Law Group

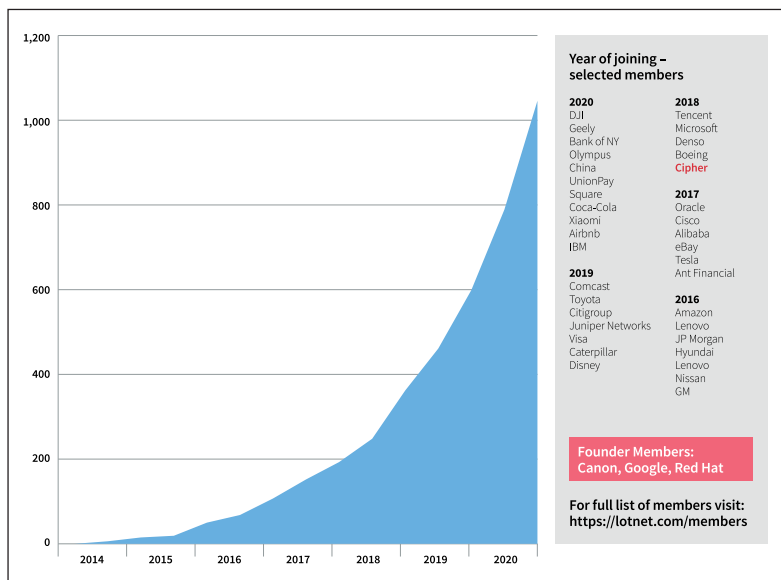


Chart 3 | LOT Network – Membership growth over time

Source: LOT Network

patent assets in any way they see fit. In effect, LOT Network members have addressed the root cause of the PAE issue and immunized themselves from the risk of PAEs, while at the same time, preserving all other uses of their patents.

It's a reasonable question to ask whether LOT Network members are free to sell to PAEs and the answer is very definitely yes. Richardson Oliver has conducted this analysis and verified that over 1,600 US patents now owned by PAEs were formerly owned by LOT members. In many instances, the patents passed through the hands of more than one entity before ending up in the hands of a PAE. The impact of being a member is that those in the community receive a free license, but those not in LOT Network may be at risk of being sued.

In 2019, PAEs asserted over 1,400 patents in over 2,000 litigations worldwide.

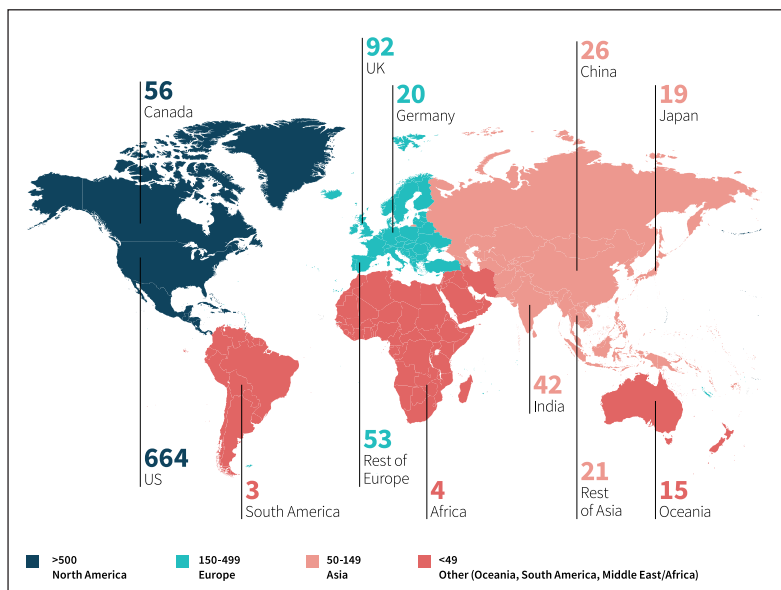


Chart 4 | LOT Network – Members by geography

Source: LOT Network

2. LOT Network today

LOT Network has grown its membership to over 1,000 members (October 2020) that are headquartered in over 36 different countries.

LOT Network members

Chart 3 plots the growth of membership over this period, and current rate of exponential growth. Those members collectively own over 2.7 million patent assets worldwide assets protected in 55 different countries. Chart 4 depicts the LOT Network membership by geography.

LOT Network is simply self-defining a community of companies who are voluntarily deciding in advance that they do not want to be the ones who are unlicensed when the assets are transferred to a PAE. Members gain value by sharing their rights in return for other rights which they value. They are not disposing of value or devaluing, but rather gaining value. Ultimately that is why LOT has grown as fast as it has.

3. The LOT Network Portfolio

With its rapid growth in membership, LOT Network has aggregated rights to the largest patent portfolio in the world. There are now over 2,780,606 active worldwide assets subject to the LOT Agreement. This includes all active patents and applications owned by a member during their membership – including patents that have been transferred to a third party by way of M&A, assignment or any other transaction. Patents that have expired or applications that have been abandoned or rejected are not included in this number. In the following sections, the aggregate of these patents and applications are referred to as the LOT Network Portfolio.

The diversity of LOT Network members means that the LOT Network Portfolio offers protection for all companies, whatever size they are, the sector in which they operate or their geographic location. It is however challenging to keep track of a portfolio of this size. For this, LOT Network relies on Cipher, a leading provider of strategic patent intelligence. In the sections that follow, Cipher has analyzed the LOT Network Portfolio by both sector and technology. We start with an overview.

LOT Network Portfolio – an overview

To give you a sense of scale, there are over 24m granted patents in force globally, with China in the lead by a considerable margin. There are approximately 3.3m granted US patents and over 400,000 of these are in the LOT Network Portfolio. That represents over 12% of all US granted patents.

The LOT Network Portfolio has global coverage, with patent assets in 55 jurisdictions. The portfolio has almost equal protection across all regions. Chart 5 analyses the LOT Network

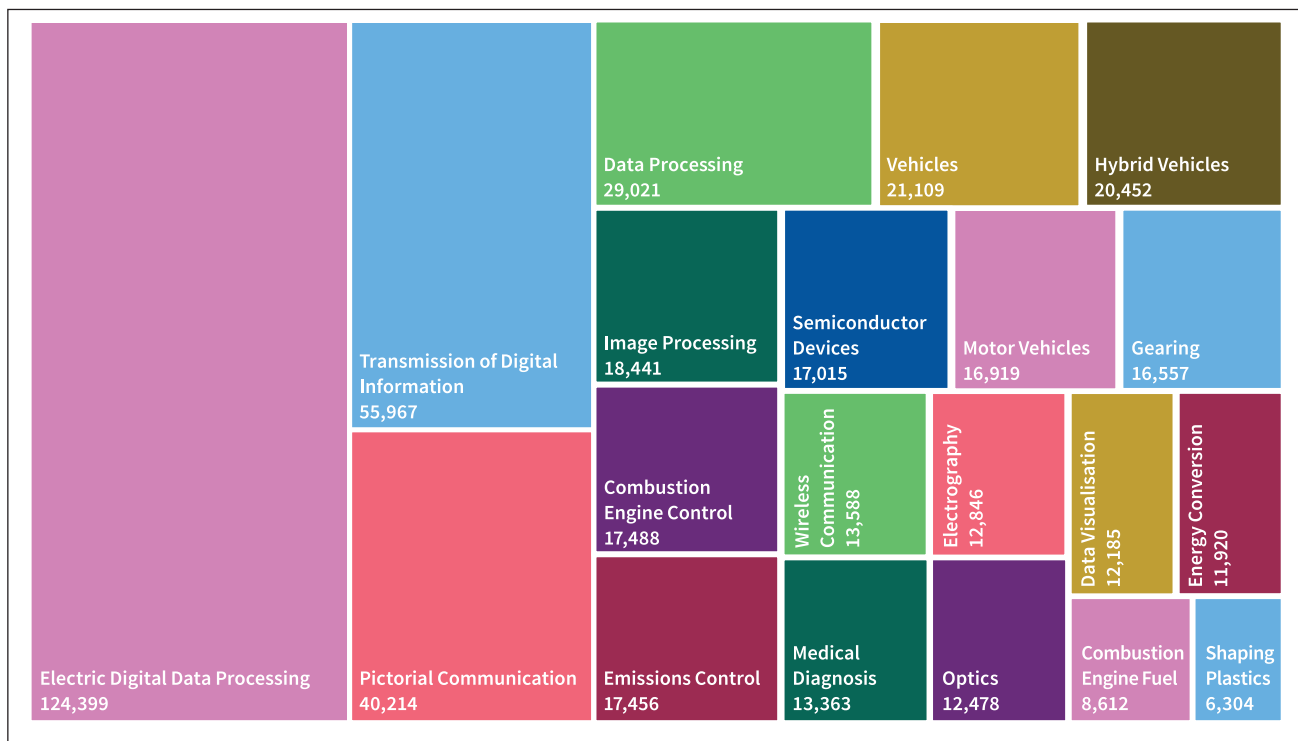


Chart 5 | LOT Network Portfolio by region

Source: Ciper, Active patent families by region

Portfolio by IP5 region (IP5 is a forum of the five largest Patent Offices in the world, namely US, Japan, China, EPO and Korea). The LOT Network Portfolio has the greatest coverage in the US, closely followed by China (24%) and Japan (23%).

The LOT Network Portfolio covers a very broad range of technologies, and one way to appreciate this is to analyse the LOT Network Portfolio by the CPC classification system widely used by all major patent offices. Chart 10 represents the top 20 areas within the LOT Network Portfolio.

As the LOT Network Portfolio encompasses thousands of CPC codes, it may be difficult for a company to fully appreciate the value received when joining LOT Network. Using advances in AI and machine learning, Ciper is able to classify the LOT Network Portfolio in an objective and repeatable way – a task which until quite recently would be impractical to undertake manually.

LOT Network Portfolio by Sector

LOT Network members come from a broad range of sectors and the LOT Network Portfolio is analyzed below by reference to a number of taxonomies developed by Ciper for companies engaged in the automotive, financial services and industrial automation sectors. Also included is an analysis by reference to the AST Product taxonomy.

A. Automotive

LOT Network’s membership includes all 7 of the

“**LOT Network was formed as a community of companies who agree to grant each other a non-exclusive, conditional license.**”

world’s largest automotive OEMs. It is therefore unsurprising that over 38% of the LOT Network Portfolio relates to the automotive sector, with large parts of this relating to technologies fundamental to the future of mobility including

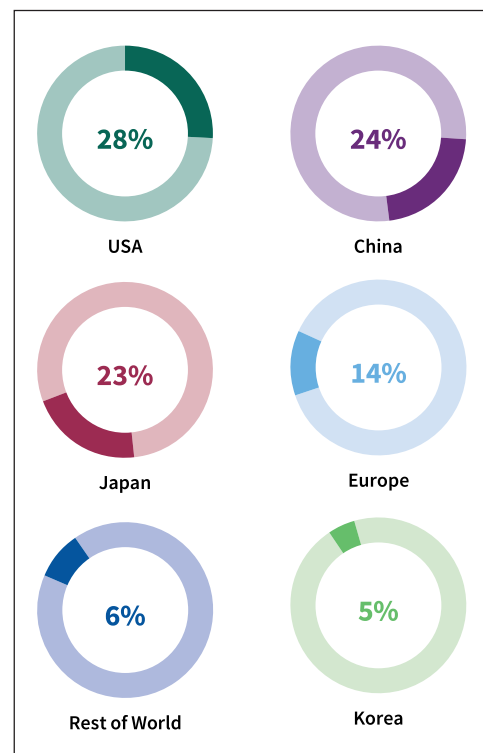


Chart 6 | LOT Network Portfolio – Top 20 technologies

Source: Ciper, patent families analysis by dominant CPC code definition showing number of patent families

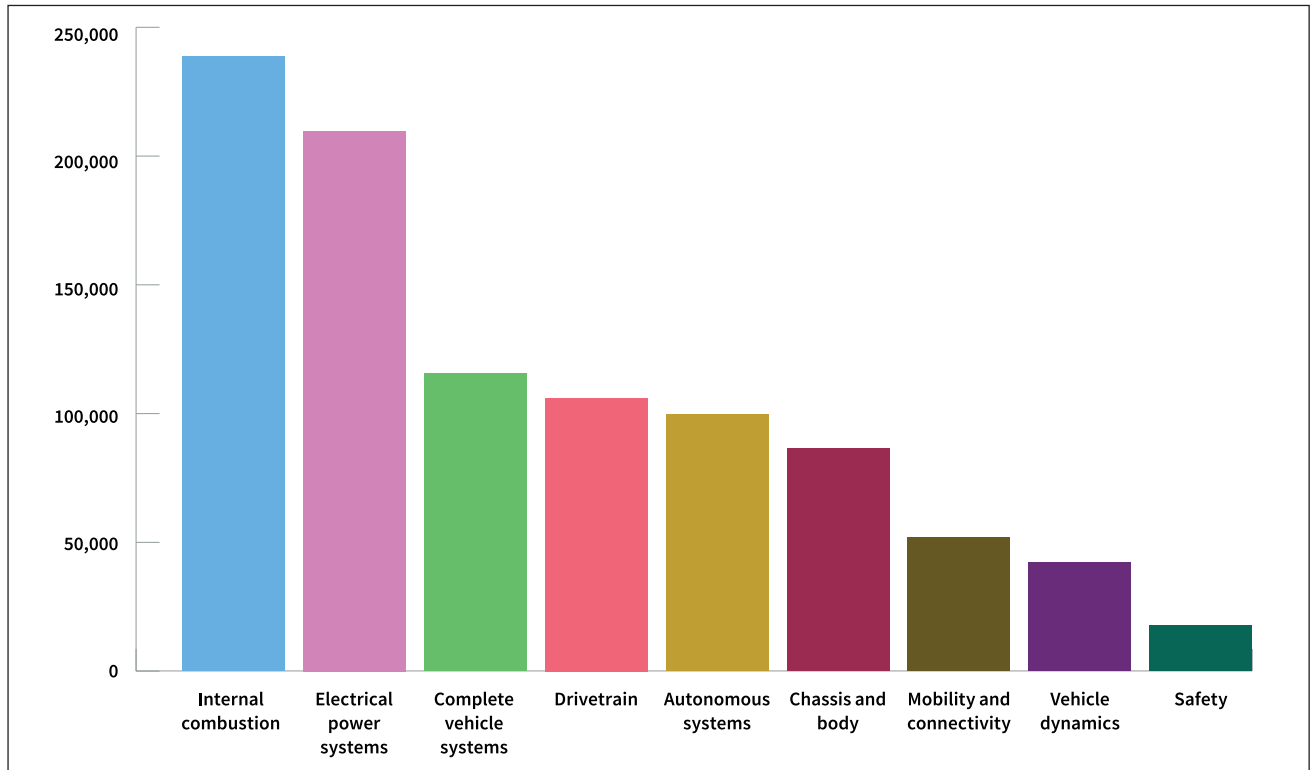


Chart 7: LOT Network Portfolio – Automotive Technologies Overview

Source: Ciper, Automotive Taxonomy, by Grants and Applications

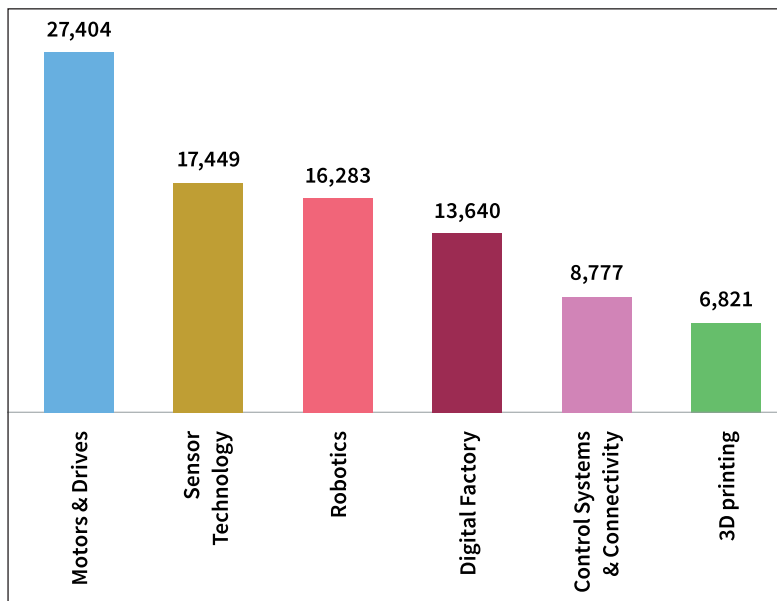


Chart 8 | LOT Network Portfolio – Industry 4.0 Technologies Overview

Source: Ciper, Industrial Automation Taxonomy, by Grants and Applications, July 2020

electrification, autonomy and mobility. Chart 7 classifies these patents into broad automotive technology areas.

B. Financial Services

The risk of patent litigation to financial institutions has grown significantly in recent times. LOT Network has been successful in attracting high profile patent owners concerned by the rise of PAE activity in this area including

JP Morgan Chase, Citibank, TD Bank, US Bank, Wells Fargo, Visa, Alibaba, Ant Financial, China UnionPay, American Express, FIS, Equifax, AON, Transamerica, Zelle, BNY Mellon, Square, Vanguard, Intuit, BMO, JD Finance, BlackRock, Royal Bank of Canada, and many fintech startups and unicorns.

C. Industrial Automation

Similarly, PAEs have started to focus on technologies at the heart of Industry 4.0, the Fourth Industrial revolution. Over 90,000 assets within the LOT Network Portfolio are relevant to technologies such as 3D Printing, Digital Factory, Robotics, and Sensors that are critical to companies active in this area (Chart 8).

D. AST Product Taxonomy

LOT Network works closely with AST (Allied Security Trust), most recently evidenced by the announcement that LOT Network members will be offered preferential licensing of assets which AST proposes to sell on the open market. Thanks to a collaboration between AST and Ciper, it is also possible to analyze the LOT Network Portfolio through the lens of the AST Product taxonomy – an industry accepted view across a broad range of patented technologies (Chart 9).

This illustrates the diversity of the LOT Network Portfolio and evidences the relevance of the LOT Network Portfolio across sectors including Semiconductors, MedTech and Consumer Electronics.

The reality is that with over 2.7m patent assets, LOT Network is relevant to virtually every

401,618 Software	106,182 Services	63,074 Semiconductor	48,743 Display	15,732 Memory
177,561 Components	105,855 Consumer Electronics	60,359 Computer Systems and Components	43,261 Storage Systems and Equipment	14,677 Optical Components
153,314 Application Specific ICs	63,657 Communication Equipment	52,765 Wireless	38,260 Micro-components	10,936 Lighting
124,397 Medical and Imaging				

Chart 9 | Overview using AST Product taxonomy

Source: CIPHER, CIPHER n/d powered by AST Taxonomy (top level), aggregate of granted patents and applications, July 2020

company with any level of interest in technology or innovation more generally.

4. What does the future hold?

PAEs have been part of the IP landscape for over 30 years and given the hundreds of millions of dollars being invested to acquire assets or to support assertion campaigns through litigation finance, it is clear they are here to stay.

What is bizarre about the current situation is the near universal criticism of the billions of dollars spent on the defense and resolution of PAE disputes, combined with the on-going sale of patents to PAEs by operating companies. LOT Network was formed to allow operating companies to address this problem, while preserving the traditional uses of patents.

For most, joining LOT Network has been an easy and obvious decision even before IBM and the hundreds of other companies joined LOT Network this year. Using the real-world example of IBM's well publicized patent sales to WiLAN provides an easy way to calculate the return on investment, particularly when measured in light of the number of companies who are now immunized to those assets.

At the same time, LOT Network is a non-profit, and the license protection offered can be obtained for zero or a trivial amount. Companies with less than \$25m in annual revenue can join for free, while companies with over \$1B in annual revenue pay just \$20k.

Today's reality is that PAE litigation is prevalent, and PAEs are increasing their acquisition activity in the patent transactions market. PAEs are leveraging the convergence of technology and venturing into new sectors and new geographies to maximise their economic return. The current economic downturn will likely only exacerbate this reality.

In response, LOT Network is a self-defining group of patent holders who want to preserve the value and uses of their patents while enjoying the herd immunity that comes from 2.7m patent assets in the LOT Network Portfolio. As each new member joins the LOT Network community, the pool of companies that can be sued by a PAE using a LOT Network Portfolio patent shrinks. Thus, for those without a license, the risk that they may be sued grows.

About us

About LOT Network

(<https://lotnet.com/>):

LOT Network is an international community of the world's leading high-tech companies committed to protecting its members from costly patent troll litigation. LOT Network currently protects more than 1,000 members in 36 countries from litigation from over 2.7 million worldwide patents and counting. Members include market leaders such as IBM, Toyota, Visa, Canon, Google, Tesla, Cisco, Amazon, Microsoft, Alibaba, and Salesforce, as well as innovative companies across industries. Visit www.lotnet.com to learn more or download LOT Network's agreement.

About Cipher

(<https://cipher.ai/>):

Cipher's mission is to deliver patent intelligence to the teams responsible for strategic decisions to enable evidence-based decisions. We use AI and machine learning to improve accuracy and efficiency, while at the same time reducing cost and promoting the importance of intangible assets both internally and externally.

About Richardson Oliver Law Group

(<https://www.richardsonoliver.com/>):

As lawyers with business backgrounds and engineering minds, we understand your business and product landscape. We help you appreciate the implications of your IP decisions and help guide your company through unique IP challenges like buying and selling patents, developing licensing programs, defending against patent assertions, and creating a value-driven IP portfolio. We give direction to cutting-edge businesses that share our passion for new ideas, creative problem solving and forward motion.