



Intellectual
Property
Office

Identifying potentially commercially disruptive technologies



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Senior Analyst

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Our question

Can the patenting behaviour surrounding historically ground breaking products be used to identify ground breaking, disruptive or emerging technologies?

The ground breaking products

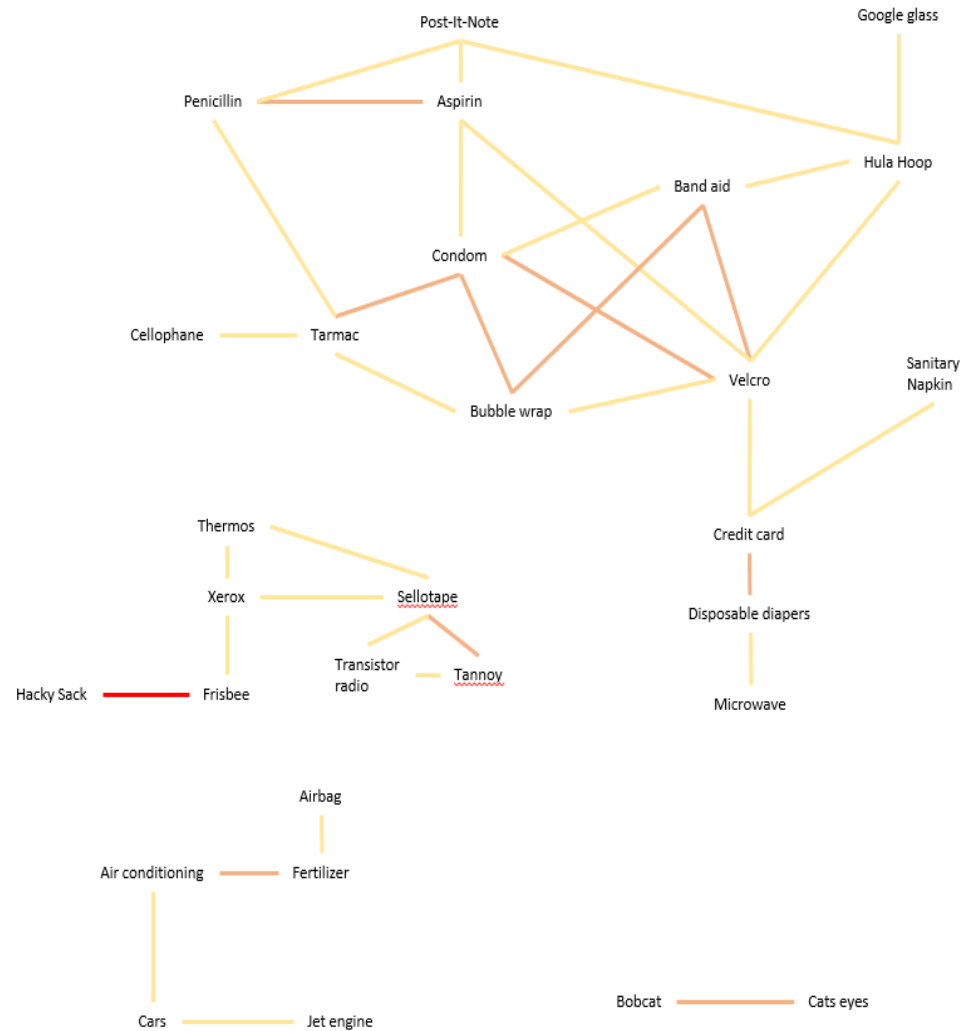
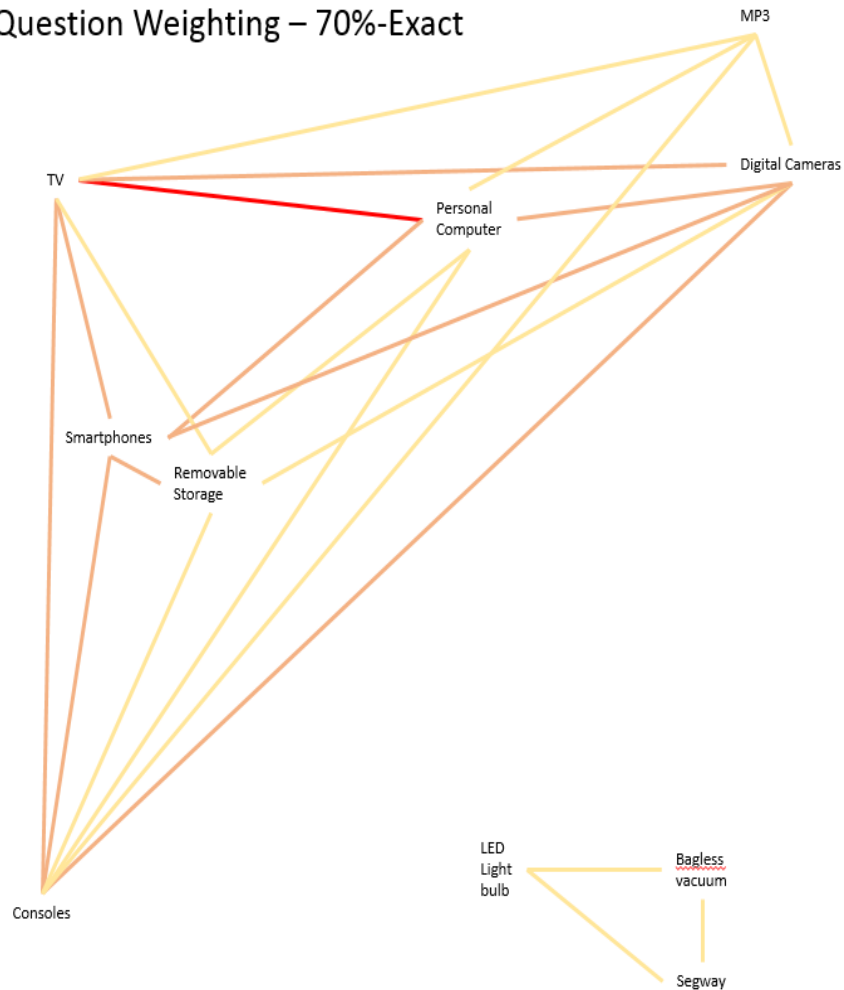


Back stories

Discovery rather than invention	One main player	Few improvements on ground breaker	Mainly generic products	Individual developed
Invention rather than discovery	Industry with a small number of big players	A number of generations following ground breaker and then minimal improvements	Some generic followers	Firm developed
Main players have changed over time	Industry with a large number of players		No generic followers	Tech worked on and developed by separate companies
			Luxury Good	
Main players are the same over time	Ground breaker internationally developed	Still regular new generations	Notable time between original tech invention and ground breaking product	Ground breaking product purchased by a larger firm
Main players have been added to over time	Ground breaker nationally developed	A number of iterations before take off		

Clustering

Question Weighting – 70%-Exact



Colour	Description
Red	90-100
Orange	80-90
Yellow	70-80
Green	60-70

Bobcat	Cats eyes
Vaseline	Dry Ice
Mimeograph	Biro

Data

- Ground breaking technology area
- Ground breaking applicant
- 400 + variables

Total patent applications/granted

Applicant type

Holdings

Existing/new applicants

Inventors

Family

Citations

IPC

Unclassifiable IPC

Next steps

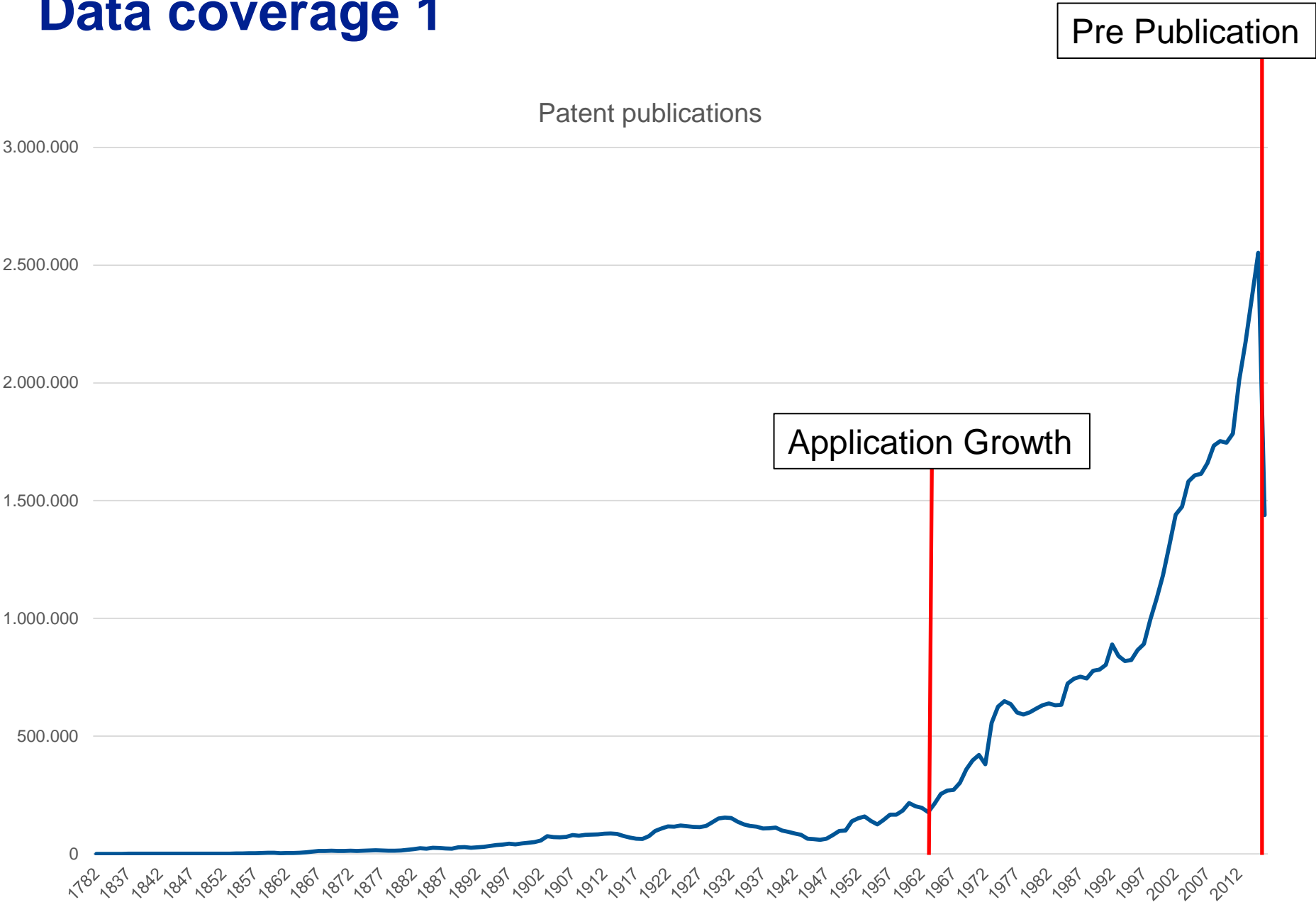
1. Identify variables synonymous within the ground breaking technology groups
2. Group patent data into technology groups and search for patterns like those synonymous with ground breaking technology groups

Data science



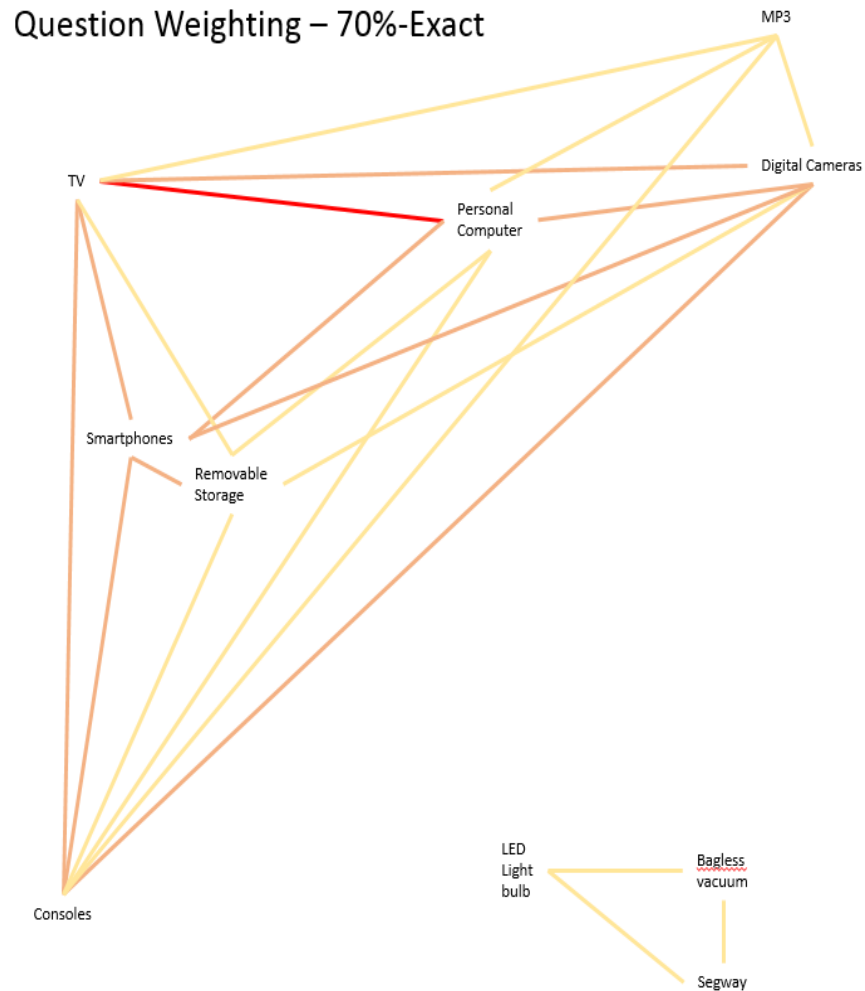
**Data Science
Campus**

Data coverage 1

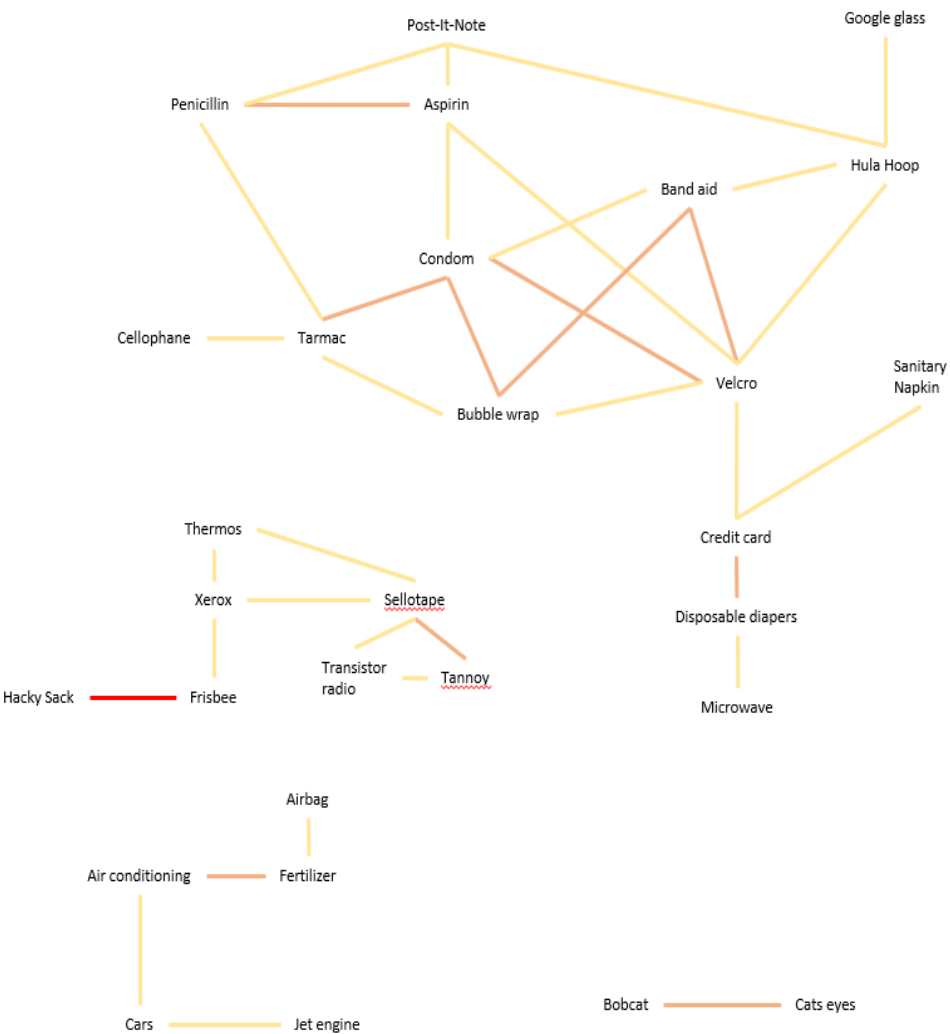


Data coverage

Question Weighting – 70%-Exact



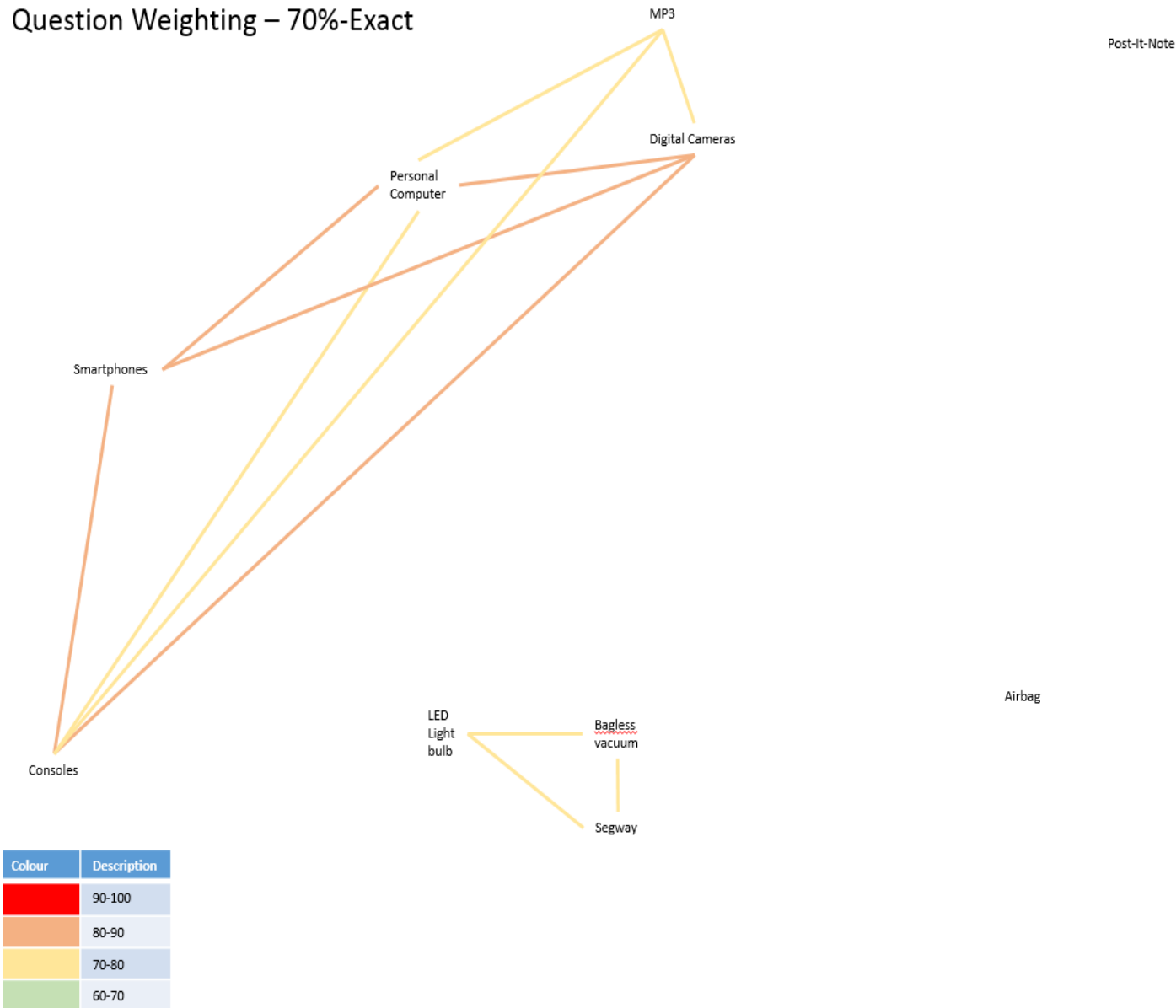
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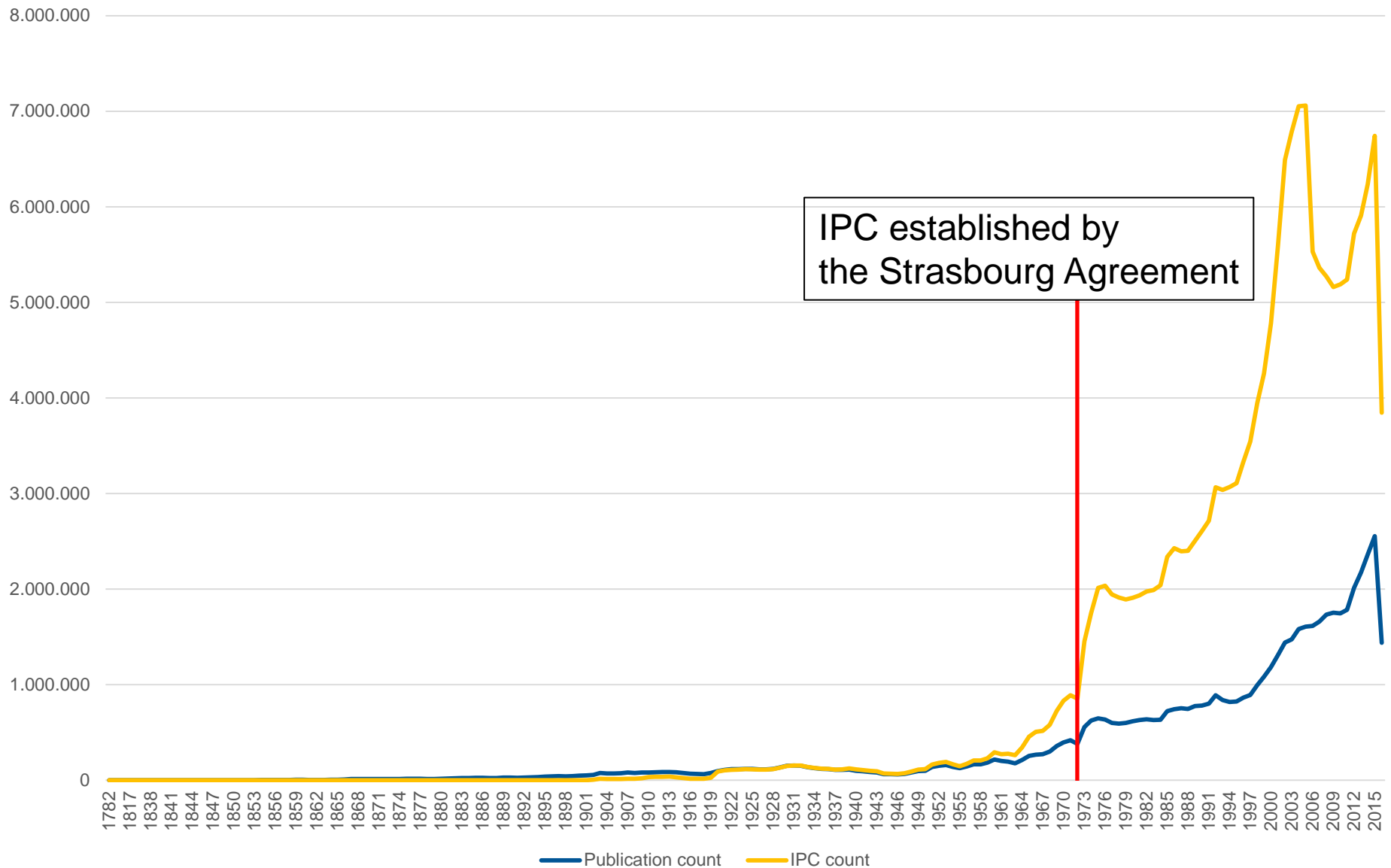
Data coverage

Question Weighting – 70%-Exact

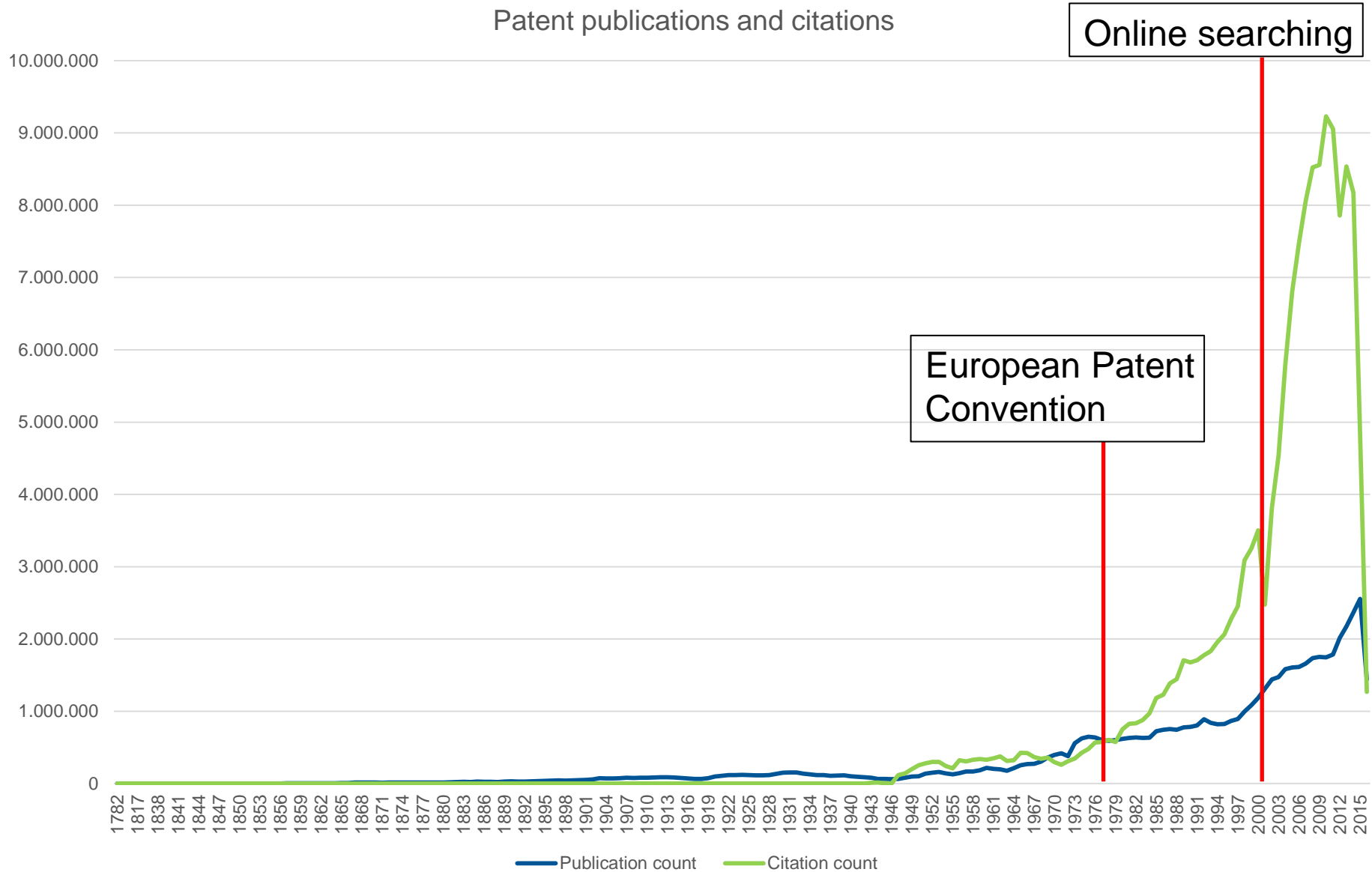


Data coverage 2

Patent publications and IPC



Data coverage 3



Next steps

1. Identify variables synonymous with the ground breaking technology groups
2. Group patent data into technology groups and search for patterns like those synonymous with ground breaking technology groups

2nd Emerging Technology project

Using data science techniques to analyse patent text to identify product/technology groups.

Patent text data

Claims US2018157700

Storing and verifying event logs in a blockchain

1. What is claimed is: 1. A method, comprising:
receiving an event log comprising events which occurred during operation of a computer;
generating a hash value for the event log;
adding details of the event log and the hash value as a transaction to a distributed blockchain; and
storing the event log in a file store.

Patent text data

Claims US2018157700

Storing and verifying event logs in a blockchain

Symbol	Classification and description
G	PHYSICS
INSTRUMENTS	
G06	COMPUTING; CALCULATING; COUNTING (score computers for games A63B 71/06 , A63D 15/20 , A63F 1/18 ; combinations of writing implements with computing devices B43K 29/08)
G06F	ELECTRIC DIGITAL DATA PROCESSING (computer systems based on specific computational models G06N)
G06F 17/00	Digital computing or data processing equipment or methods, specially adapted for specific functions
G06F 17/30	<ul style="list-style-type: none">Information retrieval; Database structures therefor {; File system structures therefor (data processing systems or methods specially adapted for administrative, commercial, financial managerial, supervisory or forecasting purposes G06Q)}

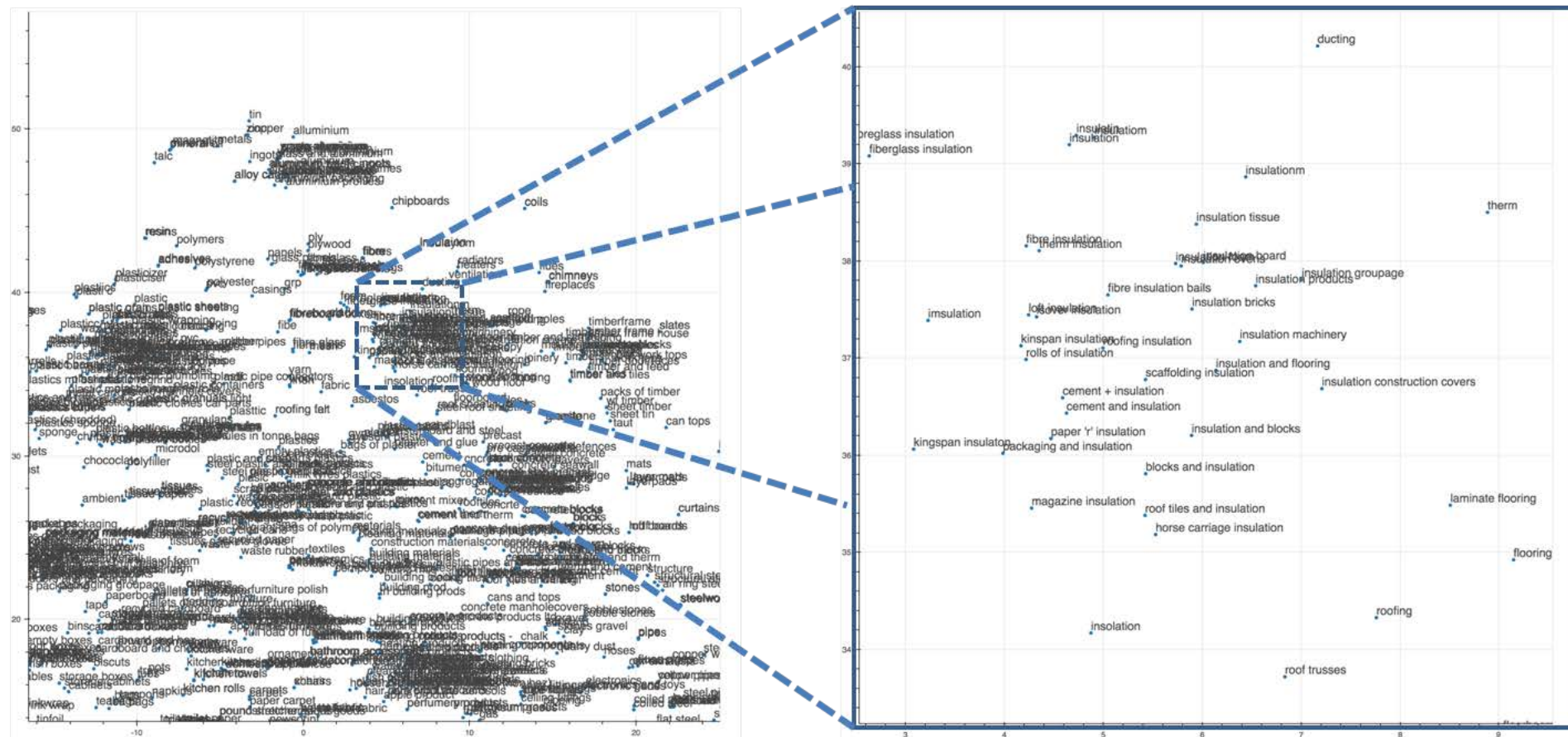
Patent text data

Claims US2018157700

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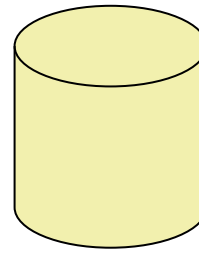
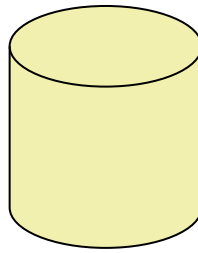
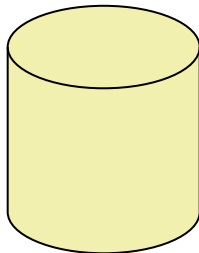
fastText



Obstacles

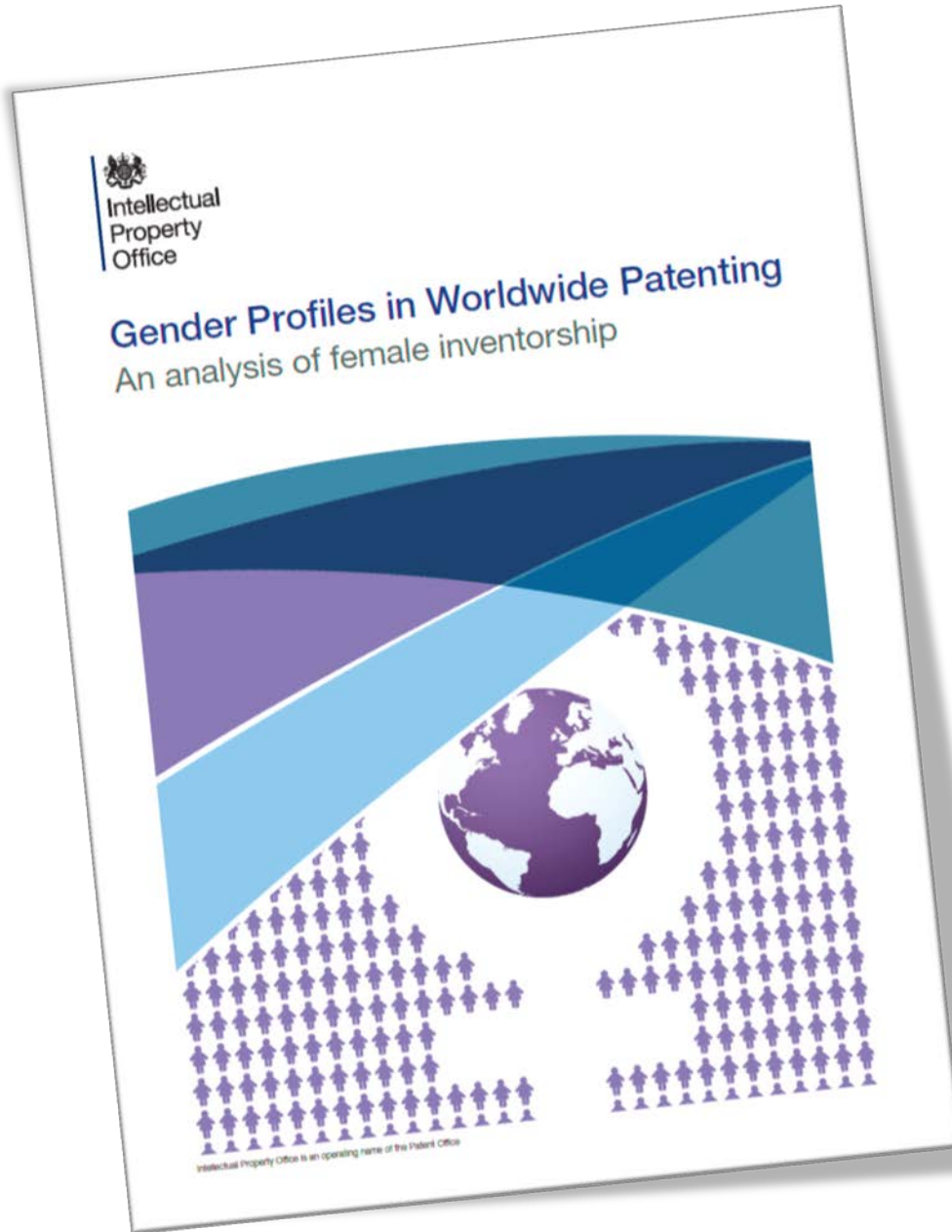
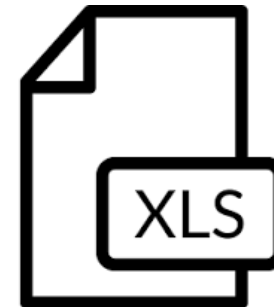


Secure databases



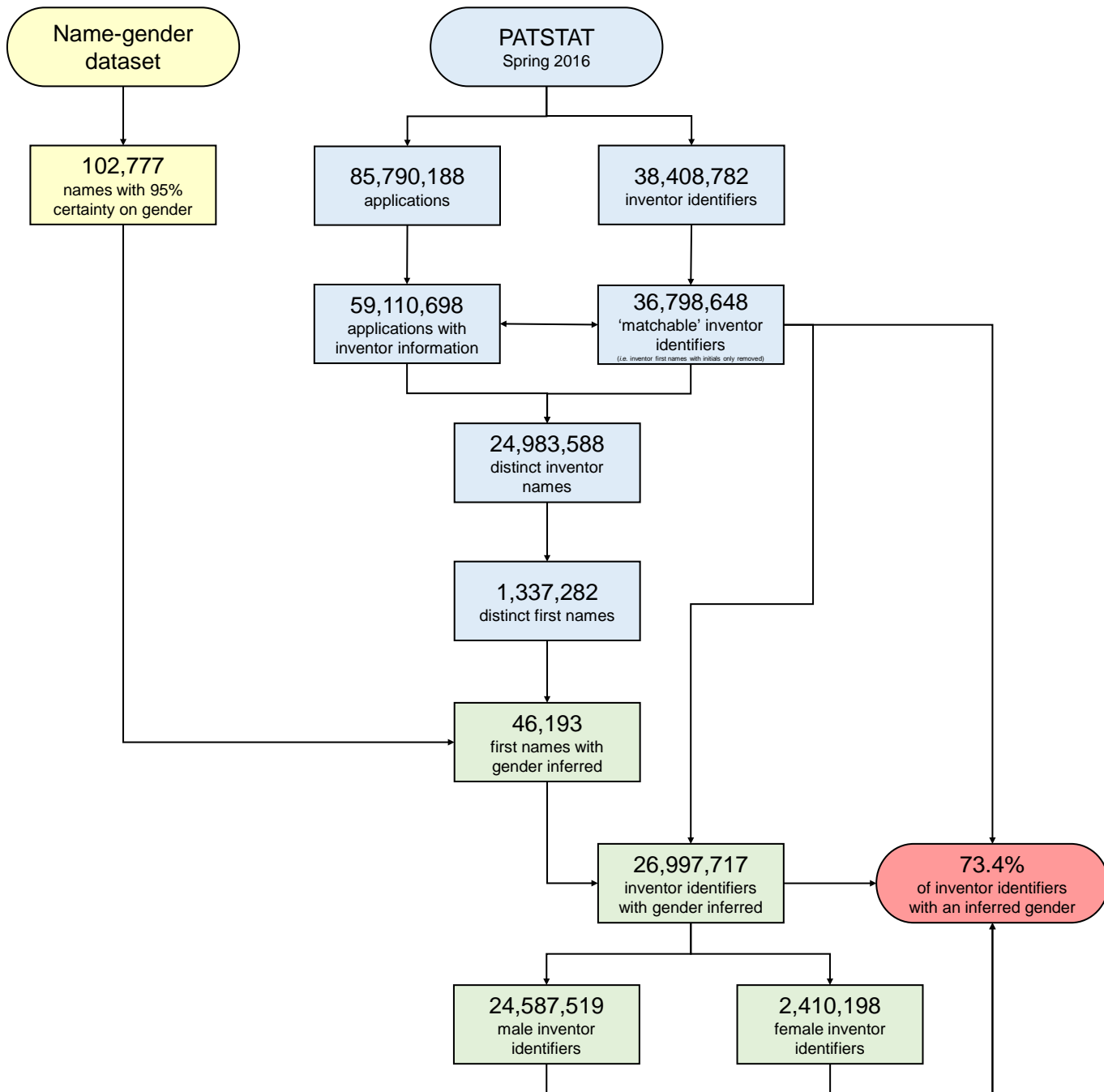


GOV.UK






PATSTAT inventor name matching




person_id	patstat_name	person_ctry_code	appln_auth	person_id	AppCount	firstname	firstname	gender
39438146	BUSSEY BUDDY H.III	US	US	39438146	1	BUDDY	Buddy	M
25106778	CRUDDEN, J.	US	DE	25106778	2	NULL	NULL	NULL
35322180	DZHUMAGALIEV MURZASH D,SU		SU	35322180	1	MURZASH	NULL	NULL
25122	Floyd, Middleton Brawner Jr.	US	EP	25122	1	Middleton	Middleton	M
11944189	Gaddis, II, Scott Carter	US	US	11944189	4	Scott	Scott	M
4959514	Holman, Martin Earl, IV	US	EP	4959514	1	Martin	Martin	M
1357405	JANSSEN, Paul A. J. (deceased)	BE	EP	1357405	1	Paul	Paul	M
46550	Pugliese, Anthony V. IV	US	EP	46550	1	Anthony	Anthony	M
54801	Reddig, Wolfram, Dr.	DE	EP	54801	4	Wolfram	Wolfram	M
25096602	REDDY, G.	US	DE	25096602	6	NULL	NULL	NULL
54825	Schmedders, Stefan, Dipl.-Ing.	DE	EP	54825	2	Stefan	Stefan	M
9819795	Stoddard, Jr., William H.	US	US	9819795	2	William	William	M
77607	TAKKEN, Todd, E., c/o IBM United Kingdom Limited	GB	EP	77607	1	Todd	Todd	M
20608863	TISCHER,HANS-JOACHIM,DD		CS	20608863	1	HANS-JOACHIM	Hans-Joachim	M
20608863	TISCHER,HANS-JOACHIM,DD		DD	20608863	2	HANS-JOACHIM	Hans-Joachim	M

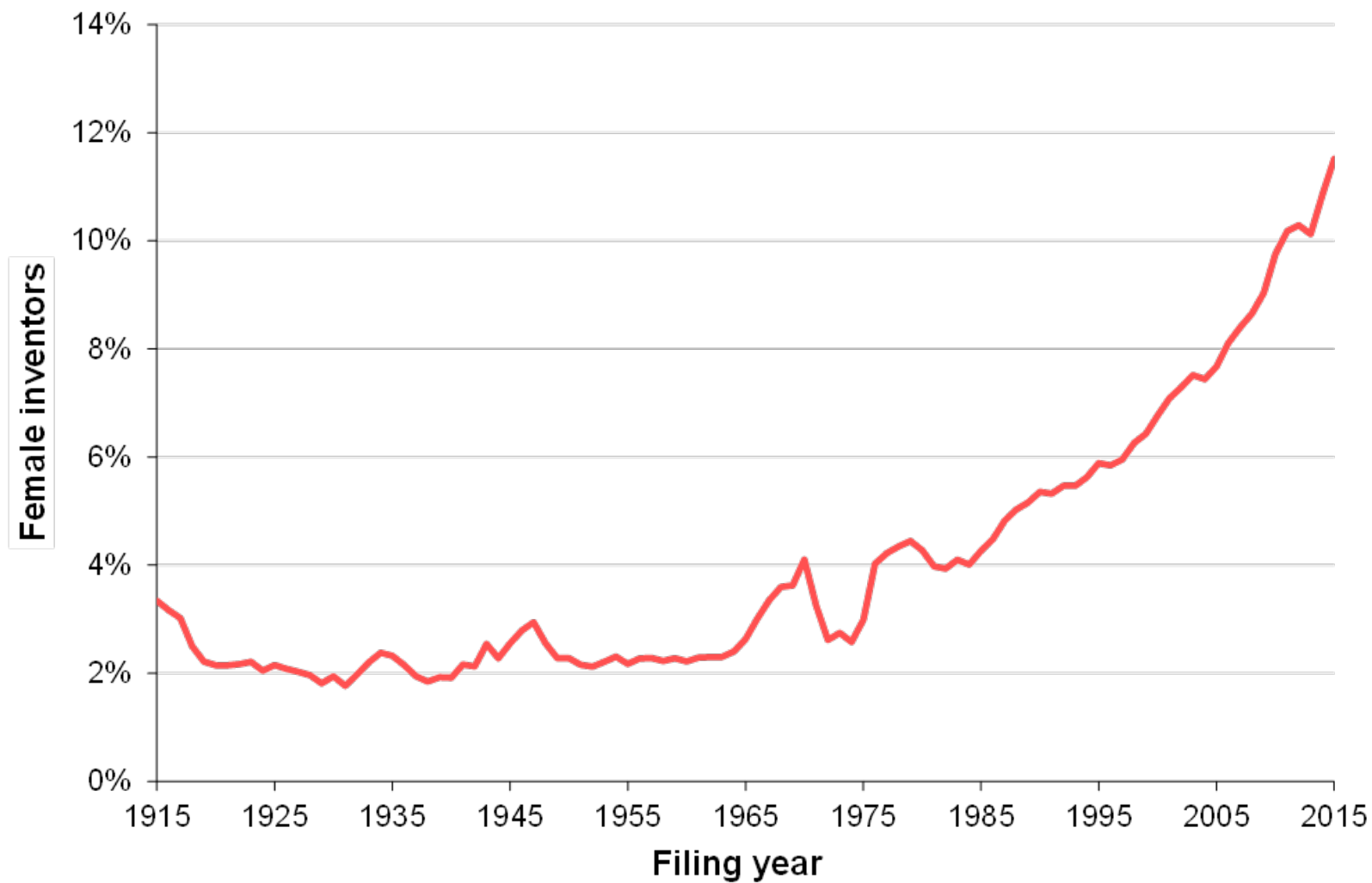


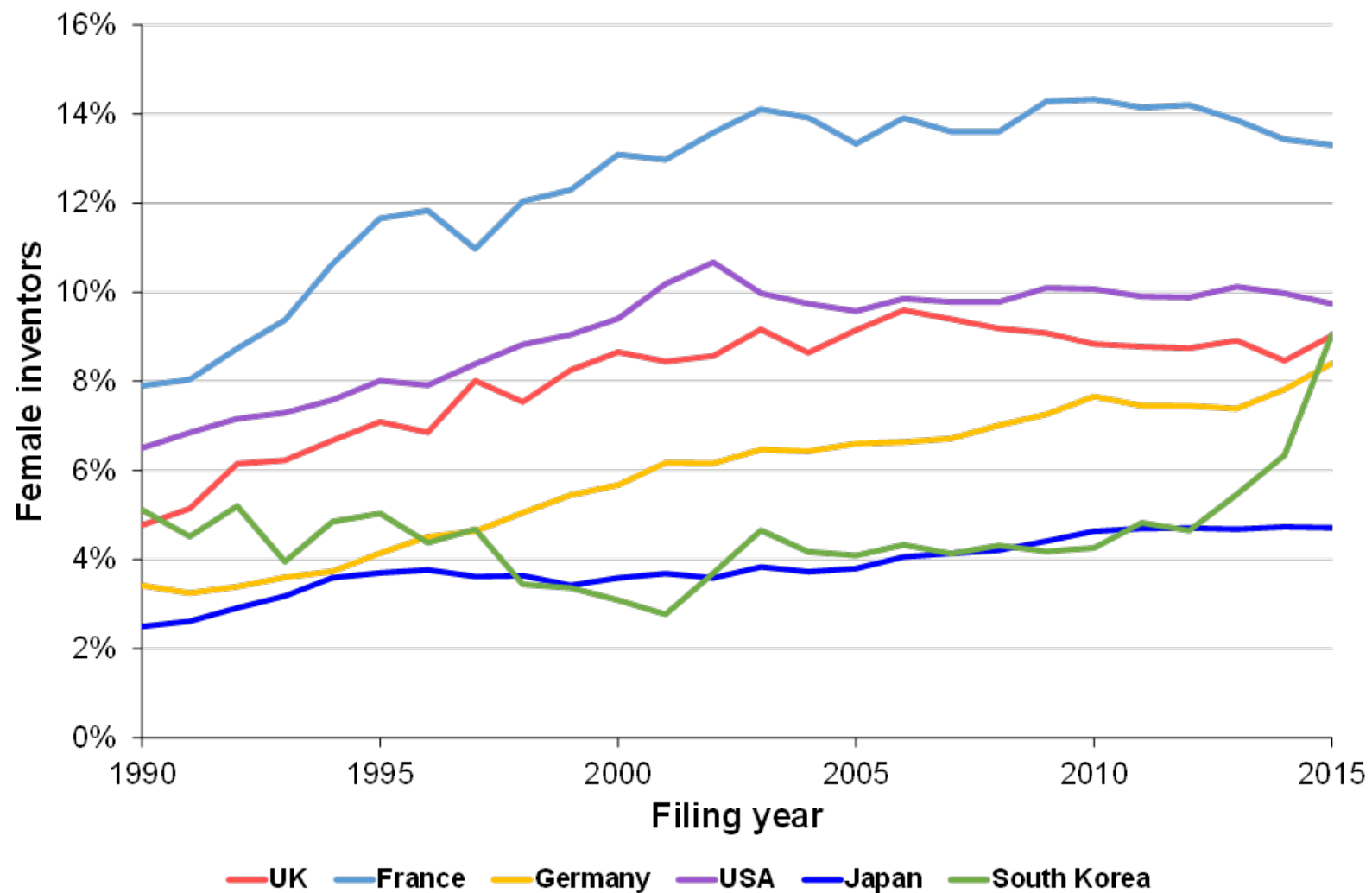
Rank	Male names	Unique inventor identifiers
1	John	475,112
2	Robert	402,528
3	Michael	390,270
4	David	383,531
5	James	306,289
6	William	287,773
7	Thomas	278,326
8	Peter	266,223
9	Richard	242,181
10	Paul	205,966
11	Charles	161,881
12	Joseph	159,530
13	Mark	158,426
14	Daniel	142,641
15	Vladimir	136,562
16	George	129,961
17	Martin	116,039
18	Frank	112,370
19	Stephen	106,879
20	Hans	106,705

Rank	Female names	Unique inventor identifiers
1	Maria	31,583
2	Elena	20,837
3	Anna	19,838
4	Susan	18,598
5	Mary	17,945
6	Galina	15,839
7	Irina	15,629
8	Barbara	14,558
9	Tatyana	14,364
10	Jennifer	14,353
11	Anne	14,192
12	Christine	13,876
13	Lyudmila	13,629
14	Elizabeth	13,556
15	Valentina	13,292
16	Karen	13,226
17	Olga	12,531
18	Nina	12,383
19	Catherine	11,820
20	Patricia	11,528

					
♂	♀	♂	♀	♂	♀
David	Susan	Philippe	Jean-Marie	Thomas	Sabine
John	Helen	Jean	Isabelle	Michael	Ulrike
Michael	Sarah	Michel	Catherine	Peter	Claudia
Peter	Elizabeth	Pierre	Nathalie	Wolfgang	Andrea
Andrew	Alison	Alain	Anne	Andreas	Susanne
Paul	Catherine	Bernard	Christine	Klaus	Petra
Robert	Jane	Jacques	Sylvie	Matthias	Ulrike

Robert	Jane	Jacques	Sylvie						
Richard	Karen	Patrick	Sophie						
Stephen	Julie	Laurent	Marie						
James	Mary	Christian	Françoise	♂	♀	♂	♀	♂	♀
Christopher	Anne	Eric	Veronique	John	Susan	Hiroshi	Tomoko	Vladimir	Elena
William	Caroline	Jean-Pierre	Florence	David	Mary	Takashi	Akiko	Aleksandr	Irina
Ian	Margaret	Olivier	Valerie	Robert	Jennifer	Hiroyuki	Yuko	Oleg	Galina
Mark	Emma	Christophe	Sandra	Michael	Karen	Takeshi	Keiko	Sergej	Svetlana
Alan	Claire	Claude	Claire	James	Elizabeth	Kenji	Noriko	Viktor	Julija
Martin	Ashley	Daniel	Pascale	William	Lisa	Satoshi	Hiroko	Nikolaj	Ljudmila
Anthony	Louise	Pascal	Caroline	Richard	Linda	Makoto	Tomomi	Mikhail	Marina
Simon	Gillian	Thierry	Corinne	Thomas	Barbara	Masahiro	Naoko	Jurij	Anna
Philip	Sandra	Francois	Cecile	Mark	Patricia	Koji	Junko	Aleksej	Valentina
Brian	Rachel	Gerard	Martin	Paul	Nancy	Atsushi	Kyoko	Andrej	Marija
				Joseph	Laura	Kenichi	Yukiko	Evgenij	Nadezhda
				Charles	Deborah	Masayuki	Kaori	Igor	Nina
				Daniel	Christine	Osamu	Yumiko	Anatolij	Ekaterina
				Steven	Maria	Kazuo	Miyuki	Valerij	Larisa
				Jeffrey	Amy	Koichi	Naomi	Dmitrij	Tatyana
				Peter	Lynn	Shinichi	Masako	Boris	Eva
				Stephen	Margaret	Yuji	Yoshiko	Tatjana	Olga
				Christopher	Jean	Toshio	Ayako	Gennadij	Tamara
				Brian	Ann	Hiroaki	Mayumi	Yurij	Vera
				George	Kathleen	Yasuhiro	Sachiko	Ivan	Ljubov





Thank you for listening

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