

IoT: Patent Pools in Age of IoTs, 5G and NextGen Video Codecs

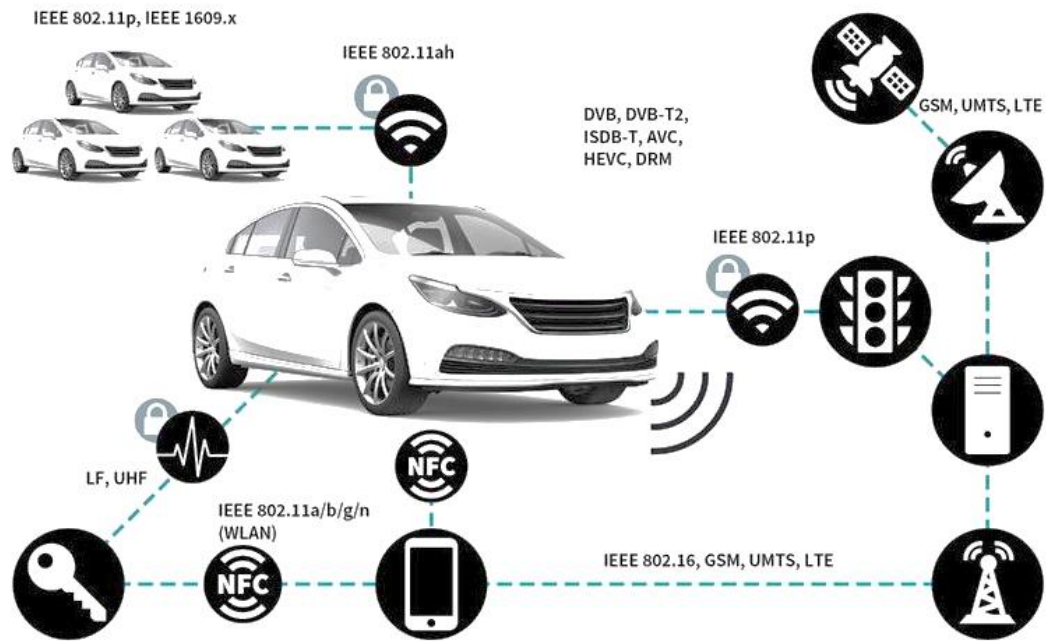
Tim Pohlmann, CEO IPlytics GmbH

IIPLA 2021 USA, LAS VEGAS, November 4th, 2021

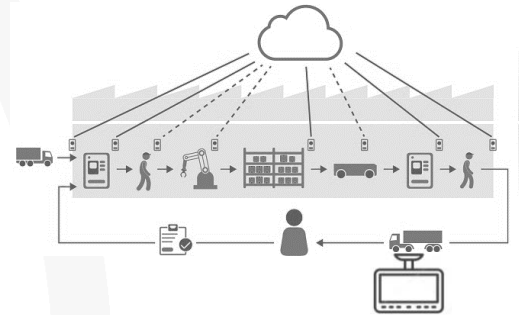
Webinar Recording: <https://youtu.be/qyvRCEIqGss>

Standards in the connected world

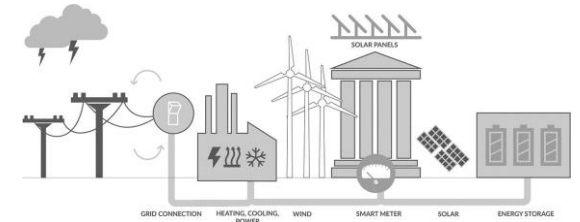
Smart Cars



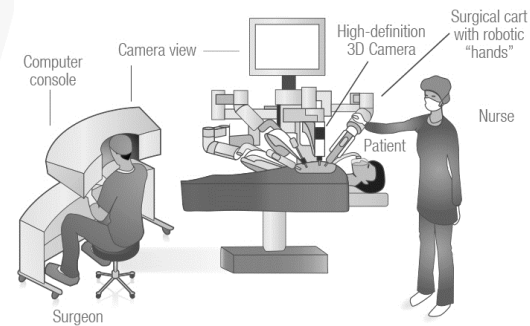
Smart Factory



Smart Energy



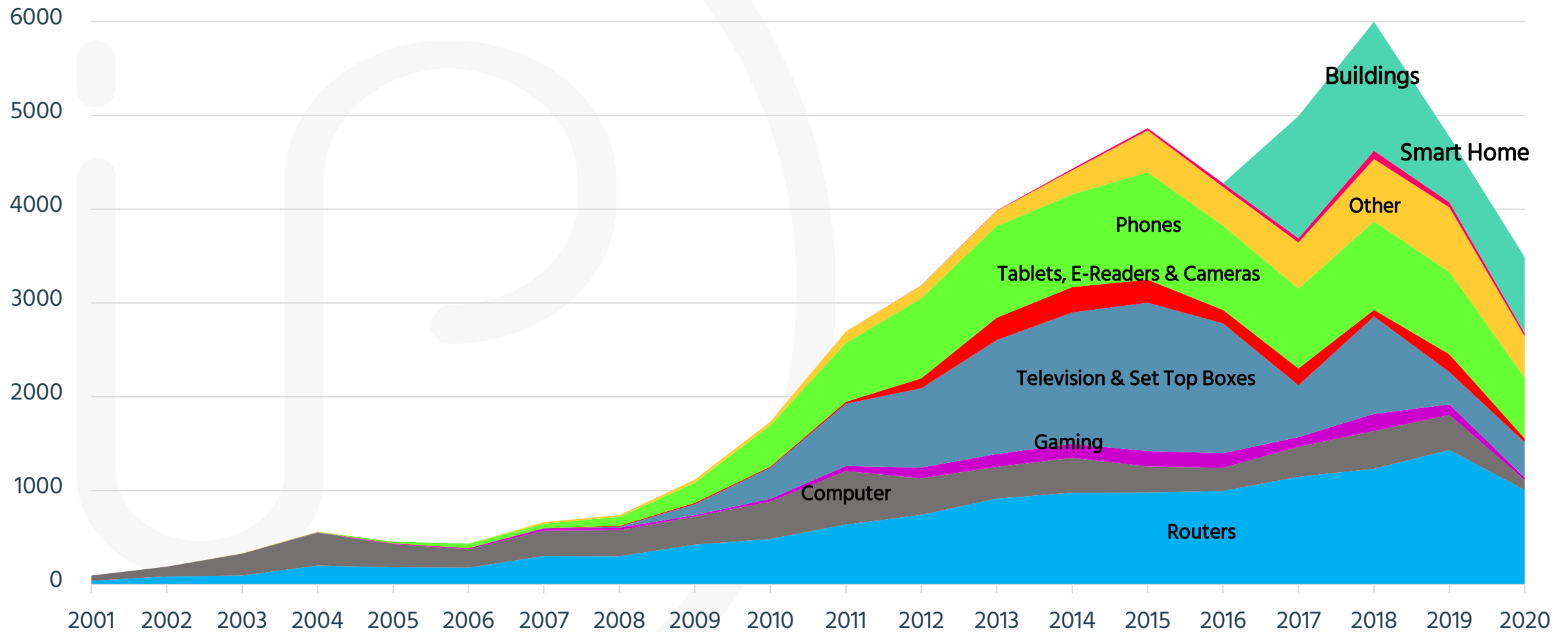
Smart Healthcare



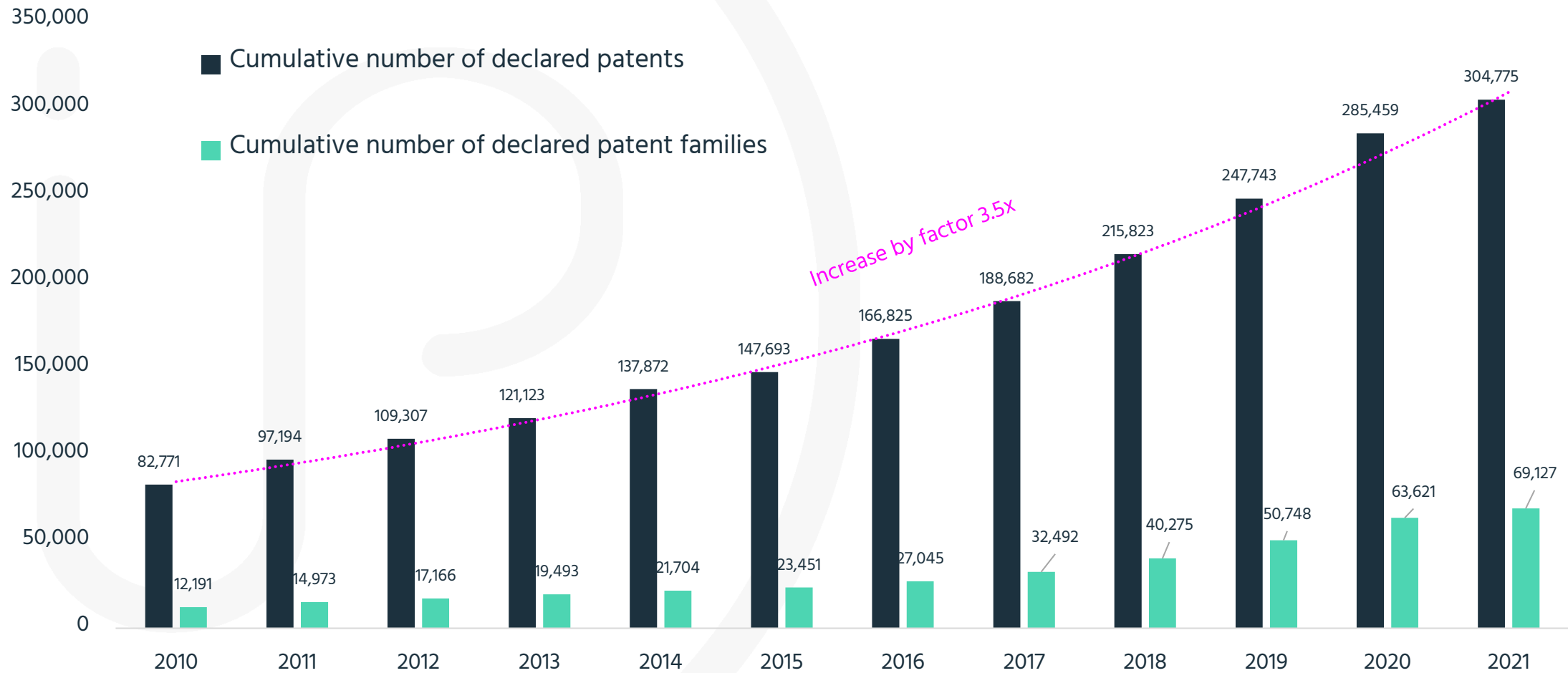
Smart Home



Wi-Fi adoption (Wi-Fi Alliance certified products)

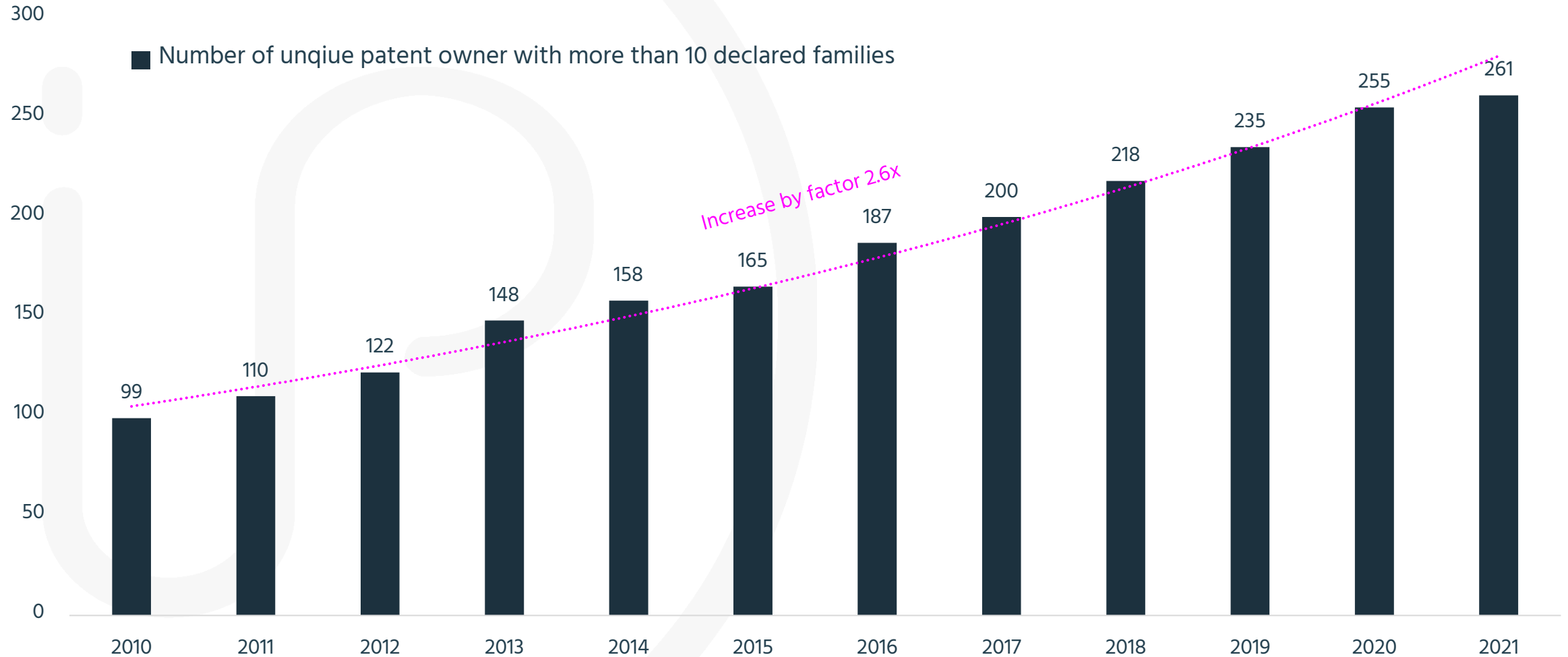


Number of declared patents over time (IPlytics 2021)



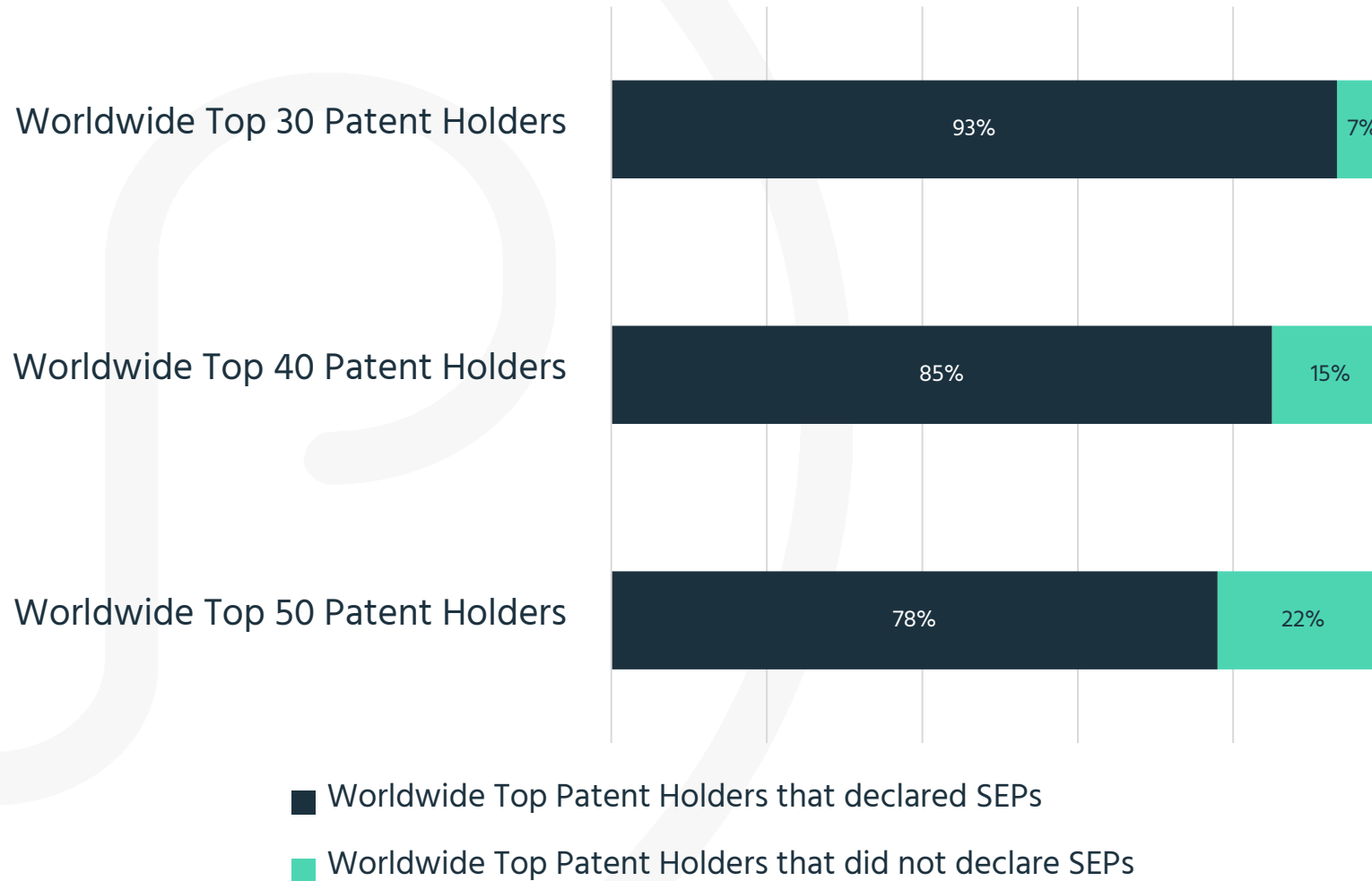
Source: <https://www.iplytics.com/report/rise-standard-essential-patents/>

Number of unique SEP holders over time (IPlytics, 2021)



Source: <https://www.iplytics.com/report/rise-standard-essential-patents/>

Share of SEP holders in top 50 (IPlytics, 2021)



Source: <https://www.iplytics.com/report/rise-standard-essential-patents/>

Standard Essential Patent Data (1978-2021)

SSO	Example Standards	Declared SEPs
ETSI	2G, 3G, 4G, 5G, NB IoT, LTE-E, ITS, C-V2X, DVB, DMR, DECT, TERA	280,000
ITU	AVC H.264, HEVC H.265, VVC H.266	15,000
ATSC	ATSC -1.0- 3.0, Over the Air Internet TV Broadcasting	9,900
ISO	RFID, MPEG 1-4, mp3	4,800
ETSI	2G, 3G, 4G, 5G	4,700
IETF	Internet Protocol Standards	1,700
IEEE	Wi-Fi 1-7, DSRC, WAVE, LAN/MAN, Bluetooth, ZigBee, FireWire, WiMAX, Ethernet	1,500
ARIB	2G, 3G, 4G, 5G	1,500
Wireless Power Con.	Wireless Charging Qi Standard	1,150
ISO/IEC	MPEG Visual	1,100
SMPTE	Motion Picture and Television	800
OMA	GSM, UMTS or CDMA2000	700
IEEE / IEC	Wi-Fi 1-7, DSRC, WAVE, LAN/MAN, Bluetooth, ZigBee, FireWire, WiMAX, Ethernet	260

Standard Essential Patent Data (1978-2021)

SSO	Example Standards	Declared SEPs
ANSI	Wi-Fi 1-7, LAN/MAN, Bluetooth, ZigBee, FireWire, WiMAX, Ethernet	210
IEC	Electric vehicle conductive charging, Industrial Networks, CQN series RF, RFID	113
ATSC	Advanced Television Systems, Digital Television Transmission over Terrestrial	81
ITU-T	Radio Transmission	44
VESA	DisplayPort	40
OASIS	XrML WSRP UOML UOML UDDI	35
Broadband Forum	Ethernet, ADSL, DSL, Optical Fiber	21
TIA	TDMA, CDMA, WCDMA	19
CEN	IST, Electronic Identification, Authentication and Trusted Services	12
SAE	Broadband PLC Communication for Plug-in Electric Vehicles, Mobile Fueling Station	7
ECMA	NFC	1

4G/5G Patent Pools –AVANCI Example



MARKETPLACE



TECHNOLOGY



POSSIBILITIES



PRICING

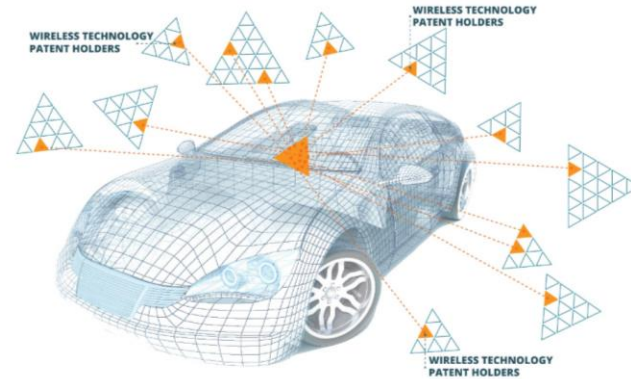


FAQ

Why Avanci?

Hundreds of companies are entering the connected world each day, with creative products finding new uses for wireless connectivity. For developers of those products, it can be difficult to know what technology rights are needed and how to get them.

From automakers to meter manufacturers – developers of IoT products have asked for an open and efficient way to access the licenses needed for the latest wireless technology.



VEHICLE PRICING

▶ eCall only	\$3/vehicle
▶ 3G (includes 2G and eCall)	\$9/vehicle
▶ 4G (includes 2G/3G and eCall)	\$15/vehicle

AVANCI Pool Member and Outsider

3G, 4G and 5G SEP owner AVANCI Member



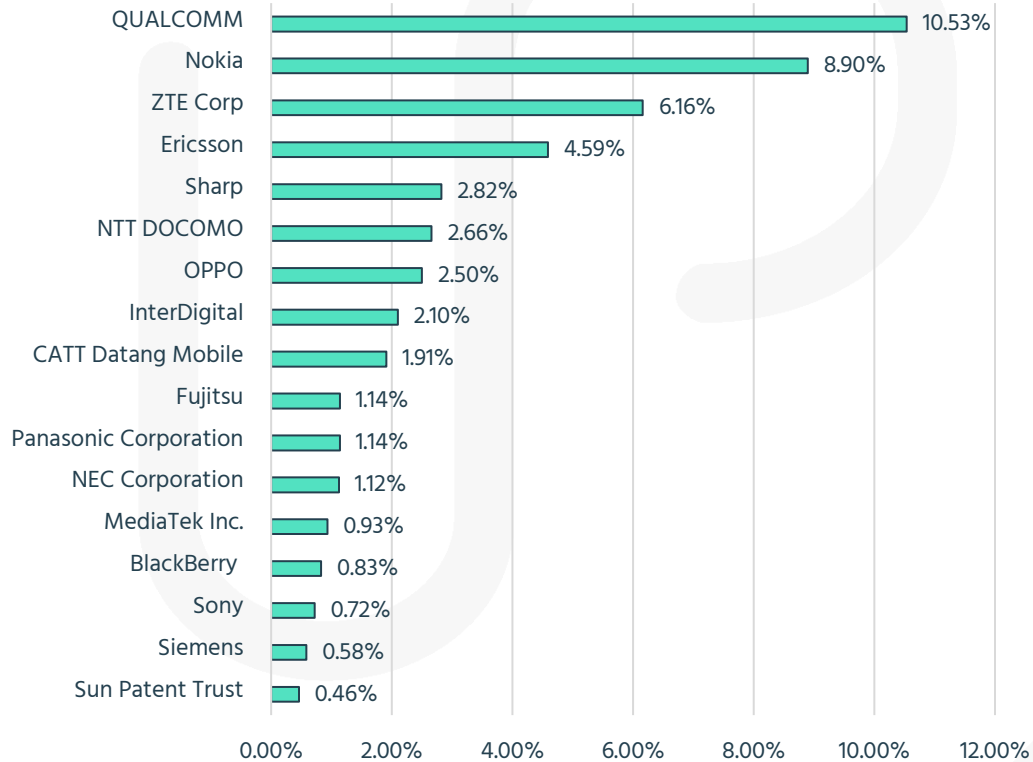
3G, 4G and 5G SEP owner AVANCI Outsider



2G, 3G, 4G 5G declared patents as to owner top 30

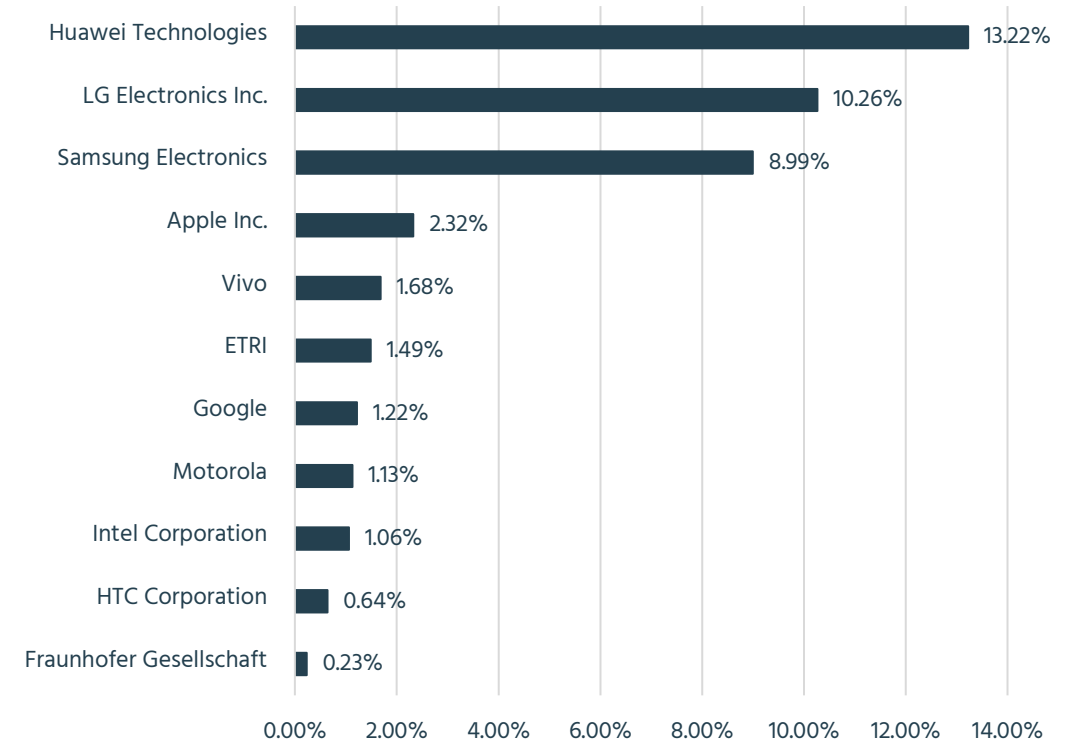
3G, 4G and 5G SEP owner AVANCI Member

2G, 3G, 4G and 5G declared SEP Family Share (active and granted)

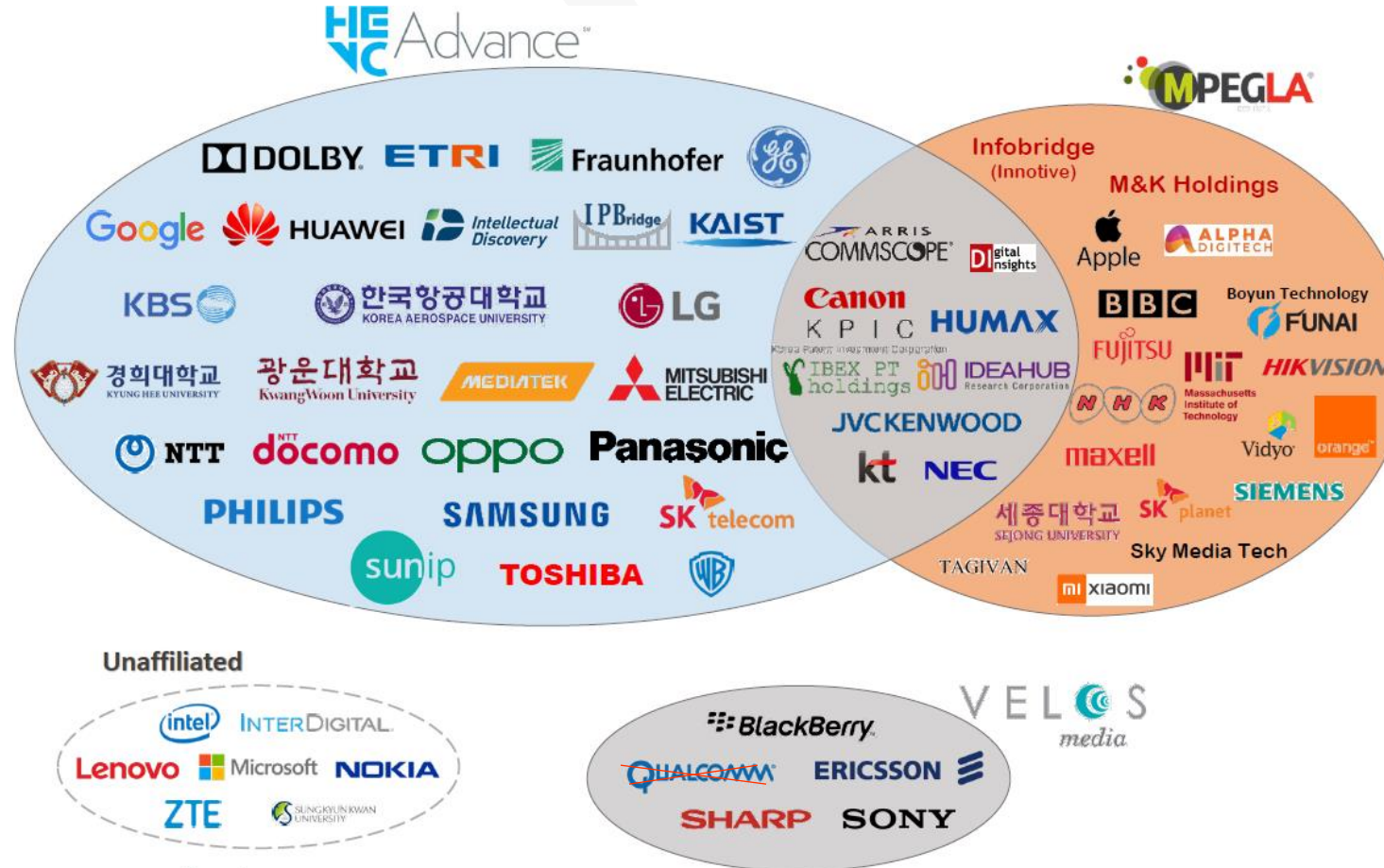


3G, 4G and 5G SEP owner AVANCI Outsider

2G, 3G, 4G and 5G declared SEP Family Share (active and granted)



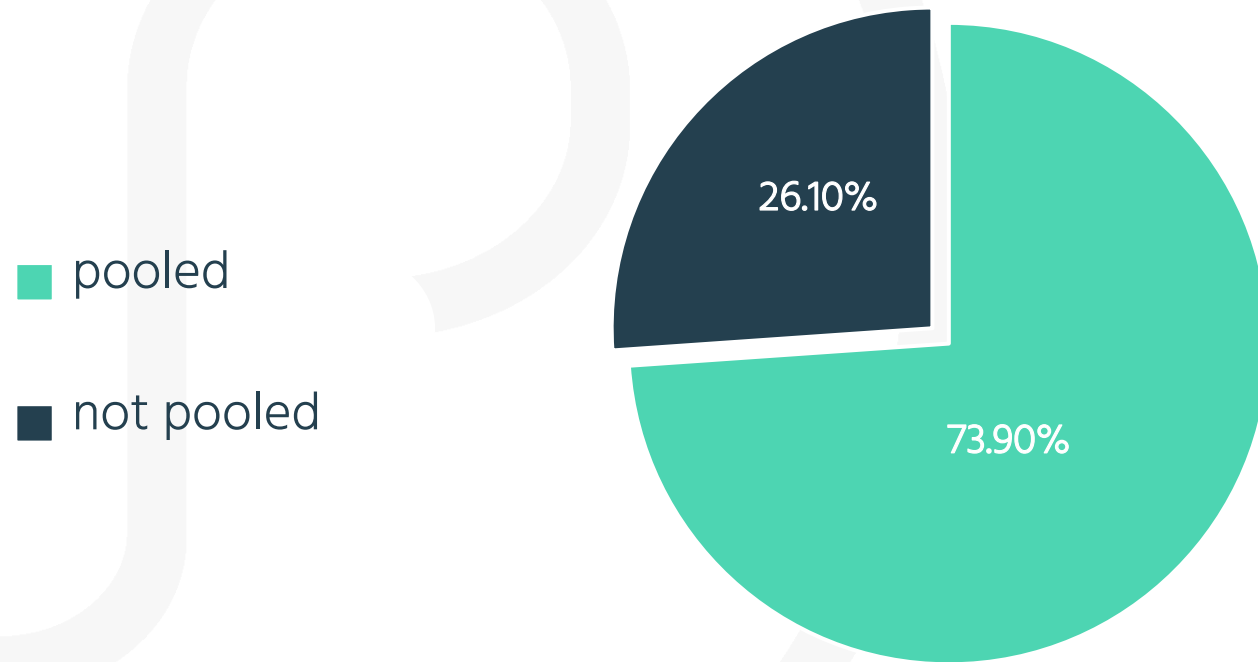
HEVC pool situation



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HEVC Patent Pool Share

HEVC pooled share based on the pool membership at HEVC Advance, MPEG LA and Velos and the number of technical standards contributions submitted at JCT-VC HEVC



VVC pool situation

MPEG LA Announces Development of VVC (Versatile Video Coding) Pool License

VVC expected to improve video compression efficiency and functionality

January 27, 2021 07:13 PM Eastern Standard Time

DENVER--(BUSINESS WIRE)--MPEG LA, LLC, the world leader in digital video patent pool licensing for nearly 25 years, announced today the development of a pool license for the next generation video coding standard known as VVC (Versatile Video Coding, also known as H.266 and MPEG-I Part 3) in order to offer the market a convenient one-stop alternative enabling VVC's wide adoption.

"MPEG LA applauds the work of leading technology innovators from around the world whose research and development investments have made VVC possible, and welcomes them to join MPEG LA's license development effort"

VVC has the potential to achieve the same level of perceptual quality as prior video codecs with up to a 50% improvement in video coding efficiency, thereby supporting 4K and 8K Ultra High Definition (UHD) and High Dynamic Range (HDR) video, telemedicine, online gaming, virtual 360° video and adaptive streaming applications.

"MPEG LA congratulates the Media Coding Industry Forum (MC-IF) and its participants for their pool fostering initiative preparing the market for a VVC pool license. MC-IF's work has been of immeasurable benefit, and MPEG LA was pleased to cooperate in that process. Building on MC-IF's work, MPEG LA is moving ahead with the next step listening to, working with and leading MC-IF participants and others to make yet another breakthrough generation of digital video compression technology widely accessible to the market under reasonable, trusted, transparent and non-discriminatory licensing conditions," said Larry Horn, President and CEO of MPEG LA.

"MPEG LA applauds the work of leading technology innovators from around the world whose research and development investments have made VVC possible, and welcomes them to join MPEG LA's license development effort," said Bill Geary, MPEG LA's Vice President of Business Development.

To participate in the initial VVC license development meeting, parties that believe they have patents essential to the VVC standard are invited to submit them to MPEG LA in accordance with the submission procedures at <https://www.mpegla.com/vvc/>.

Although only issued patents will be included in the license, patent applications with claims that owners believe are essential to the VVC standard and likely to issue in a patent also may be submitted in order to participate in the license development process.

MPEG LA, LLC

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Access Advance Launches VVC/H.266 Video Patent Pool

JULY 1, 2021

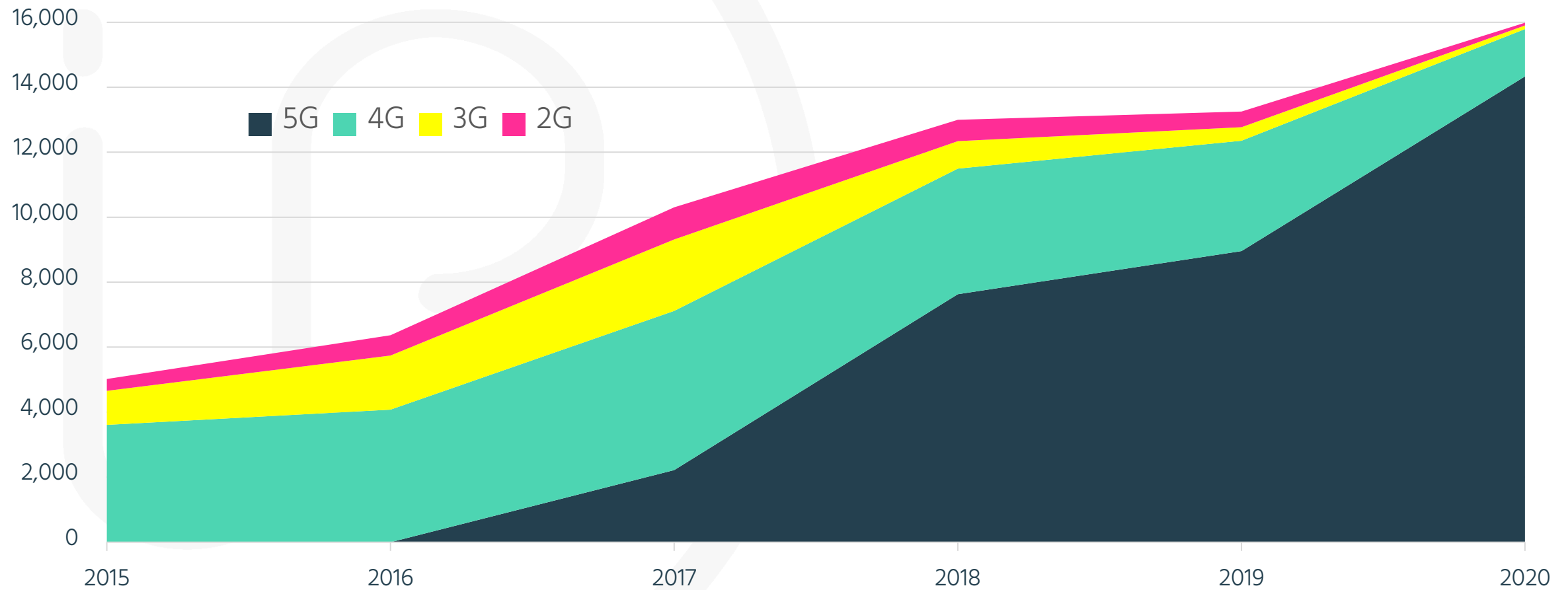
SHARE   

Includes innovative Multi-Codex Bridging Agreement that Provides Substantial Royalty Savings to Licensees in both the VVC and HEVC Advance Pools

BOSTON – (July 1, 2021) – Building on the success of its HEVC Advance Patent Pool, Access Advance today announced the launch of the VVC Advance Patent Pool *and* the Multi-Codex Bridging Agreement ("MCBA"). VVC is the next generation video codec standard finalized less than one year ago, which provides significant improvements in video compression of up to 50% over HEVC, enabling a new generation of products, ever more beautiful video, faster downloads, and improved savings on storage.

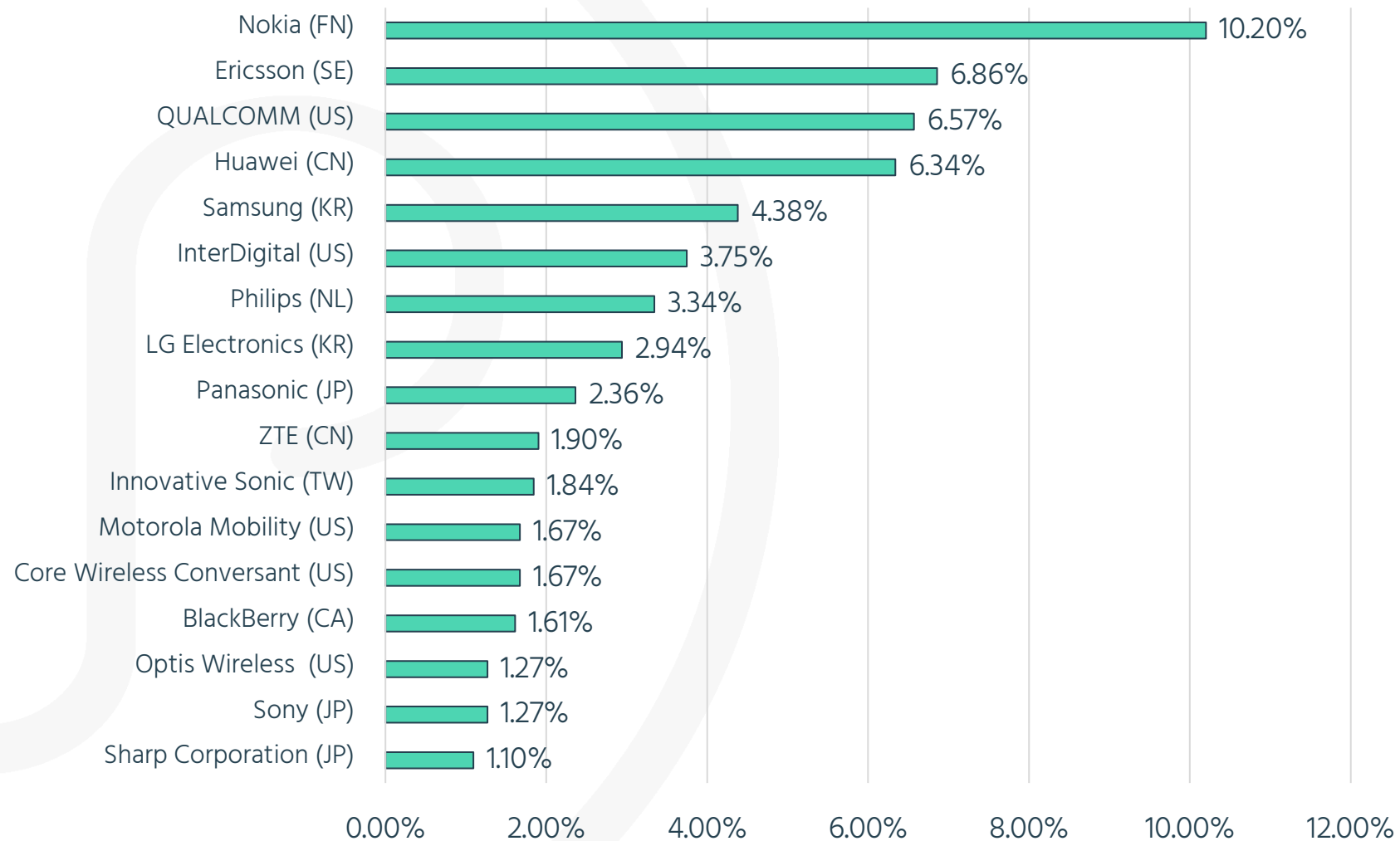
The license structure of the new VVC Advance Pool mirrors that of the HEVC Advance Platform Pool License recently announced, with royalty rates and caps set at a **modest 25% increase** over the equivalent HEVC Advance License structure. Please see <https://www.accessadvance.com/vvc-advance-patent-pool-royalty-rates-summary>.

3G, 4G 5G declared patent families as to year of declaration



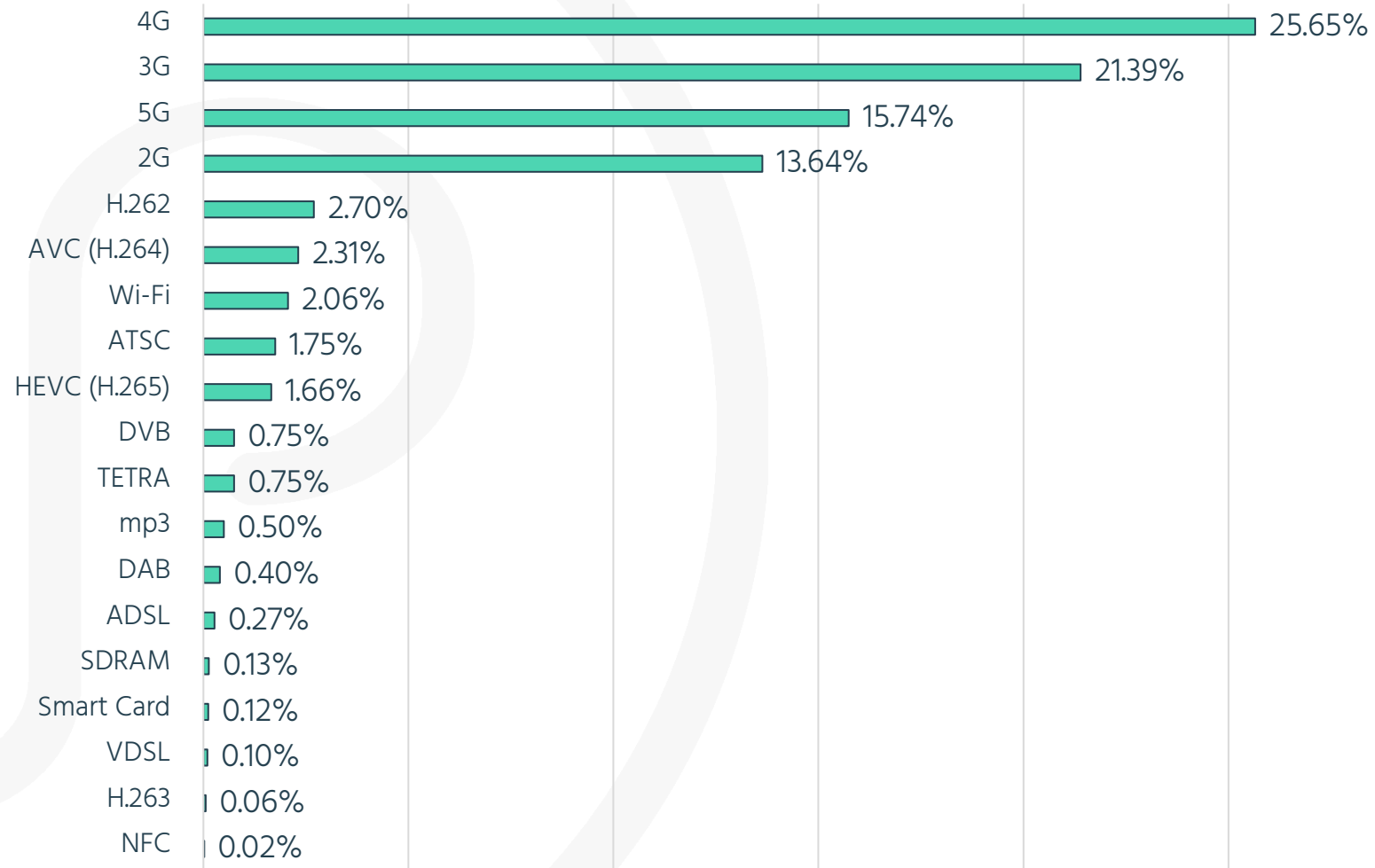
Source: <https://www.iplytics.com/report/sep-litigation-trends-what-data-say/>

Plaintiff in SEP related litigation 2001-2021 (world-wide)



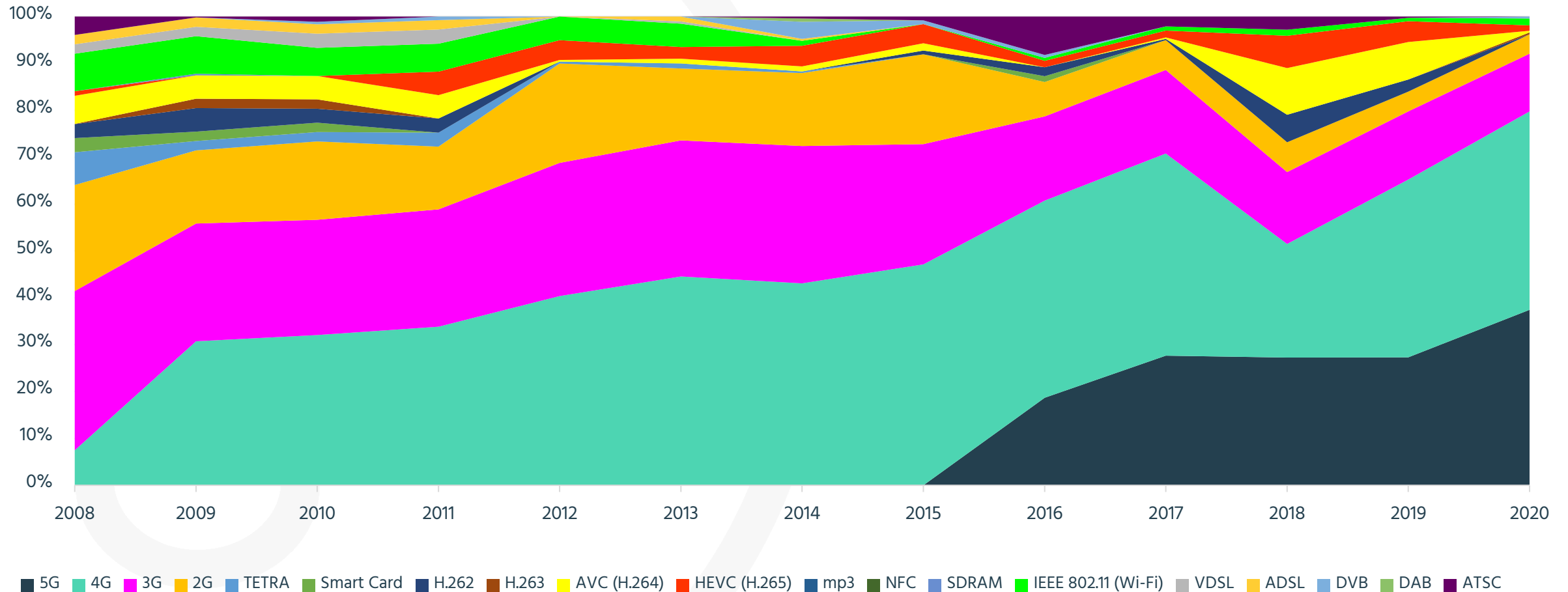
Source: <https://www.iplytics.com/report/sep-litigation-trends-what-data-say/>

Standards subject to SEP litigation 2001-2021 (world-wide)



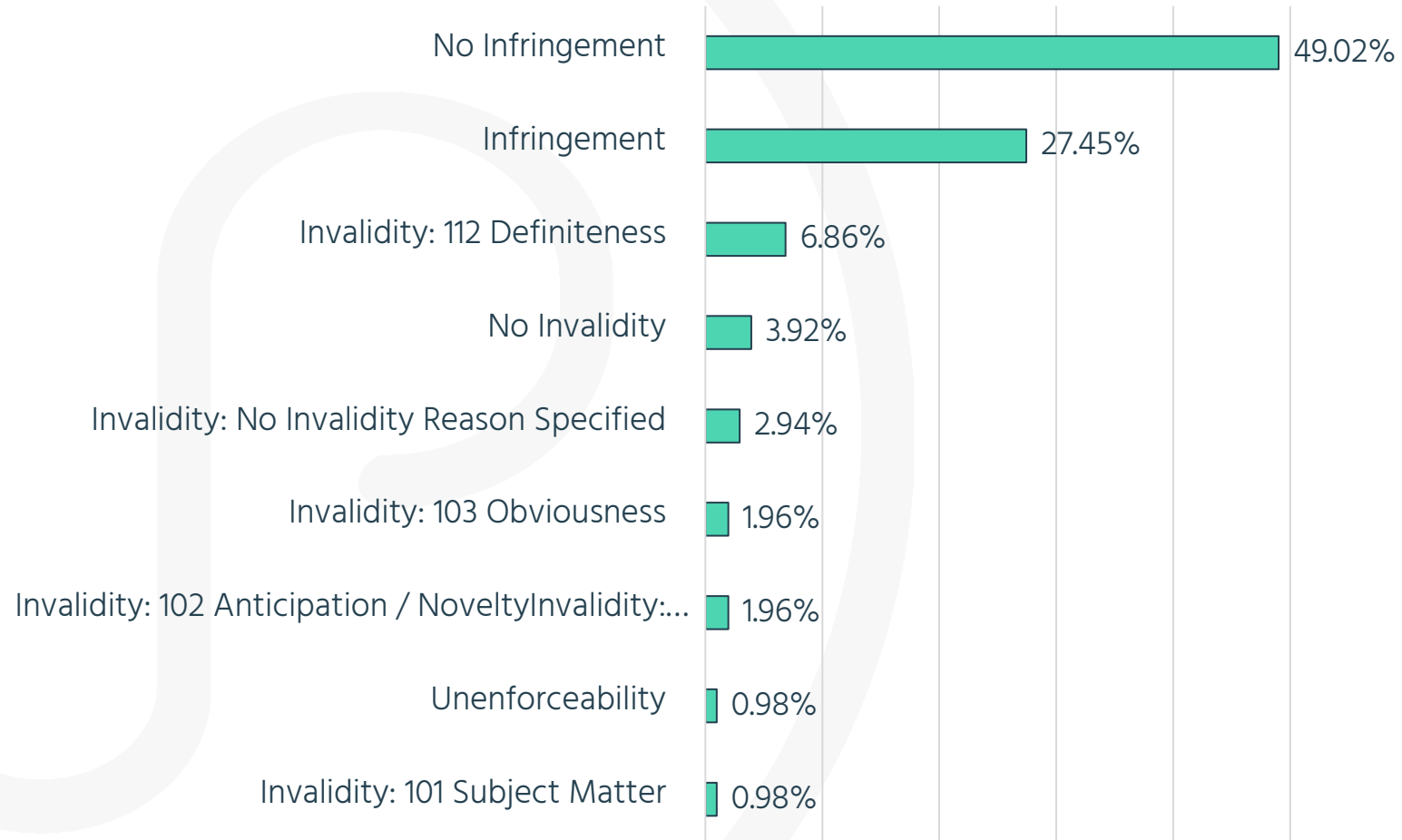
Source: <https://www.iplytics.com/report/sep-litigation-trends-what-data-say/>

Standards subject to SEP litigation 2001-2021 (world-wide)



Source: <https://www.iptytics.com/report/sep-litigation-trends-what-data-say/>

SEP litigation outcomes 2001-2021 (USA)



Source: <https://www.iplytics.com/report/sep-litigation-trends-what-data-say/>

SEP litigation cases

Recent SEP auto industry litigation 2G, 3G, 4G:

- Nokia vs. Daimler (Germany, 2019)
- Sharp vs. Daimler (Germany, 2020)
- Conversant vs. Tesla (Germany, 2020)
- Sharp vs. Tesla (Japan, 2020)
- Sisvel vs. Tesla (USA, 2021)
- L2 Mobile vs. Ford (USA, 2021)
- Intellectual Ventures vs. GM, Toyota and Honda (USA, 2021)

Automotives: the next battlefield of SEP litigation?

01-07-2019 Pauline Debré and Simon Corbineau-Picci



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Questions?

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