In First Half of 2021, 63% of U.S. Patents, 48.9% at EPO and 40.1% in China Were Software-Related

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Print Article

"Today, the digital transformation where software is 'eating the world' is undeniable. Here are the latest facts and figures from the USA, Europe and China."

As an update to my posts from [2017](#), [2019](#), [2020](#), and [March 2021](#), it has now been 86 months since the U.S. Supreme Court's 2014 *Alice Corp. v. CLS Bank* decision. Yet the debate still rages over when a software (or computer-implemented) claim is patentable versus being simply an abstract idea "free to all men and reserved exclusively to none" (as eloquently phrased over 73 years ago by then-Supreme Court Justice Douglas in *Funk Bros. Seed Co. v. Kalo Inoculant Co*.).

Further, it has been 10 years since famed venture capitalist Marc Andreessen wrote the influential and often-quoted op-ed piece in the *Wall Street Journal* titled "[Why Software Is Eating the World](#)." Today, the digital transformation where software is "eating the world" is undeniable. Let's look at some facts and figures from the USA, Europe and China.

It's All in the Numbers

In 2020, the global M&A activity in the software and Internet services space reached USD 158 billion, representing over 2,790 deals [[IMAA](#)]. The United States is the largest technology market in the world, representing 33% of the total estimated IT spend for 2021 (or approximately USD 1.6 trillion), followed by Europe at 19% and China at 14% [[CompTIA](#)].

The European software market (including business productivity and security software) is expected to amount to approximately USD 127.4 billion in 2021 [Statista]. The EU software industry delivers EUR 910 billion (USD 1.07 trillion) in total value-added GDP (over 7% of the EU28 total GDP) [BSA]. As of 2018, the European software industry has been growing five times faster than the rest of the EU economy [Dataconomy].

In 2020, Chinese companies' software-related business revenue was RMB 816.16 trillion (about USD 1.26 trillion), an increase of 13.3% compared to 2019 [Ministry of Industry and Information Technology of People's Republic of China]. Among them, revenue from software products was RMB 227.58 trillion, revenue from IT services was RMB 498.68 trillion, revenue from information security was RMB 149.8 billion, and revenue from embedded system software was RMB 749.2 billion [Ministry of Industry and Information Technology of People's Republic of China]. In the first half of 2021, the software business in China continues to boom, experiencing a 23.1% increase in revenue when compared to the first half of 2020 [Ministry of Industry and Information Technology of People's Republic of China]. In fact, the employment prospect of computer and information science majors in China is among the nation's top three with an approximately monthly income of RMB 6858 in 2019 [China Central Radio and Television] and RMB 7396 in 2020 [Sohu News].

So, given the above, we sought to determine what percentage of U.S. Patent and Trademark Office (USPTO), European Patent Office (EPO)-, and Chinese Patent Office (CNIPA)-issued patents are "software-related"?

To define what patents are "software-related," we utilized the same methodology employed by the United States Government Accountability Office in a 2013 report to Congress. That report relied on certain United States Patent Classification (USPC) classes and subclasses of applications most likely to include software-related claims as selected by expert advisors to the USPTO. Now, with the assistance of IP services firm Clairvolex (and after converting from the USPC system to the Cooperative Patent Classification (CPC) system), data was pulled from the PatSeer Global Patent Database. The results?
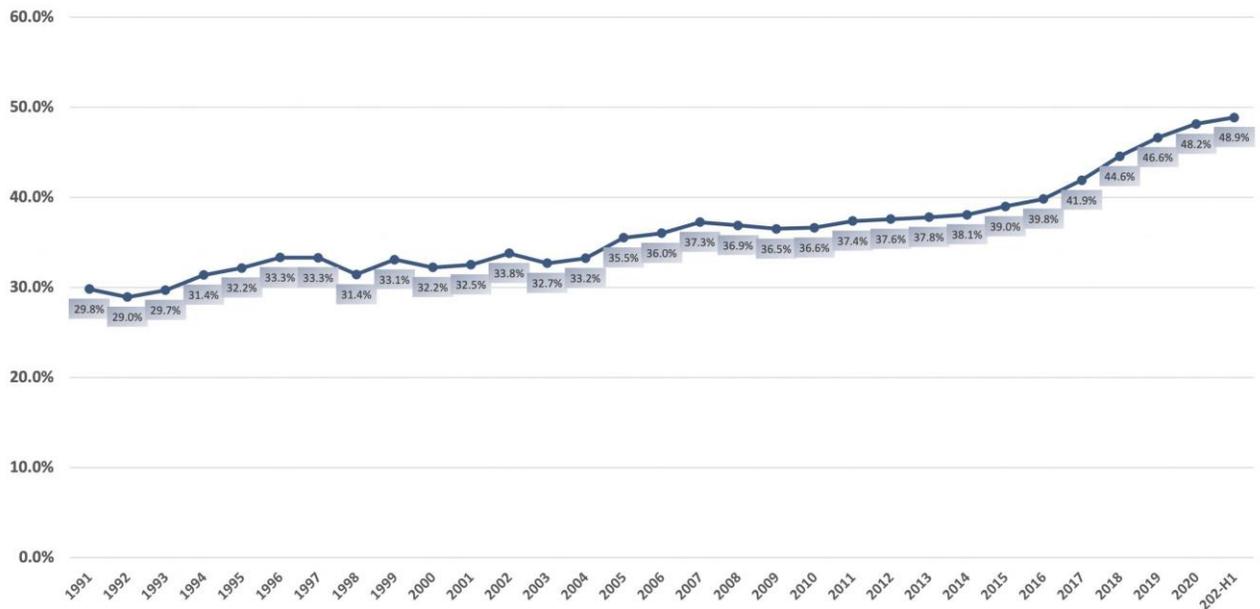
In the first half of 2021:

- 63% of issued U.S utility patents were "software-related" (on pace with 63.2% for all of 2020)

- 48.9% of granted EPO patents were "software-related" (on pace with 48.2% for all of 2020)

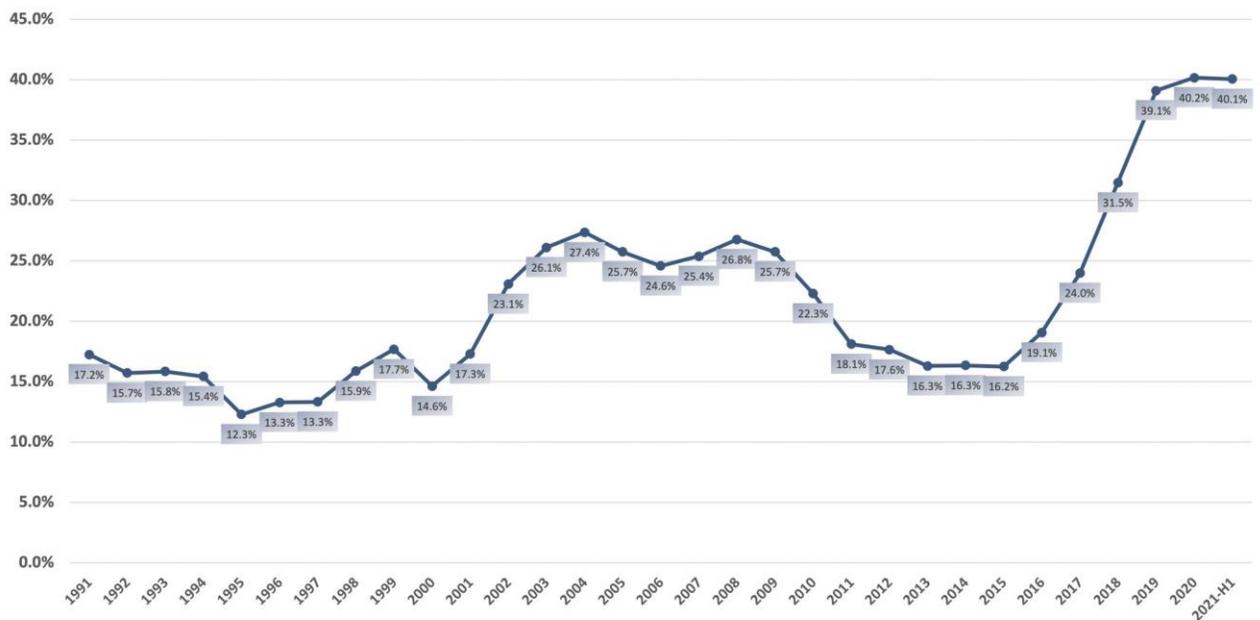- 40.1% of granted Chinese patents were "software-related" (on pace with 40.2% for all of 2020)

% Share of Software-Related <u>EPO</u> Granted Patents
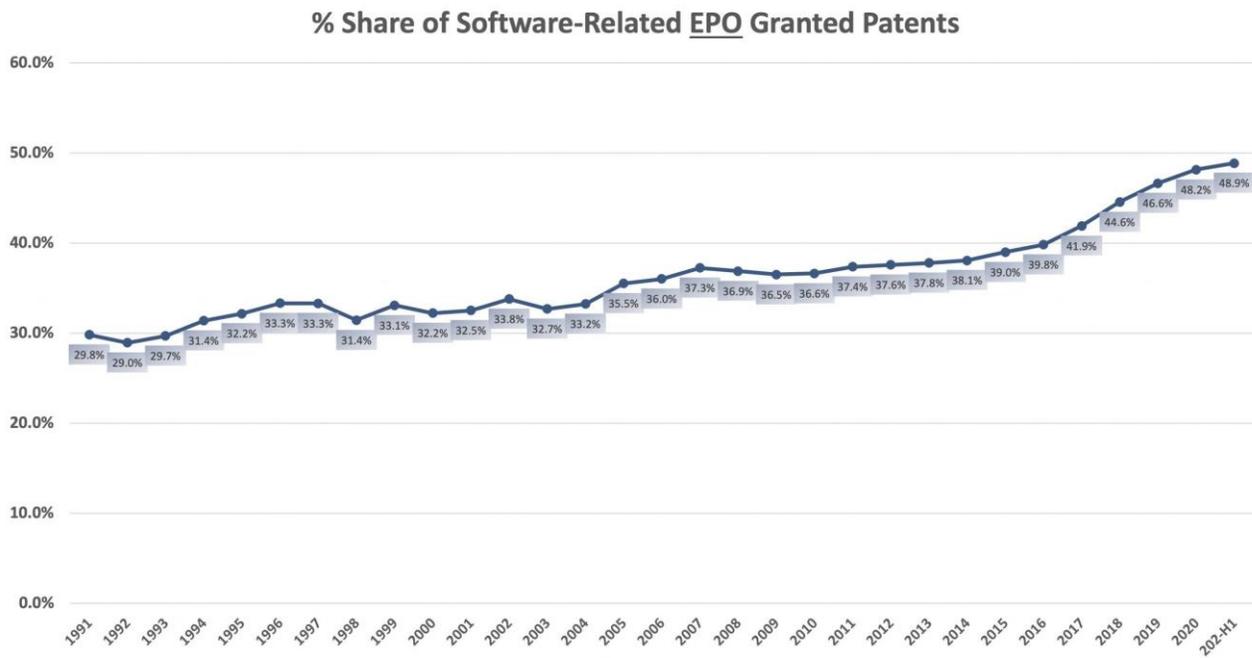
© Aug. 2021 by Raymond Millien. Data gathered courtesy of Clairvolex.com (using PatSeer database).

% Share of Software-Related <u>EPO</u> Granted Patents

29.8% 29.0% 29.7% 31.4% 32.2% 33.3% 33.3% 31.4% 33.1% 32.2% 32.5% 33.8% 32.7% 33.2% 35.5% 36.0% 37.3% 36.9% 36.5% 36.6% 37.4% 37.6% 37.8% 38.1% 39.0% 39.8% 41.9% 44.6% 46.6% 48.2% 48.9%

% Share of Software-Related <u>Chinese</u> Granted Patents

17.2% 15.7% 15.8% 15.4% 12.3% 13.3% 13.3% 15.9% 17.7% 14.6% 17.3% 23.1% 26.1% 27.4% 25.7% 24.6% 25.4% 26.8% 25.7% 22.3% 18.1% 17.6% 16.3% 16.3% 16.2% 19.1% 24.0% 31.5% 39.1% 40.2% 40.1%

Digging deeper into these numbers, we found that the top 15 software-related U.S. granted utility patent assignees for the first half of 2021 were:

Top 15 Granted Software Patent Assignees 2021-H1	
Assignee	**Count**
Samsung	4753
IBM	4490
LG	2294
Toyota	2277
Canon	1662
Huawei	1571
Intel	1550
Dell	1461
Sony	1410
Apple	1357
Microsoft Corp	1345
Taiwan Semiconductor	1330
Sumitomo	1197
Mitsubishi	1147
Amazon	1118

Still Waiting

Meanwhile, back at the U.S. patent bar, the USPTO, Federal Circuit, Supreme Court, and Congress have not cleared the *Alice* Section 101 confusion. As former – and still to be replaced – USPTO Director Andrei Iancu stated in his farewell speech at the U.S. Chamber of Commerce on January 19, 2021, "Will [we] finally resolve this issue that has plagued our [patent] system for the past decade?" We're still waiting…