

Harmonizing Applicant Names

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Presentation Overview

- Why name harmonization is critical in IP data analysis
- Challenges with raw applicant names
- Common harmonization techniques
- WIPO's (DEDA) approach to name harmonization
- Key results and conclusions

The Role of IP Data in Policy Making

- Accurate IP data is essential for informed policy decisions
- Users include: IP offices, policymakers, businesses, researchers
- Prioritize accurate and appropriate methods

Why Harmonize Applicant Names?

- Inconsistent name entries: typos, abbreviations, legal suffixes (e.g., Inc. LLC. AG)
- Duplicate entries for one applicant
- Transliteration and language differences
- Consequences: Under/over-counting, misleading statistics

Example

Name	count	Name	count
KONINKLUKE PHILIPS ELECTRONICS N.V.	23,739	PHILIPS INTELLECTUAL PROPERTY & STANDARDS	3,758
KONINKLUKE PHILIPS ELECTRONICS, N.V.	2,665	PHILIPS INTELLECTUAL PROPERTY & STANDARDS GM	3,190
KONINKLUKE PHILIPS ELECTRONICS N. V.	1,365	PHILIPS INTELLECTUAL PROPERTY AND STANDARDS	59
KONINKLUKE PHILIPS ELECTRONICS NV	66	PHILIPS INTELLECTUAL PROPERTY&STANDARDS GME	14
KONINKLUKE PHILIPS ELECTRONICS N.V.,	29	PHILIPS INTELLECTUAL PROPERTY & STANDARD GMB	9
KONINKLUKE, PHILIPS, ELECTRONICS, N.V.	13	PHILIPS INTELLECTUAL PROPER STANDARDS	4
KONINKLUKE PHILIPS ELECTRONICS N.V.	9	PHILIPS INTERNATIONAL PROPERTY AND STANDARDS	3
KONINKLUKE PHILIPS ELECTRONICS N.V	7	PHILIPS INTERNATIONAL B.V. - INTELLECTUAL PROPEI	2
KONINKLUKE PHILIPS ELECTRONICS N.V.	5	PHILIPS INTELLECTUAL & STANDARDS GMBH	1
KONINKLUKE PHILIPS ELECTRONICS, NV	4	PHILIPS INTELLECTUAL PROPERTY & STANDARDS GM	1
KONINKLUKE PHILIPS ELECTRONICS N V	3	PHILIPS INTELLECTUAL PROPERTY AND STANDARDS,	1
KONINKLUKE PHILIPS ELECTRONICS N.V.	3	PHILIPS INTELLECTUAL PROPERTY GMBH	1
KONINKLUKE PHILIPS ELECTRONICS N.V.	2	PHILIPS INTELLECTUALL PROPERTY & STANDARD GM	1
KONINKLUKE PHILIPS ELECTRONICS N.V.	2	PHILIPS INTERNATIONAL B.V. INTELLECTUAL PROPER	1
KONINKLUKE PHILIPS ELECTRONICS, N. V.	2		
KONINKLUKE PHILIPS ELECTRONICS, N.V. INTELLE	2	KONINKLUKE PHILIPS N.V.	12,595
KONINKLUKE PHILIPS ELECTRONICS N.V.	2	KONINKLUKE PHILIPS N. V.	2
KONINKLUKE PHILIPS ELECTRONICS N.V.	2	KONINKLUKE PHILIPS N.V	2
KONINKLUKE PHILIPS ELECTRONICS NV	1	KONINKLUKE PHILIPS N.V.	1
KONINKLUKE PHILIPS ELECTRONICS N.V.	1	KONINKLUKE PHILIPS N.V.	1
KONINKLUKE PHILIPS ELECTRONICS N.V.	1	KONINKLUKE PHILIPS N.V.	1
KONINKLUKE PHILIPS ELECTRONICS N.V.	1	KONINKLUKE PHILIPS N.V.	1
KONINKLUKE PHILIPS ELECTRONIC N. V.	1	KONINKLUKE, PHILIPS	1
KONINKLUKE PHILIPS ELECTRONICS	1	KONINKLUKE PHILIPS N.V.	1
KONINKLUKE PHILIPS ELECTRONICS B.V.	1		
KONINKLUKE PHILIPS ELECTRONICS N.V..	1	PHILIPS ELECTRONICS N.V.	1,884
KONINKLUKE PHILIPS ELECTRONIQUE N.V.	1	PHILIPS ELECTRONICS UK LIMITED	31
KONINKLUKE PHILIPS ELECTRONICS N.V.	1	PHILIPS ELECTRONICS NORTH AMERICA CORPORATK	25
KONINKLUKE PHILIPS ELECTRONICS N.V.	1	PHILIPS ELECTRONICS U.K. LIMITED	4
KONINKLUKE PHILIPS ELECTRONICS N.V.	1	PHILIPS ELECTRONICS JAPAN, LTD.	1
KONINKLUKE PHILIPS ELECTRONICS	1	PHILIPS ELECTRONICS LTD	1
KONINKLUKE PHILIPS ELECTRONICS	1	PHILIPS ELECTRONICS N.V	1
KONINKLUKE PHILIPS ELECTRONICS NV	1	PHILIPS ELECTRONICS N.V.	1
		PHILIPS ELECTRONICS NORDEN AB	1
		PHILIPS ELECTRONICS UK LTD.	1

Name Harmonization Methods

- Dictionary-based (e.g., country-specific dictionaries)
- String similarity algorithms (Levenshtein, Jaro-Winkler)
- AI-based (large language models for context understanding)

WIPO's (DEDA) Harmonization Approach

- Objective: Improve accuracy of applicant-level data
- Method: Hybrid approach (dictionaries + string algorithms)
- Preprocessing: Capitalization, spacing, normalization, etc.

Matching Strategy

- Automatic matching
- Semi-automatic: User confirmation for uncertain cases
- Manual review: No match when uncertain

Results

2024 overall position in PCT ranking	Position changed in overall PCT ranking	Applicant's name	Country of origin	PCT application published in 2024	Increased over 2023
1	0	Huawei Technologies Co., Ltd.	China	6,600	106
2	0	Samsung Electronics Co., Ltd.	Republic of Korea	4,640	716
3	0	Qualcomm Incorporated	US	3,848	438
4	2	LG Electronics Inc.	Republic of Korea	2,083	196
5	3	Contemporary Amperex Technology Co., Limited	China	1,993	194
6	-1	BOE Technology Group Co.,Ltd	China	1,959	-29
7	-3	Mitsubishi Electric Corporation	Japan	1,956	-196
8	6	Beijing Xiaomi Mobile Software Co., Ltd.	China	1,889	286
9	-2	Telefonaktiebolaget LM Ericsson (Publ)	Sweden	1,886	23
10	0	Nippon Telegraph and Telephone Corporation	Japan	1,877	117
11	0	ZTE Corporation	China	1,851	113
12	0	Panasonic Intellectual Property Management Co., Ltd.	Japan	1,718	-4
13	4	LG Energy Solution, Ltd.	Republic of Korea	1,452	29
14	-5	Guang Dong Oppo Mobile Telecommunications Corp., Ltd	China	1,252	-514
15	0	NEC Corporation	Japan	1,241	-351
16	2	Microsoft Technology Licensing, LLC	US	1,237	-113
16	3	Robert Bosch Corporation	Germany	1,237	-70
18	5	Google Inc.	US	1,236	335
19	-6	Vivo Mobile Communication Co., Ltd.	China	1,212	-419
20	9	Apple Inc.	US	1,202	441
21	-5	Sony Group Corporation	Japan	1,134	-299
22	-1	NTT Docomo, Inc.	Japan	976	-40
23	-3	Murata Manufacturing Co., Ltd.	Japan	867	-184
24	10	Tencent Technology (Shenzhen) Company Limited	China	832	155
25	0	Fujifilm Corporation	Japan	804	-21
26	9	Applied Materials, Inc.	US	788	150
27	0	Beijing Zitiao Network Technology Co., Ltd.	China	760	-50
28	3	Koninklijke Philips Electronics N.V.	Netherlands (Kingdom of the)	755	6
29	-1	Sony Semiconductor Solutions Corporation	Japan	733	-48
30	7	Nokia Technologies OY	Finland	725	97

Results & Limitations

- Accurate applicant and sectoral statistics
- Limitations: Time-intensive, not fully automated
- Requires ongoing expert refinement