

Bridging the Gap - Webinar Series Part 3:

Generating insights from standards contribution data

Tim Pohlmann IPlytics GmbH

Recording: <https://youtu.be/I0Zmc55ZCyo>

IPLYtics Webinar Series 2022

- I. Bridging the Gap Part 1: “Generating insights from SEP Declaration Data”
September 27th, 2022
Register: <https://www.iplytics.com/events/past/>

- II. Bridging the Gap Part 2: “Generating insights from SEP Litigation Data”
October 25th, 2022
Register: <https://www.iplytics.com/events/past/>

- III. Bridging the Gap Part 3: “Generating insights from Contribution Data”
November 30th, 2022
Register: <https://www.iplytics.com/events/past/>

Today's Speaker



The World's Leading IP Strategists **2022**

Tim Pohlmann
Chief Executive Officer, IPlytics GmbH

IAM says: As architect of the game-changing IPlytics intelligence platform, Tim Pohlmann has distinguished himself as one of the most forward-thinking minds in intellectual property today. He is a top expert on standard essentiality and has his finger on the pulse of technology industry developments.



- **PhD & Post Doc.** TU Berlin, CERN, MINES ParisTech.
- **CEO and founder of IPlytics.**
- **2022 IAM Strategist 300.** Panel speaker thought leader.
- **Economic expert** and author of studies for the EU Commission, WIPO and German government.
- Appointed **faculty lecturer** (TU Berlin, EPF Lausanne, CEIPI Strasbourg, Cleveland-Marshall College of Law)
- **Author** of over 50 industry articles published at IAM Magazine, IPWatchdog and Managing IP.



Today's Agenda

- I. How to retrieve standards contribution data!
- II. Which SSOs provide SEP data for which standards?
- III. How to match, normalize and categorize contributions!
- IV. Common pitfalls when analyzing and counting contributions.
- V. Best practices on counting and valuating contributions.
- VI. Cross correlating contributions with patent data.
- VII. Takeaways.

I. How to retrieve standards contribution data?

I. How to retrieve contribution data?

Standard Setting Organization (SSO) Websites

- Standards contribution information is typically not hosted on the SSO website but available within the **standards consortia** that develops the standard:
- The **3G, 4G and 5G ETSI** contributions are available at the **3GPP** portal
- The **AVC, HEVC, VVC ITU-T** contributions are available at the **JVT, JCTVC, JVET** portals
- **Wi-Fi/Bluetooth** contributions are available at the **IEEE mentor** portal
- **IETF** contributions are available at the **IETF RFC** portal

I. How to retrieve contribution data?

Standard contribution format:

- Standards contribution data may come in different formats:

- Word Docs (3GPP, AVC, HEVC, VVC, IEEE)

- PowerPoint (3GPP, IEEE)

- HTML (IETF, 3GPP, AVC, HEVC, VVC, IEEE)

→ Thus, the parsing the contribution information is inevitable

I. Parsing contribution data – 3GPP word doc example

Title: ⌘ Clarification on the registered PLMN for Network Sharing supporting UEs in a shared network

Source: ⌘ TeliaSonera

Work item code: ⌘ NTShar

Date: ⌘ 16/07/2004

Category:

⌘ **B**

Use one of the following categories:

F (correction)

A (corresponds to a correction in an earlier release)

B (addition of feature)

C (functional modification of feature)

D (editorial modification)

Detailed explanations of the above categories can be found in 3GPP [TR 21.900](#).

Release: ⌘ Rel-6

Use one of the following releases:

Ph2 (GSM Phase 2)

R96 (Release 1996)

R97 (Release 1997)

R98 (Release 1998)

R99 (Release 1999)

Rel-4 (Release 4)

Rel-5 (Release 5)

Rel-6 (Release 6)




I. Parsing contribution data – 3GPP HTML example

	Tdoc	Type	Title	Source	Status
	R2-2008327	CR	Correction on cross-RAT V2X functionality in TS 38.331	Huawei, HiSilicon	agreed
	R2-2008321	CR	Miscellaneous corrections on TS 38.331	Huawei, HiSilicon	agreed
	R2-2007980	CR	Correction on IAB-MT capability for TS 38.331	Huawei, HiSilicon	available
	R2-2007970	CR	Miscellaneous corrections for TS 38.331 for IAB	Huawei, HiSilicon	merged
	R2-2007852	CR	Miscellaneous corrections on TS 38.331	Huawei, HiSilicon	revised
	R2-2007848	CR	Miscellaneous corrections on V2X for TS 38.331	Samsung	available
	R2-2007766	CR	Correction on TS 38.331 for CPC	Huawei, HiSilicon	not pursued
	R2-2007764	CR	Correction on TS 38.331 for CHO	Huawei, HiSilicon	agreed
	R2-2007652	CR	Addition of MPE reporting to TS 38.331	InterDigital	revised
	R2-2007299	CR	CR on SL power control parameters in TS 38.331	Huawei, HiSilicon	available
	R2-2007245	CR	CR on SidelinkUEInformationNR reporting in TS 38.331	Huawei, HiSilicon	available
	R2-2007244	CR	CR on security for NR SL	Huawei, HiSilicon	available

I. Parsing contribution data – JVET HTML example

JVET number	MPEG number	Created	First upload	Last upload	Title	Source
JVET-M0473	m45749	2019-01-03 02:01:36	2019-01-03 02:10:25	2019-01-11 17:00:09	Simplified HMVP	W. Zhu, A. Segall (Sharp)
JVET-M0059	m45313	2018-12-28 05:23:13	2018-12-28 09:52:04	2019-01-10 11:03:38	CE4: Non-scaling STMVP (Test 4.2.1)	T. Zhou, T. Ikai (Sharp)
JVET-M0065	m45319	2018-12-28 05:28:40	2018-12-28 09:55:44	2019-01-16 13:18:35	Non-CE3: Intra chroma partitioning and prediction restriction	T. Zhou, T. Ikai (Sharp)
JVET-M0884	m46539	2019-01-14 16:41:15	2019-01-14 16:48:25	2019-01-14 16:48:26	Crosscheck of JVET-M0792 (CE10-related: Combined test of multi-hypothesis inter prediction and OBMC)	Z. Deng
JVET-M0139	m45403	2019-01-01 15:06:26	2019-01-01 17:38:08	2019-01-08 19:38:30	Non-CE3: History-based intra most probable modes derivation	Z. Zhang, P. Wennersten, R. Yu, J. Ström, R. Sjöberg (Ericsson)
JVET-M0138	m45402	2019-01-01 15:01:53	2019-01-01 15:26:23	2019-01-08 19:41:19	Non-CE3: Intra reference sample deblocking	Z. Zhang, K. Andersson, R. Sjöberg (Ericsson)
JVET-M0693	m46087	2019-01-07 17:00:42	2019-01-13 17:50:31	2019-01-13 17:50:31	Crosscheck of JVET-M0183 (CE10-related: Simplification of MPM generation for CIIP)	Z. Zhang, K. Andersson, R. Sjöberg (Ericsson)

I. Parsing contribution data – JVET word doc example

Joint Video Experts Team (JVET)
of ITU-T SG 16 WP 3 and ISO/IEC JTC 1/SC 29/WG 11
19th Meeting: by teleconference, 22 June – 1 July 2020

Document: JVET-S2001-~~v9~~vA

Title: **Versatile Video Coding (Draft 10)**

Status: Output document approved by JVET

Purpose: Draft text of video coding specification

Author(s) or Contact(s): Benjamin Bross
Jianle Chen
Shan Liu
Ye-Kui Wang

Email: firstname.lastname@thi.fraunhofer.de
cjianle@qti.qualcomm.com
shanl@tencent.com
yekui.wang@bytedance.com

Source: Editors

Abstract

This document is Draft 10 of a new ITU-T Recommendation and ISO/IEC International Standard entitled *Versatile Video*

I. Parsing contribution data – JVET word doc example

Draft 10 of Versatile Video Coding.

Ed. Notes:

Incorporated the following items:

- Misc. editorial changes (thanks to Peng Yin and Li Zhang for their inputs to many of these)

High level tool control adoptions (completed):

- **JVET-S0073** (**JVET-S0144** item 6.a): Remove `no_tsrc_constraint_flag`.
- **JVET-S0130** aspect 1 (**JVET-S0144** item 9.a): Change the range of `sps_num_points_in_qp_table_minus1[i]` from $0..63 + QpBdOffset$ to $0..36 - sps_qp_table_start_minus26[i]$.
- **JVET-S0053** aspect 1 (**JVET-S0144** item 11.a.i): If `pps_chroma_tool_offsets_present_flag` is equal to 1, infer the values of the chroma DB offsets in the PH and SH, when not present, to be equal to the chroma DB offsets in the PPS

I. Parsing contribution data – IEEE HTML example

Home | Documents | Wiki

Help | eTools | Sign In



19-Feb-2021 08:38:48 ET

Documents

Join group | Back | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 | Next

Everything | All Years | All Groups | DCN, Title, Author or Affiliation

Created (ET) ▼	Year	DCN	Rev	Group	Title	Author (Affiliation)	Uploaded (ET)	Actions
19-Feb-2021 ET	2021	238	3	TGbc	Resolution for CID1237	Hitoshi Morioka (Koden TI)	19-Feb-2021 07:17:06 ET	Download
19-Feb-2021 ET	2021	276	0	TGbb	proposed text for 4.4	Chong Han (pureLiFi)	19-Feb-2021 06:05:20 ET	Download
18-Feb-2021 ET	2021	238	2	TGbc	Resolution for CID1237	Hitoshi Morioka (Koden TI)	18-Feb-2021 20:53:54 ET	Download
18-Feb-2021 ET	2021	83	1	TGbd	LB251 CR for 11bd D1.0 Clause 4	Stephan Sand (German Aerospace Center (DLR))	18-Feb-2021 16:29:42 ET	Download
18-Feb-2021 ET	2021	271	0	TGbi	March Agenda	Carol Ansley (self)	18-Feb-2021 16:13:37 ET	Download
18-Feb-2021 ET	2021	11	1	TGbe	Proposed Draft Text (PDT-Joint): Spatial Stream and MIMO Protocol Enhancement Part 2	Wook Bong Lee (Samsung)	18-Feb-2021 15:45:54 ET	Download
18-Feb-2021 ET	2021	270	0	TGbe	Channel access overview for Triggered SU	Dibakar Das (Intel)	18-Feb-2021 17:06:28 ET	Download
18-Feb-2021 ET	2021	95	4	TGbe	PHY-related agreements for SST	Sigurd Schelstraete (ON Semiconductor)	18-Feb-2021 11:47:16 ET	Download
18-Feb-2021 ET	2021	269	0	TGbe	PSR_based_SR_normalization_discussion	Ross Jia Yu (Huawei)	19-Feb-2021 00:48:57 ET	Download
18-Feb-2021 ET	2021	41	1	TGbe	Group addressed frame delivery methods for MLO	Qi Wang (Apple Inc.)	18-Feb-2021 10:53:31 ET	Download
18-Feb-2021 ET	2021	7	7	802.11 WG	Teleconference Information	Stephen McCann (Huawei)	18-Feb-2021 03:57:23 ET	Download
18-Feb-2021 ET	2021	129	3	TGbe	Phase Rotation for 320 MHz Non-HT Duplicate Transmission and Pre-EHT modulated Fields	Chenchen LIU(Huawei)	18-Feb-2021 03:13:31 ET	Download

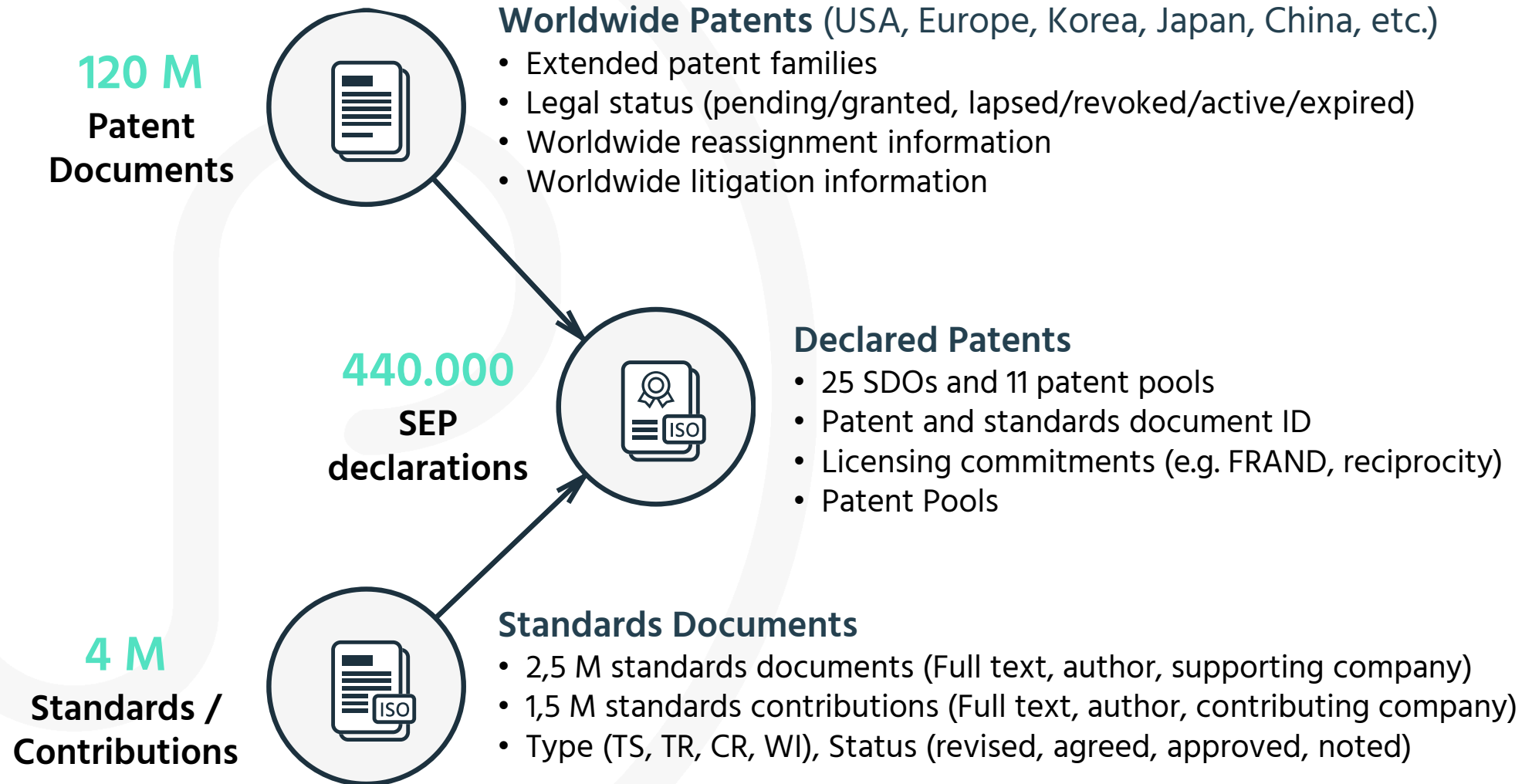
|| Which SSOs provide standards contribution data?

II. Which SSOs provide SEP data for which standards?

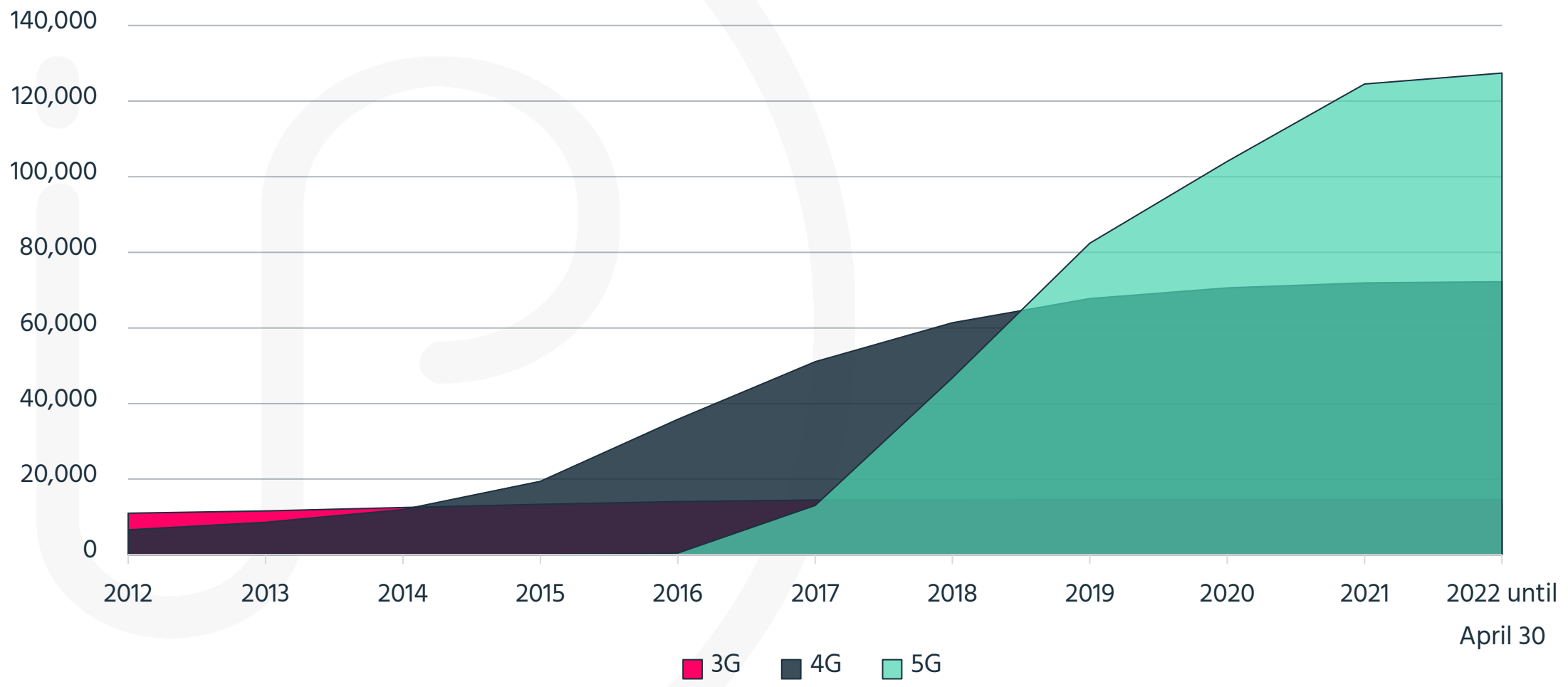
IPlytics integrates **weekly updated** full text standard contribution data 1990 – today:

SSO	Information available	Count
ETSI - 3GPP	full text	1,360,708
IEEE	full text	130,987
IETF	full text	9,042
JVET (ITU VVC)	full text	9,741
JCT-VC (ITU HEVC)	full text	9,729
JVT (ITU AVC)	full text	3,151

IPlytics Data Source



➤ There have been more technical contributions submitted to 5G than in 2G, 3G and 4G combined



III. How to match, normalize and categorize standards contribution data?

I. How to classify standards contribution data

Contributions can be associated to final specifications:

CR 36.133 v8.4.0 → **TS 36.133 v8.4.0 E-UTRA**

JVET-P0686 → **ITU-T H.266, ISO/IEC 23090-3 Versatile Video Coding**

TGn LB84 → **IEEE 802.11n-2009 Wi-Fi 4**

I. How to classify standards contribution data

Contributions differ by type, category and status:

- **Type** (work item, change request, input/output document, draft etc.)
- **Category** (addition of feature, correction, editorial modif., functional modif.)
- **Status** (e.g. agreed, approved, incorporated, noted, rejected etc.)

I. How to classify standards contribution data

Contributions differ by generation, group or release:

- **Generation** (3G / 4G / 5G, Wi-Fi 4 / Wi-Fi 5 / Wi-Fi 6, AVC / HEVC / VVC)
- **Group** (RAN 1 / RAN 2 / SA 1 / SA2 / CT1, TGax / TGn / TGbe, JVT / JCTVC / JVET)
- **Release** (e.g. Release 12, 13, 14, 15, 16)

I. How to classify standards contribution data

Contributions may be submitted by single companies or groups:

- A single contributing company
- A group of contributing companies
 - A first contributing company and other supporting companies

How to identify all approved 5G contributions?

Query Builder

Untitled Query

Edit

Code Preview

Quick Help

Select	All	e.g. biotech, 3D print*, car or vehicle	...
AND	Standard Document Id	e.g. IEEE 802.11g OR ETSI TS 123401	...
AND	Data Provider	3GPP Contributions (TDocs)	[-] [+]

```
((data_provider:"3GPP Contributions (TDocs)"))
```

+ Add Query

Search Save Load History Reset

Visual Expert

Results: Analytics Search Data



Results: Analytics

Currently no analytics visible. Please use the query builder above to construct a relevant search.

Need Help?

How to identify all Wi-Fi 6 contributions?

Query Builder

Untitled Query

Edit

Code Preview

Quick Help

Select	All	e.g. biotech, 3D print*, car or vehicle	...
AND	Standard Document Id	e.g. IEEE 802.11g OR ETSI TS 123401	...
AND	Data Provider	IEEE Contributions	[-] [+]

```
((data_provider:"IEEE Contributions"))
```

+ Add Query

Search Save Load History Reset

Visual Expert

Results: Analytics Search Data



Results: Analytics

Currently no analytics visible. Please use the query builder above to construct a relevant search.

Need Help?

How to identify all incorporated VVC contributions?

Query Builder

Untitled Query

Edit

Code Preview

Quick Help

Select All e.g. biotech, 3D print*, car or vehicle

AND Standard Document Id e.g. IEEE 802.11g OR ETSI TS 123401

AND Data Provider 3GPP Contributions (TDocs)

...
...
[trash] [+]

```
((data_provider:"3GPP Contributions (TDocs)"))
```

+ Add Query

Search Save Load History Reset

Visual Expert

Results: Analytics Search Data



Results: Analytics

Currently no analytics visible. Please use the query builder above to construct a relevant search.

Need Help?

IV. Common pitfalls when analyzing and counting contributions

IV. Common pitfalls when analyzing contributions

Standards contributions
are not SEPs!



IV. Common pitfalls when analyzing contributions

Experts' statements:

- “Standards development is **not all about filing SEPs**. The main goal is to develop the best possible standards to enabling our products in the market” (IEEE expert)
- “Contributions **may not describe a technical step essential** to the standard. A good share of technical specifications (TS) are **not subject to patents**” (3GPP expert)
- “One way to filter out contributions that are more likely related to standard essential patents (SEPs) is to only count those **contributions made to patent heavy standards** (for example a specification such as 38.331).” (3GPP expert)

IV. Common pitfalls when analyzing contributions



There is an “over-
contribution” problem!



IV. Common pitfalls when analyzing contributions

Experts' statements:

- The “**over-submission of contributions**” is real problem to the standards developers and to the standards bodies. (3GPP expert)
 - **Balazs Bertenyi** - Chairman of 3GPP RAN: *“In reality, flooding 3GPP standards meetings with contributions is extremely counterproductive. The efficiency and success of the standards process is measured in output, not input.”*
- “The counting standards contribution **needs well done refinement**, counting only approved, incorporated real technical contributions submitted to standards subject to patents”. (3GPP expert)

How to identify all V2X contributions?

Query Builder

Untitled Query

Edit

Code Preview

Quick Help

Select All e.g. biotech, 3D print*, car or vehicle

AND Standard Document Id e.g. IEEE 802.11g OR ETSI TS 123401

AND Standard Committee/Co... e.g. 3GPP OR GERAN OR RAN

Add Query

Search Save Load History Reset

Visual Expert

Results: Analytics Search Data



Results: Analytics

Currently no analytics visible. Please use the query builder above to construct a relevant search.

Need Help?

IV. Common pitfalls when analyzing contributions

Not all standard contributors own SEPs and not all SEP owners contribute!



IV. Common pitfalls when analyzing contributions

Experts' statements:

- “Especially for **small companies** one must keep in mind the collaborative and iterative aspects of standard setting, where one participant’s technology may wind up in contributions by another because they **independently came up with similar innovations** or because of **informal, sometimes unattributed, collaborations**. Thus some SEP owners may not be listed as a contributor and some contributors may not own SEPs”. (JVET VVC expert)

IV. Common pitfalls when analyzing contributions

Most SEPs cite
Standards
Contributions as prior
art!



V. Best practices on counting and valuating declared SEP data

V. Best practices on counting and valuating declared SEP data

Standards contribution data use cases

1. Standard contribution data and **Competitive intelligence**
 - **To identify potential SEP owner.**
2. Standard contribution data and **R&D management**
 - **Contributions helps to coordinate standard developing teams.**
3. Standard contribution data and the **Valuation of SEPs**
 - **Cross correlating contributions with SEP data.**
4. Standard contribution data and **Prior art search**
 - **Use full text contribution data to draft valid and essential claims.**

V. Standard contribution data and Competitive intelligence

*IPWatchdog
about Wi-Fi 6
using standards
contribution
data.*

Technical Submissions as Helpful Indicator of Standard Essential Patent Portfolio Value



By [Gene Quinn](#)
October 12, 2020

[Print Article](#) 3



“A ‘motion pass rate’ or ‘Accepted Rate’ metric may provide a more accurate indication of the strength of a company’s contributions [to a standard]. A high acceptance rate gives at least some information that the working groups – and ultimately the SSOs – accepted the

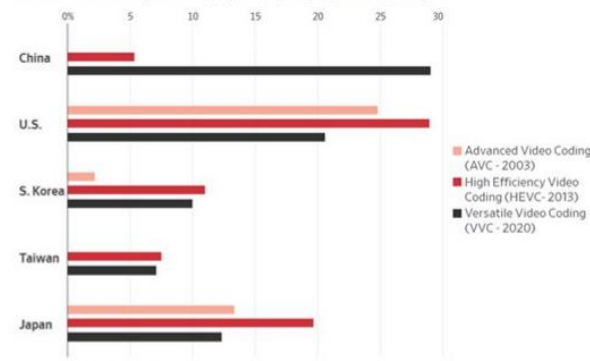
<https://www.ipwatchdog.com/2020/10/12/technical-submissions-helpful-indicator-standard-essential-patent/id=126182/>

V. Standard contribution data and Competitive intelligence

WSJ about 5G and VVC using standards contribution data.

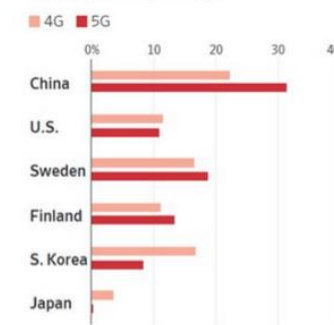


Share of video-encoding standards proposals, by company's country of origin



Note: VVC data as of Dec. 2020
Source: IPlytics

Share of cell-phone standards proposals, by company's country of origin

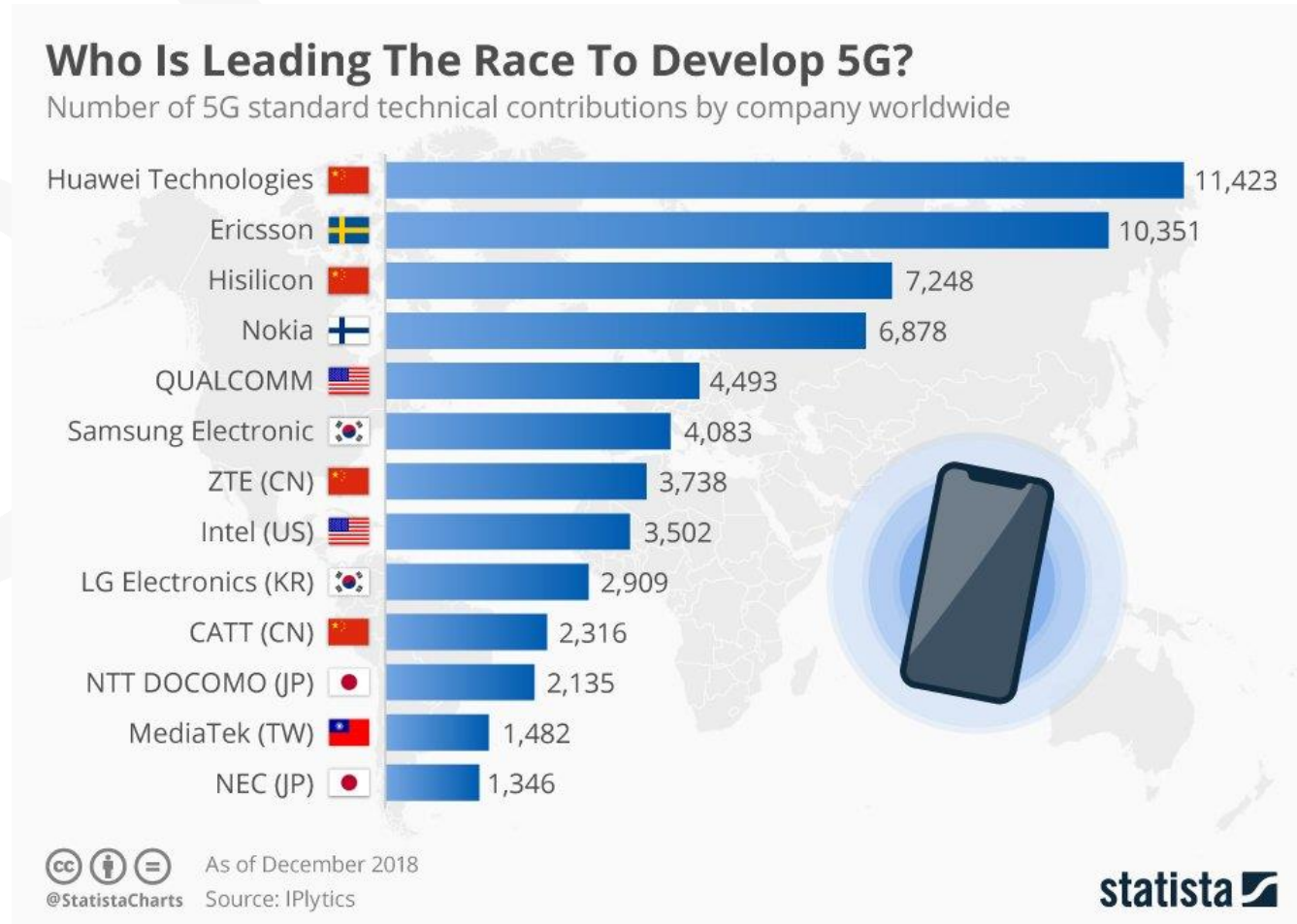


Note: Data as of Jan. 2021
Source: IPlytics

<https://www.wsj.com/articles/from-lightbulbs-to-5g-china-battles-west-for-control-of-vital-technology-standards-11612722698>

V. Standard contribution data and Competitive intelligence

Statista about 5G using standards contribution data.



<https://www.statista.com/chart/17536/mobile-network-standards/>

V. Standard contribution data and Competitive intelligence

*Statista about
HEVC/VVC using
standards
contribution
data.*

iam



TikTok owner among leading contributors to new video codec standard

Data exclusively compiled for IAM has revealed that the companies leading the way in the latest video codec standard include ByteDance, the high-profile owner of the social media platform TikTok, and fellow Chinese tech giant Tencent. Both have made a significant number of technical contributions to the new VVC standard. This was [finalised](#) at the start of July and is expected to begin roll-out next year.

As it currently stands, Qualcomm is leading the way having made more than 2,300 contributions to the standard, with Huawei in second at a little over 1,500 and Tencent taking third with 1,200 contributions.

ByteDance comes in at sixth having so far made 874 contributions, while fellow Chinese social media business Kuaishou - which is known as Kwai in the rest of the world - is in 10th, having racked up 770 contributions.

The numbers highlight the extent to which newer players from China have not only captured the zeitgeist through their wildly successful platforms both in their domestic market and further afield, but also appear to be making significant technical contributions, at least in terms of quantity, to the new era of video. The data is particularly impressive when you consider that both the TikTok owner and Kuaishou are still relatively new having been founded in 2012 and 2011 respectively.

It is also worth noting Huawei's progress. It has emerged as a significant player in HEVC and appears to have grown its position in VVC. As

<https://www.iam-media.com/frandseps/tiktok-owner-among-leading-contributors-new-video-codec>

V. Standard contribution data and R&D management

“Tracking attendance information and contributions allows us to better manage our standards developing teams.”

R&D manager of a large SEP holder

VI Cross correlating contributions with patent data

Connecting the data points

Correlating patents and standards – **First Applicant Contributor** comparison

- First applicant (**Company Inc.**)
- US1234567B1 declared to TS 38.473 - RAN3
- Contributor (**Company Inc.**)
- Submitted accepted and approved contribution for TS 38.473 at RAN3 meeting



Connecting the data points

Correlating patents and standards – **Inventor Attendee comparison**

- Inventor (Peter Brown, Company Inc.)
- US1234567B1 declared to TS 38.473 - RAN3
- Attendee (Peter Brown, Company Inc.)
- Attended RAN3 Meetings



V. Standard contribution data and the Valuation of SEPs

Combining patent value indicators and standard information such as **contribution counts, and cross references** of applicant/assignees and inventors allows to **value** patents relation to standards and to **rank and value** declared patent portfolios:

Publication Nr.	Declared TS	Patent Essentiality Prediction Likelihood Score	(1) Patent claim technical specification similarity score	(2) Patent claim corresponding Tdoc similarity score	(3) Patent's listed inventors participated at corresponding standards meeting	(4) Number of patent applicant/assignee's contributions to the standard	(5) Patent's prio. date overlaps with core prio. date range of declared SEPs	(6) Patent has been cited by declared SEPs (excluding self-citations)	(7) Patent cites of predecessor standard or Tdocs as prior art in the non-patent literature	(8) Patent's IPC/CPC overlaps with verified SEP's IPC/CPCs
US8270932B2	TS38 331 TS36 300 TS36 213	92,11%	97,25%	87,33%	276	8	82%	18	0	59,00%
US8995294B2	TS36 212 TS38 213 TS36 213	90,87%	83,17%	80,09%	293	6	79%	1	0	60,83%
US8774027B2	TS38 214 TS36 213	85,02%	89,54%	82,78%	207	5	82%	2	0	64,17%
US9326314B2	TS36 321 TS36 213 TS36 213	81,02%	83,95%	81,54%	580	4	73%	1	1	62,50%
US9628983B2	TS24173 TS36 321 TS36 213	79,67%	84,79%	80,59%	1046	6	77%	2	1	54,17%
US8780870B2	TS36 211 TS36 213 TS36 213	73,99%	81,83%	79,09%	286	5	68%	0	1	66,67%
US8189502B2	TS36 213 TS38 213	72,76%	76,68%	70,22%	159	2	65%	2	0	12,50%
US10136365B2	TS36 331 TS38 300 TS36 213	69,21%	70,91%	72,87%	144	2	69%	0	0	38,33%
US8160016B2	TS36 211 TS38 213	68,98%	71,67%	61,68%	95	2	45%	1	0	16,67%
US8665855B2	TS38 213 TS36 211 TS36 213	60,83%	66,81%	60,98%	0	1	55%	1	0	4,17%

Connecting the data points

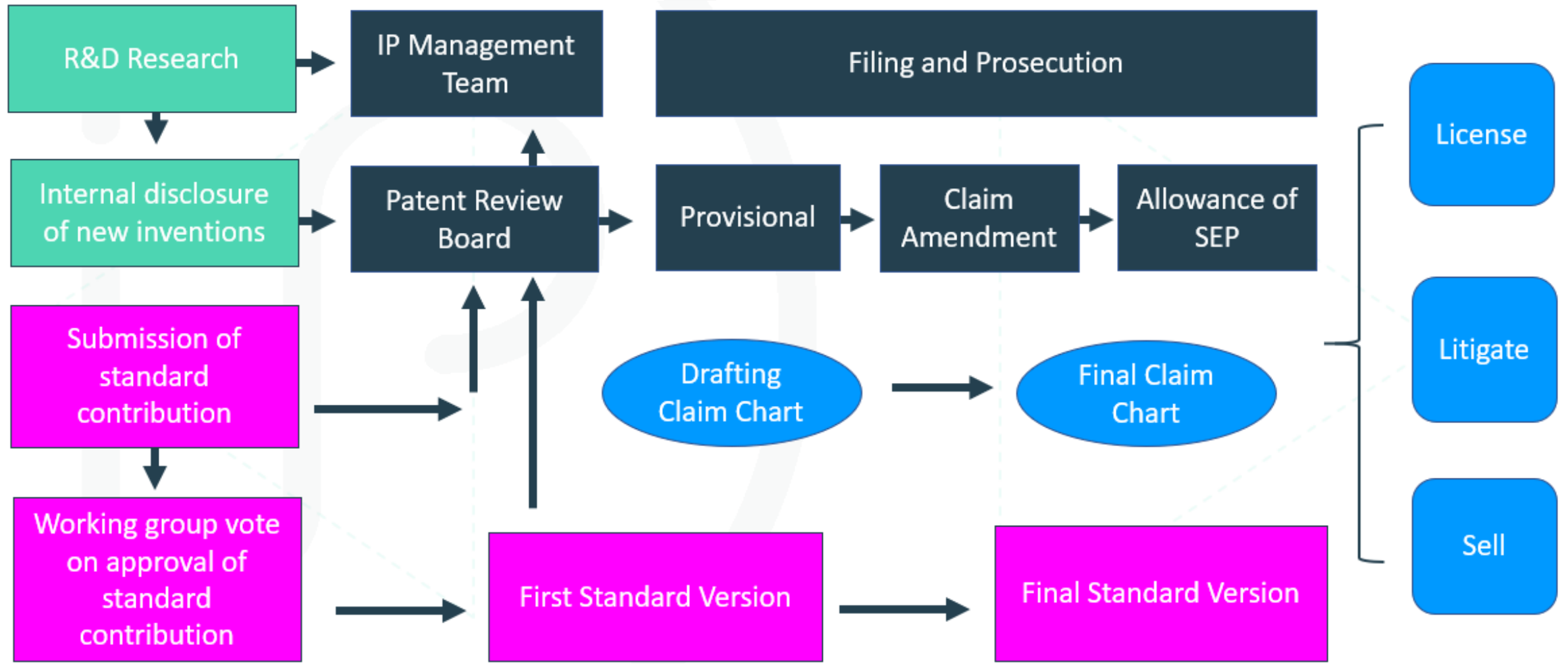
Scoreboard to valuate declared patents:

- Claim sections similarity, inventor attendee overlap, first applicant contribution overlap, FWD citation, NPL citation, timing and classification.



VII Using contributions to file valid and essential patents

V. Standard contribution data and Prior art search



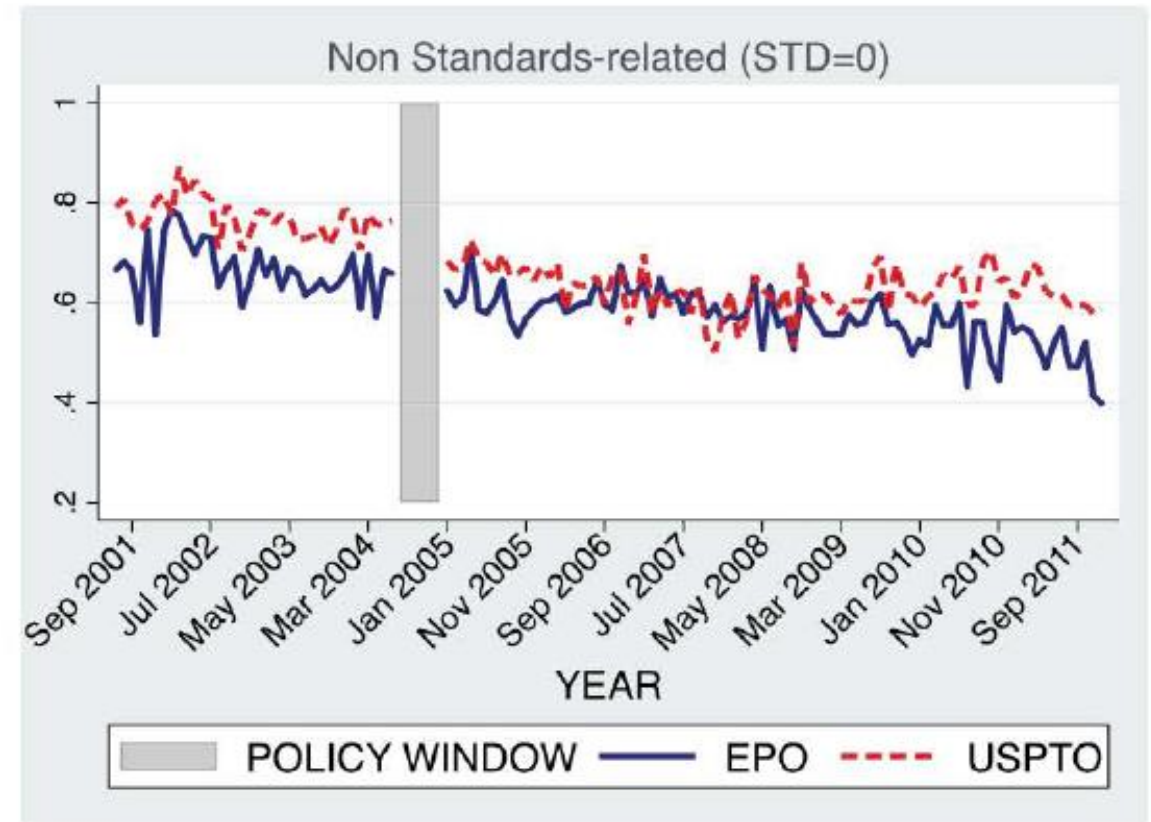
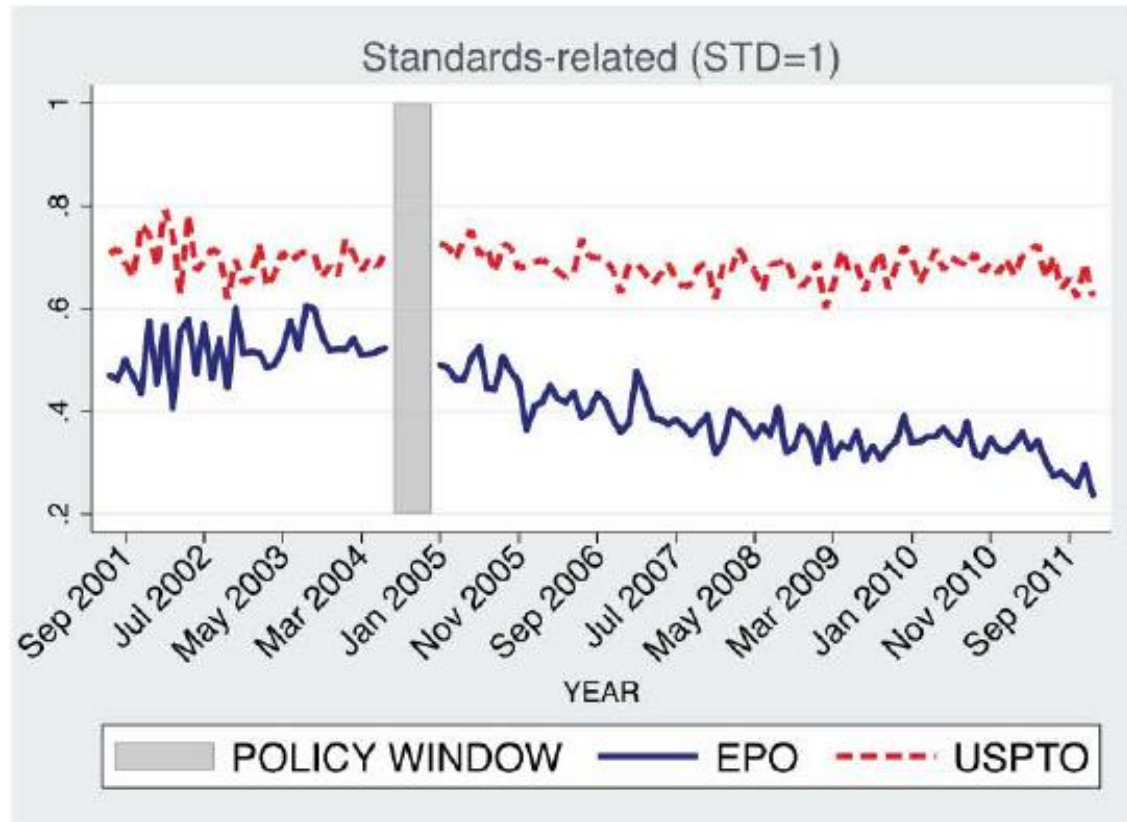
IV. Common pitfalls when analyzing contributions

Analysis of NPL-citations: 3GPP

- ▶ 81,383 patents citing 3GPP documents, including
 - ▶ 26,702 citations to technical specifications (TS)
 - ▶ 29,603 citations to technical contributions
 - ▶ 9,249 citations to meetings (meeting minutes?)
 - ▶ 5,969 citations to technical reports (TR)

Source: Justus Baron and Daniel F. Spulber: Technology Standards – An Introduction to the Searle Center Database, Journal of Economics and Management Strategy, 27-3, 2018

IV. Common pitfalls when analyzing contributions



Bekkers, Rudi, Arianna Martinelli, and Federico Tamagni. "The impact of including standards-related documentation in patent prior art: Evidence from an EPO policy change." *Research Policy* 49.7 (2020): 104007.

V. Standard contribution data and Prior art search

*“As a defendant you always have to play both cards, you fight **validity** and you fight **essentiality**. Otherwise there is no chance of winning.”*

SEP litigation expert

Likelihood of validity and essentiality

- Estimating the **statistical likelihood** of a portfolio including at least **one essential and valid patent** shows that even in pessimistic scenarios a portfolio of **250 patents** includes at least one enforceable SEP:

Validity	pessimistic (30% valid)			optimistic (80% valid)			
	Essentiality	low (10%)	medium (25%)	high (50%)	low (10%)	medium (25%)	high (50%)
Portfolio size							
5		0.1413	0.3228	0.5563	0.3409	0.6723	0.9222
10		0.2626	0.5414	0.8031	0.5656	0.8926	0.9940
25		0.5330	0.8576	0.9828	0.8756	0.9962	1.0000
50		0.7819	0.9797	0.9997	0.9845	1.0000	1.0000
100		0.9524	0.9996	1.0000	0.9998	1.0000	1.0000
250		0.9995	1.0000	1.0000	1.0000	1.0000	1.0000

VIII. Takeaways

VI. Takeaways

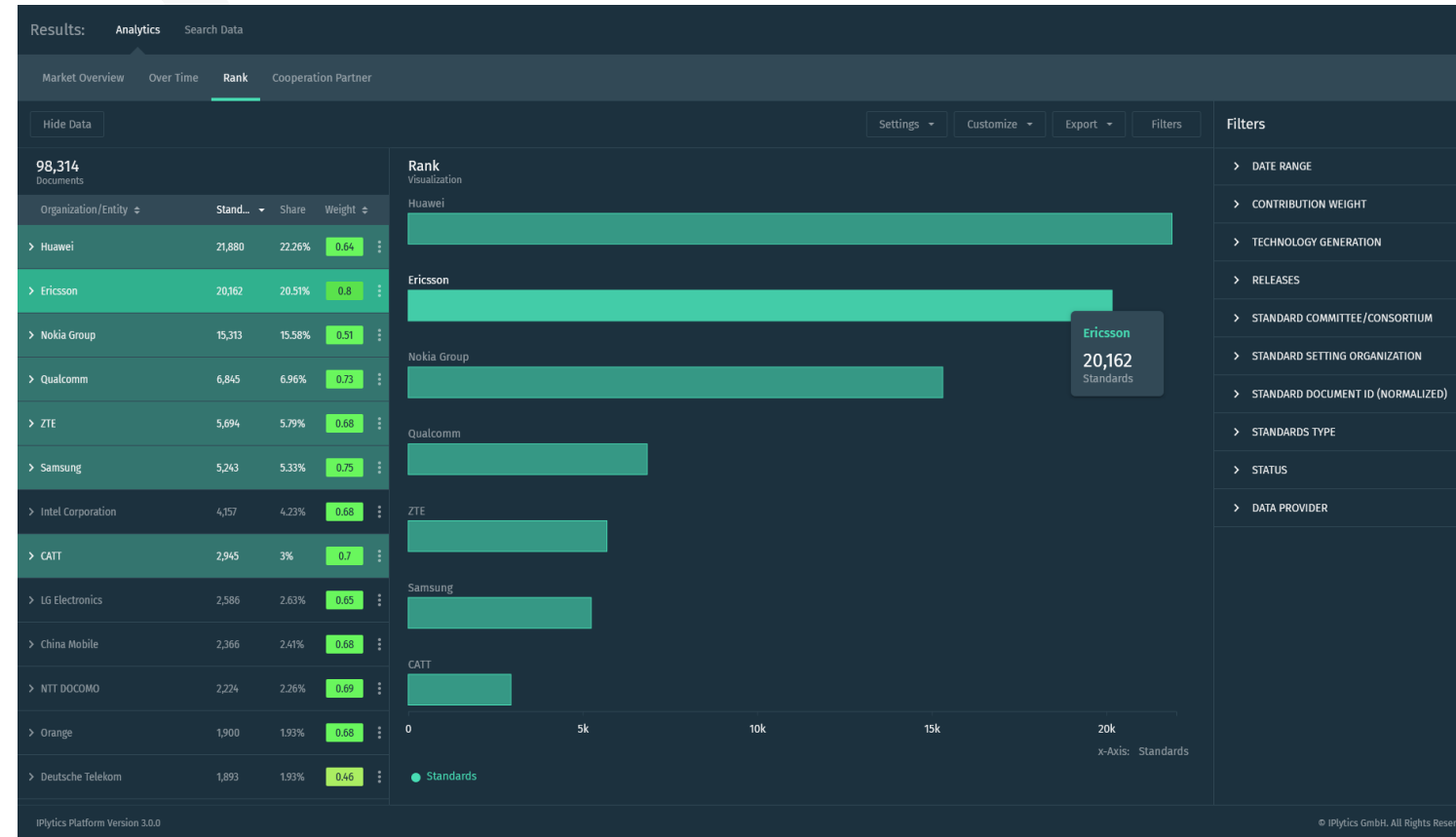
Things to consider when using data on patent declaration

- Standard contribution data information should **not be interpreted as a 1:1 indicator for SEP portfolios**
- However, standard contribution data sometimes is the **best available source to understand SEP landscapes when declaration data is missing (e.g. Wi-Fi or VVC)**.
- In order to **make sense** of the standard contribution data it needs further **refinement and categorization**:
 - Standard contributions must be identified as **agreed/approved or incorporated**
 - Standard contributions must be identified as **real technical contributions** (filter out corrections or editorial modifications)
 - Standard contributions should be considered for **TS subject to patents**
 - Standards must be matched to **standards data** (generation, technology group, release, date)

Identify potential SEP owner:

Iplytics Platform

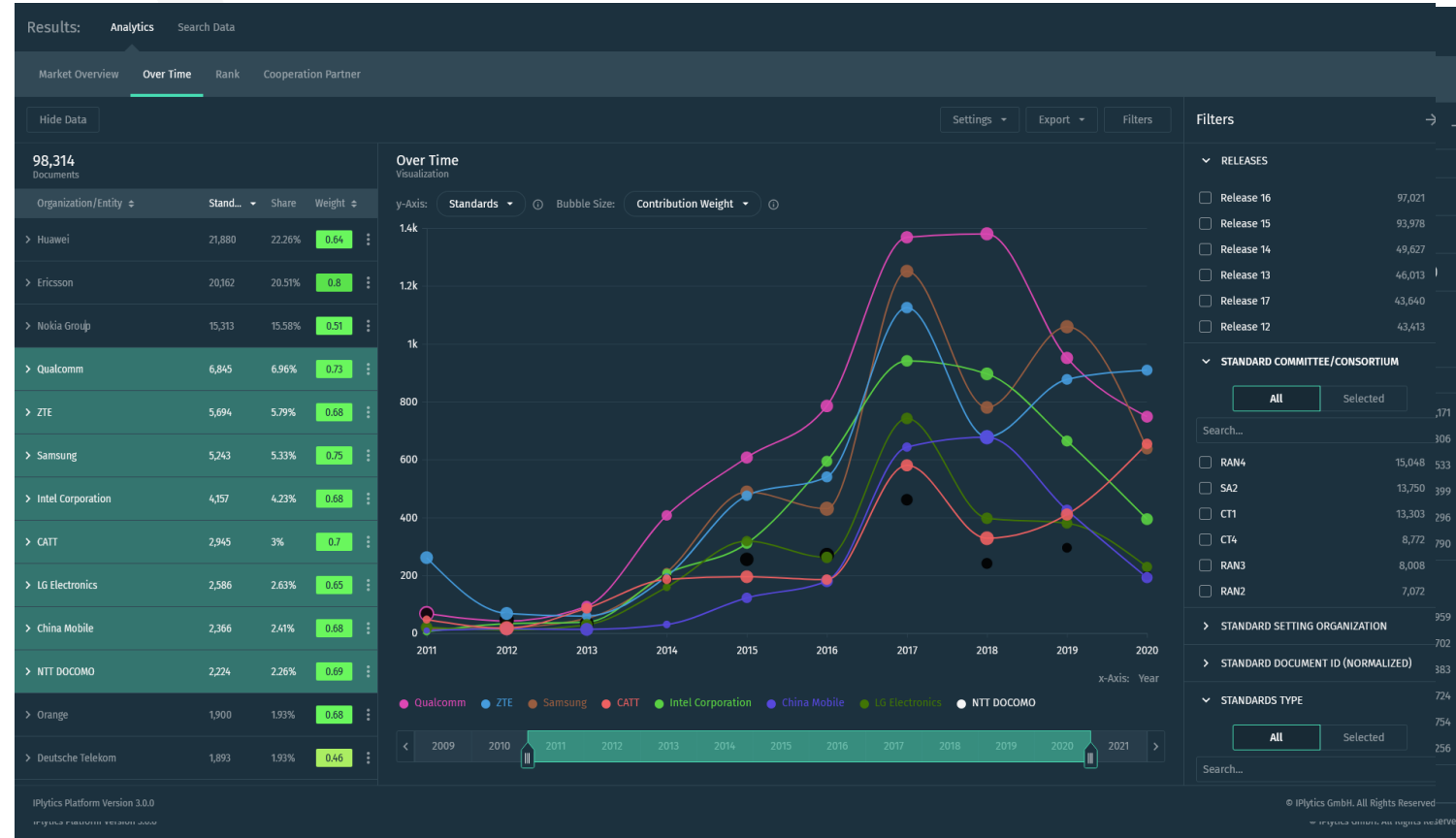
- ✓ Who is the standards development leader?
- ✓ Who was the first contributor?
- ✓ Who increased contributions for a certain standard?



Categorize and refine:

Iplytics Platform

- ✓ Which are real technical contributions?
- ✓ At which rate are contributions agreed, approved and incorporated?
- ✓ Who else was listed as a contributor?



Find prior art:

Iplytics Platform

- ✓ Search all fully indexed standards contributions.
- ✓ Identify relevant contributions to your invention and identify meetings and the first publication dates.

The screenshot displays the Iplytics platform search results interface. At the top, it shows 'Results: Analytics Search Data' and '98,314 Documents'. A search bar is present with the text 'Search...'. Below the search bar, there are options to 'Expand all', 'Sort by: Rank', and 'Direction:'. The main content area shows two search results. The first result is 'TR 36.747 v1.0.0 on Enhanced CRS and 4Rx SU-MIMO Interference Mitigation Performance Requirements for LTE; for information'. It includes a 'DESCRIPTION' section with a detailed abstract, a 'STANDARD COMMITTEE/CONSORTIUM' section listing 'RAN', a 'STANDARDS TYPE' section listing 'draft TR', and a 'RELEASES' section listing 'Release 14'. The 'STANDARD DOCUMENT ID (NORMALIZED)' is 'TR 36.747 - Enhanced CRS and 4Rx SU-MIMO Interference Mitigation Performance Requirements for LTE'. The second result is 'TR 36.747 v2.0.0 Enhanced CRS and 4Rx SU-MIMO Interference Mitigation Performance Requirements for LTE; for approval'. On the right side, there is a 'Filters' panel with various filters such as 'DATE RANGE', 'CONTRIBUTION WEIGHT', 'TECHNOLOGY GENERATION', 'RELEASES', 'STANDARD COMMITTEE/CONSORTIUM', 'STANDARD SETTING ORGANIZATION' (with 'TDocs' selected), and 'STANDARD DOCUMENT ID (NORMALIZED)'. A 'Weight' indicator shows '1' for both results. The bottom of the interface shows 'Standard Document Id: TR 36.747 v2.0.0 Publication Date: 2017-09-11 Status: approved'.

SEP licensors (patent owners)

SEP **licensors** use of IPlytics Platform:

- Align R&D investments, standards development, patent prosecution, patent portfolio management and licensing/monetization strategy to **file valid and essential patents** and to **commercialize SEPs** in world-wide licensing campaigns.
- Compare portfolios for **cross-license** negotiations and **monitor competition** making sure to sustain revenues both on the downstream product market as well as upstream licensing market.
- Monitor **competitors' standards development** investments (contribution count) and identify new standards groups to maintain leading positions in standards development.



SEP licensees (standards implementers)

SEP licensees use of IPlytics Platform:

- Value and determine portfolios offered for license. Prepare for **FRAND negotiation**. Identify the numerator and denominator to measure the patent holder's market share.
- **Identify standards subject** in the complex value chain of suppliers as SEP holder approach OEMs or at least Tier 1 supplier
- Monitor standards development to **quantify risks and plan royalty payments**.
- **Identify** industry related (e.g. V2X or M2M) **standards development initiatives** to have a seat at the table when future connectivity technology is developed.



Iplytics Europe and US

For more information on Iplytics Products and Services, please contact us on:

<https://www.iplytics.com/request-a-demo/>

Or call us at:

Europe +49 30 555 74282 or
USA +1 512 947 1152



Iplytics Asia

Japan



Will Jasprizza
Director
jasprizza@iplytics.com
M: +81 90 5276 4810



Yoshi Fukushima
Project Coordinator
fukushima@iplytics.com
T: +81 80 5744 9016

China



Zhao Le
Director
zhao.le@iplytics.com
M: +86 189 1870 7377



Howard Wu
Project Coordinator
howard.wu@iplytics.com
M: +86 18402148127

Korea



James Noh
Director
james.noh@iplytics.com
M 82-10-5418-2098



Hannah Kim
BD Manager
hannah.kim@iplytics.com
M 82-10-4650-3240



The **SEP** Couch

with Tim Pohlmann

Contact

Questions?

IPlytics GmbH

info@iplytics.com

www.iplytics.com