

B&Z

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# BARZANÒ & ZANARDO

INTELLECTUAL PROPERTY

SERGIO DI GENNARO



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INTELLECTUAL PROPERTY

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# Patent Landscape

Milano 16.04.2026

# B&Z Patent Landscape - Program

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## Patent landscape.

- Meaning of
- Purpose of
- Questions that analysis answers
- Process steps
- Results
- Examples

# B&Z Patent Landscape

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- ❑ A Patent Landscape is an evaluation of a set of patents.
- ❑ Scope of a Landscape is guided by the desired *business objective*.
- ❑ Represented as intelligent visuals



# B&Z Patent Landscape

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## Patent Landscape meaning

- Patent data analysis revealing market, competition and technology trends.
- Snapshot of a specific industry, technology, or geographic region.

# B&Z Patent Landscape

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## Purposes

The information derived from a patent analysis is useful for a company, a research institute, an University etc...

- For:**
- Generate new technologies.
  - Monitor competitor activity.
  - Design product or process bypassing patents (design around) .
  - Identify licensing and M&A targets.
  - Reduce legal risks (performing freedom to operate analysis).
  - Avoid spending time and money on outdated/crowded technologies/industries.
  - Engage person from R&D, marketing, legal and business development groups to patents
  - Optimize internal research and development processes.
  - Establish a comprehensive and well-informed IP strategy (acquire filing strategies and general protection of competitors)

# B&Z Patent Landscape

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## Purposes

### Economic advantages for a company :

- Cost reduction (R&D).
- Reduction of costs and product marketing times.
- Reduction of defensive litigation costs on patents.
- Elimination of redundant search.
- Increased revenue (litigation/offensive licensing).

# B&Z Patent Landscape

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## Questions arising (Examples)

- Which organizations (companies, research institutions, others) operate in a certain territory.

**Es. USA Companies operate in Europa**



2018 (*European Patent Office data*)

- United Technologies 1.983
- Qualcomm 1.593
- General Electric, 1.307
- Intel 1.057
- Microsoft 975
- Alphabet (Google) 779
- Apple 375

# B&Z Patent Landscape

## Questions arising (Examples)

- Which technologies and sectors are most innovative.

E.g. which sectors have higher number of patents: 2022 (*European Patent Office data*)

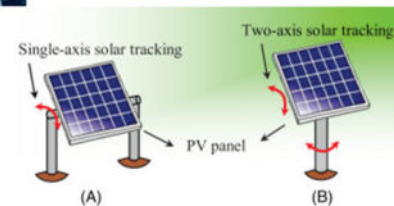
Digital Communications-16.705 (+11,2% annuo)



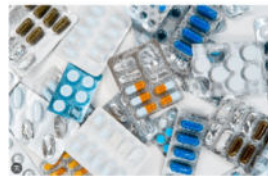
Medical devices (tecnologies)- 15.683 (+1%)



Electrical machines, equipment and energy -13.951, (+18,2%)



Pharmaceutical industry- 9.310 (+1,0%)





# B&Z Patent Landscape

## Questions (examples)

- How long it takes for innovations to reach the market

2017

2021



Inventor:  
Sarah Gilbert

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# B&Z Patent Landscape

## Questions (examples)

- How long it takes for innovations to reach the market

2020

2021

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)  
 (19) World Intellectual Property Organization  
 International Bureau  
 (43) International Publication Date: 13 January 2022 (13.01.2022) WIPO PCT  
 (01) International Publication Number: WO 2022/011092 A1

(51) International Patent Classification:  
 A61K 9/12 (2006.01) A61K 31/715 (2006.01)  
 A61K 8/51 (2006.01) A61K 31/00 (2006.01)  
 A61K 31/78 (2006.01) A61K 31/72 (2006.01)

(21) International Application Number: PCT/US2021/048811

(22) International Filing Date: 08 July 2021 (08.07.2021)

(25) Filing Language: English  
 (26) Publication Language: English

(30) Priority Date: 08 July 2020 (08.07.2020) US 63189,295

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GG, GR, GT, HK, HN, HU, ID, IL, IN, IR, IS, IT, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published: — with international search report (Art. 21(3))  
 — before the expiration of the time limit for amendment of the claims and to be republished in the event of receipt of amendments (Rule 96.2(a))  
 — with sequence listing part of description (Rule 5.2(a))

(84) Title: NUCLEOSIDE-MODIFIED RNA FOR INDUCING AN IMMUNE RESPONSE AGAINST SARS-COV-2

(57) Abstract: The present invention relates to compositions and methods for inducing an adaptive immune response against severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in a subject. In certain embodiments, the present invention provides a composition comprising a nucleoside-modified nucleic acid molecule encoding a SARS-CoV-2 antigen, adjuvant, or a combination thereof. For example, in certain embodiments, the composition comprises a vaccine comprising a nucleoside-modified nucleic acid molecule encoding a SARS-CoV-2 antigen, adjuvant, or a combination thereof.

Fig. 1A

Group	logAUC (approx.)
Mock	3.5
RBD	0.5



Inventors:

KARIKO KATALIN

WEISSMAN DREW

Try a Search

[https://worldwide.espacenet.com/advancedSearch?locale=en\\_EP](https://worldwide.espacenet.com/advancedSearch?locale=en_EP)

## The Process

1. Research.
2. Data analysis.
3. Create categories and populations.
4. Create visualization charts/tables.

# B&Z Patent Landscape

## The Process – Resercher – The Database

### Free database

UIBM - Ufficio Italiano Brevetti Marchi



WIPO - World Intellectual Property Organization



Esp@cenet - The European Network of patents



USPTO – patent database



### Professional database with costs



LexisNexis PatentSight®

# B&Z Patent Landscape

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## The Process - Resercher

Search for Int. technology classifications.

Search for Key words

Serch by patent owner (Company, investment funds, Institute, University, people)

Geographical indications (countries, regions, conventions).

# B&Z Patent Landscape

## Process - Resercher

Search by technological classes – International Patent Classification IPC

<input type="checkbox"/>	<b>A</b>	HUMAN NECESSITIES	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	<b>B</b>	PERFORMING OPERATIONS; TRANSPORTING	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<b>C</b>	CHEMISTRY; METALLURGY	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<b>D</b>	TEXTILES; PAPER	<input type="checkbox"/>	
<input type="checkbox"/>	<b>E</b>	FIXED CONSTRUCTIONS	<input type="checkbox"/>	
<input type="checkbox"/>	<b>F</b>	MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<b>G</b>	PHYSICS	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<b>H</b>	ELECTRICITY	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/>	<b>Y</b>	GENERAL TAGGING OF NEW TECHNOLOGICAL DEVELOPMENTS; GENERAL TAGGING OF CROSS-SECTIONAL TECHNOLOGIES SPANNING OVER SEVERAL SECTIONS OF THE IPC; TECHNICAL SUBJECTS COVERED BY FORMER USPC CROSS-REFERENCE ART COLLECTIONS [XRACs] AND DIGESTS	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## The Process - resercher

### Search by technological classes – International Patent Classification IPC

<input type="checkbox"/> A	HUMAN NECESSITIES	S
<b>AGRICULTURE</b>		
<input type="checkbox"/> A01	AGRICULTURE; FORESTRY; ANIMAL HUSBANDRY; HUNTING; TRAPPING; FISHING	
<b>FOODSTUFFS; TOBACCO</b>		
<input type="checkbox"/> A21	BAKING; EDIBLE DOUGHS	
<input type="checkbox"/> A22	BUTCHERING; MEAT TREATMENT; PROCESSING POULTRY OR FISH	
<input type="checkbox"/> A23	FOODS OR FOODSTUFFS; TREATMENT THEREOF, NOT COVERED BY OTHER CLASSES	i
<input type="checkbox"/> A24	TOBACCO; CIGARS; CIGARETTES; SIMULATED SMOKING DEVICES; SMOKERS' REQUISITES	i
<b>PERSONAL OR DOMESTIC ARTICLES</b>		
<input type="checkbox"/> A41	WEARING APPAREL	
<input type="checkbox"/> A42	HEADWEAR	
<input type="checkbox"/> A43	FOOTWEAR	
<input type="checkbox"/> A44	HABERDASHERY; JEWELLERY	
<input type="checkbox"/> A45	HAND OR TRAVELLING ARTICLES	
<input type="checkbox"/> A46	BRUSHWARE	
<input type="checkbox"/> A47	FURNITURE; DOMESTIC ARTICLES OR APPLIANCES; COFFEE MILLS; SPICE MILLS; SUCTION CLEANERS IN GENERAL	i
<b>HEALTH; AMUSEMENT</b>		
<input type="checkbox"/> A61	MEDICAL OR VETERINARY SCIENCE; HYGIENE	
<input type="checkbox"/> A62	LIFE-SAVING; FIRE-FIGHTING	
<input type="checkbox"/> A63	SPORTS; GAMES; AMUSEMENTS	
<input type="checkbox"/> A99	SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION	

Symbol	Classification and description	S	i
<input type="checkbox"/> H	ELECTRICITY	S	i
<input type="checkbox"/> H01	ELECTRIC ELEMENTS		i
<input type="checkbox"/> H02	GENERATION; CONVERSION OR DISTRIBUTION OF ELECTRIC POWER		
<input type="checkbox"/> H03	ELECTRONIC CIRCUITRY		
<input type="checkbox"/> H04	ELECTRIC COMMUNICATION TECHNIQUE		i
<input type="checkbox"/> H05	ELECTRIC TECHNIQUES NOT OTHERWISE PROVIDED FOR		
<input type="checkbox"/> H10	SEMICONDUCTOR DEVICES; ELECTRIC SOLID-STATE DEVICES NOT OTHERWISE PROVIDED FOR		
<input type="checkbox"/> H99	SUBJECT MATTER NOT OTHERWISE PROVIDED FOR IN THIS SECTION		





























# B&Z Patent Landscape

## The Process - resercher

Search by technological classes –  
International Patent Classification IPC

Example of Link:

[https://worldwide.espacenet.com/classification?locale=en\\_EP](https://worldwide.espacenet.com/classification?locale=en_EP)

Symbol	Classification and description	
<input type="checkbox"/> H	ELECTRICITY	 
<input type="checkbox"/> H04	ELECTRIC COMMUNICATION TECHNIQUE	
<input type="checkbox"/> H04R	LOUDSPEAKERS, MICROPHONES, GRAMOPHONE PICK-UPS OR LIKE ACOUSTIC ELECTROMECHANICAL TRANSDUCERS; DEAF-AID SETS; PUBLIC ADDRESS SYSTEMS (generating mechanical vibrations in general <a href="#">B06B</a> ; transducers for measuring particular variables <a href="#">G01</a> ; transducers in clocks <a href="#">G04</a> ; producing sounds with frequency not determined by supply frequency <a href="#">G10K</a> ; transducers in recording or reproducing heads <a href="#">G11B</a> ; transducers in motors <a href="#">H02</a> )	  
<input checked="" type="checkbox"/> H04R 1/00	Details of transducers, (loudspeakers or microphones)	
<input type="checkbox"/> H04R 1/005	• (using digitally weighted transducing elements)	
<input type="checkbox"/> H04R 1/02	• Casings; Cabinets [; Supports therefor ] Mountings therein ( <a href="#">H04R 1/28</a> takes precedence [; attachments for microphones <a href="#">H04R 1/08</a> ; mounting of transducers in earpieces <a href="#">H04R 1/1075</a> ])	
<input type="checkbox"/> H04R 1/021	•• (incorporating only one transducer)	
<input type="checkbox"/> H04R 1/023	•• (Screens for loudspeakers)	
<input type="checkbox"/> H04R 1/025	•• (Arrangements for fixing loudspeaker transducers, e.g. in a box, furniture)	
<input type="checkbox"/> H04R 1/026	•• (Supports for loudspeaker casings)	
<input type="checkbox"/> H04R 1/028	•• (associated with devices performing functions other than acoustics, e.g. electric candles)	
<input type="checkbox"/> H04R 1/04	•• Structural association of microphone with electric circuitry therefor (in deaf-aid sets. <a href="#">H04R 25/00</a> )	
<input type="checkbox"/> H04R 1/06	• Arranging circuit leads; Relieving strain on circuit leads	
<input type="checkbox"/> H04R 1/08	• Mouthpieces; (Microphones;) Attachments therefor	
<input type="checkbox"/> H04R 1/083	•• (Special constructions of mouthpieces)	
<input type="checkbox"/> H04R 1/086	••• (Protective screens, e.g. all weather or wind screens)	
<input type="checkbox"/> H04R 1/10	• Earpieces; Attachments therefor [; Earphones; Monophonic headphones ( <a href="#">H04R 1/28</a> takes precedence; stereophonic headphones <a href="#">H04R 5/033</a> )]	 
<input type="checkbox"/> H04R 1/1008	•• (Earpieces of the supra-aural or circum-aural type)	
<input type="checkbox"/> H04R 1/1016	•• (Earpieces of the intra-aural type)	
<input type="checkbox"/> H04R 1/1025	•• (Accumulators or arrangements for charging (secondary cells <a href="#">par. se</a> <a href="#">H01M 10/00</a> ; charging in general <a href="#">H02J 7/00</a> ))	
<input type="checkbox"/> H04R 1/1033	•• (Cables or cables storage, e.g. cable reels (cord reels <a href="#">par. se</a> <a href="#">H02G 11/02</a> ; arrangements for storing and repeatedly paying-out and re-storing lengths of conductors or cables <a href="#">B65H 75/34</a> ; extensible conductors or cables, e.g. self-coiling cords <a href="#">H01B 7/06</a> ))	
<input type="checkbox"/> H04R 1/1041	•• (Mechanical or electronic switches, or control elements (switches in general <a href="#">H01H</a> ))	
<input type="checkbox"/> H04R 1/105	•• (Earpiece supports, e.g. ear hooks (for stereophonic headphones <a href="#">H04R 5/0335</a> ))	
<input type="checkbox"/> H04R 1/1058	•• (Manufacture or assembly)	
<input type="checkbox"/> H04R 1/1066	••• (Constructional aspects of the interconnection between earpiece and earpiece support (earpiece support for monophonic headphones <a href="#">H04R 1/105</a> ; earpiece support for stereophonic headphones <a href="#">H04R 5/0335</a> ))	
<input type="checkbox"/> H04R 1/1075	••• (Mountings of transducers in earphones or headphones)	
<input type="checkbox"/> H04R 1/1083	•• (Reduction of ambient noise (active noise reduction <a href="#">par. se</a> <a href="#">G10K 11/175</a> ; protective devices for the ear, e.g. providing acoustic protection <a href="#">A61F 11/06</a> ))	
<input type="checkbox"/> H04R 1/1091	•• (Details not provided for in groups <a href="#">H04R 1/1008</a> - <a href="#">H04R 1/1083</a> )	

# B&Z Patent Landscape

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## The Process Key Word definition

Use boolean operator as AND, OR, NOT ecc...

Use Truncation

Enter **screw\*** to find any word beginning with **screw** ,  
e.g. **screws** , **screwdriver** , **screwing** , **screw**er , etc.

Enter **screw?** to find the words **screw** or **screws** .

Enter **Ann#** to find the names **Anne** or **Anna** .

Temporal interval (filing date, publication date)

Ad es.

1994:2014 Years

199401,201412 Years and Months

19949191 20141231 date

# B&Z Patent Landscape

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## The Process – Patent owner

The search for owners may include a preliminary analysis to search for all possible kind of owners of a patent:

- Cases of co-ownership
- Exclusive licensees
- Intragroup licenses
- Holding
- Financial companies
- Ecc....

# B&Z Patent Landscape

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## The Process – Geographical indications

- Patent search by country (USA GB, FR etc...)
- Search for international patents with validations in individual countries e.g. PCT (validated in USA, GB, FR and IT).
- Search for regional patents e.g. EP(IT, FR, DE).

# B&Z Patent Landscape

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## The Process – Analysis of the results Removal and/or Normalization of data

- Removal of unwanted data.
- Removal of documents with duplicate type codes (A3, A4, A8, A9).
- Removal of corresponding foreign applications.
- Removing irrelevant results.
  
- For patent applications published in the United States without assignee data, by inventor/year.
- By original assignee, current assignee, reassignment chain.
- By organization, licensee, buyer, business unit.
- By type of organization, large, small, university, financial, etc.

# B&Z Patent Landscape

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## The Process – Analysis of the results Categories and populations

### Category:

- Patent pending
- Granted patent



Possible  
infringement

- Application refused, lapsed  
withdrawn
- Patent lapsed



Free to Operate

# B&Z Patent Landscape

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## The Process – Analysis of the results

Create patent mapping diagrams, graphs, tables, and visualizations.

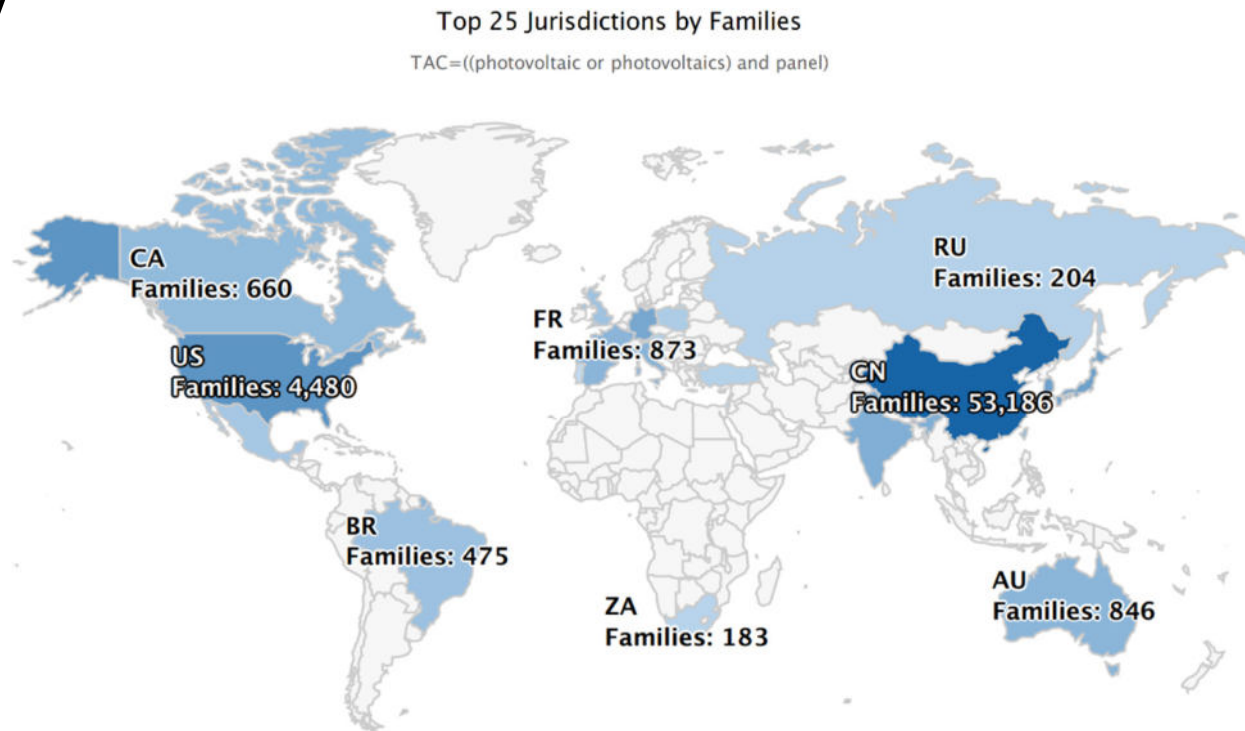
Examples :

- Geography.
- Patent filing or publication time trend.
- Owners.
- Technologies.
- Company vs. product.
- Time from application submission to examination or grant.

# B&Z Patent Landscape

## The Process – Analysis of the results

- Geography

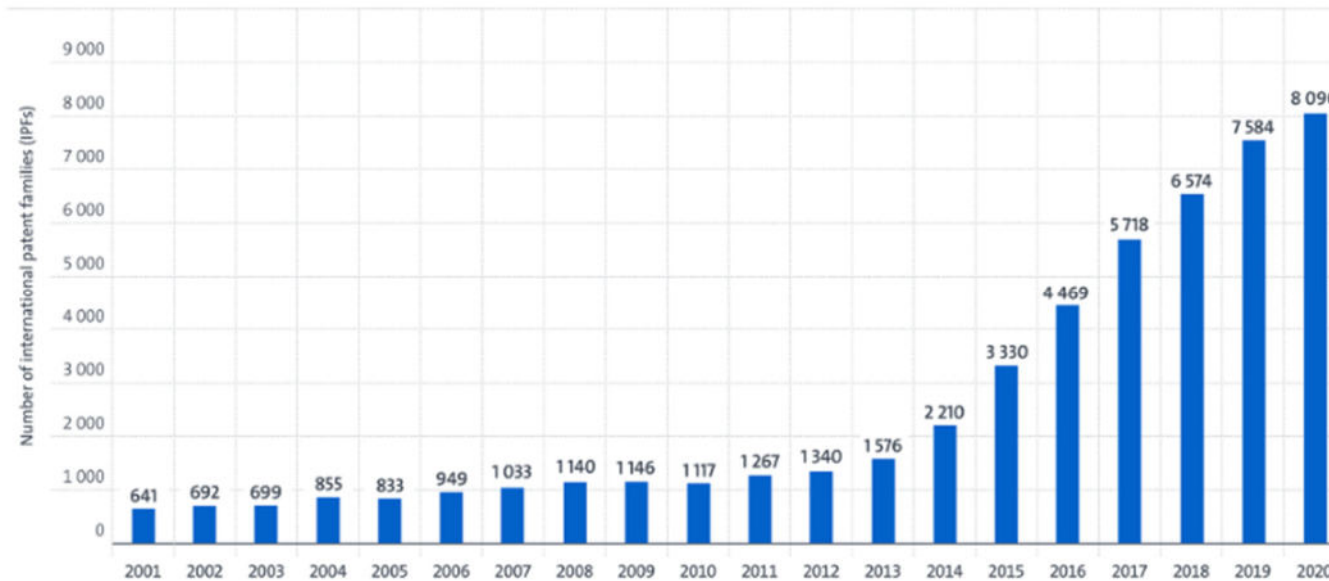


# B&Z Patent Landscape

## The Process – Analysis of the results

- Temporal trend of filing or publication of patents.

Trends in patenting in **3D printing technologies**



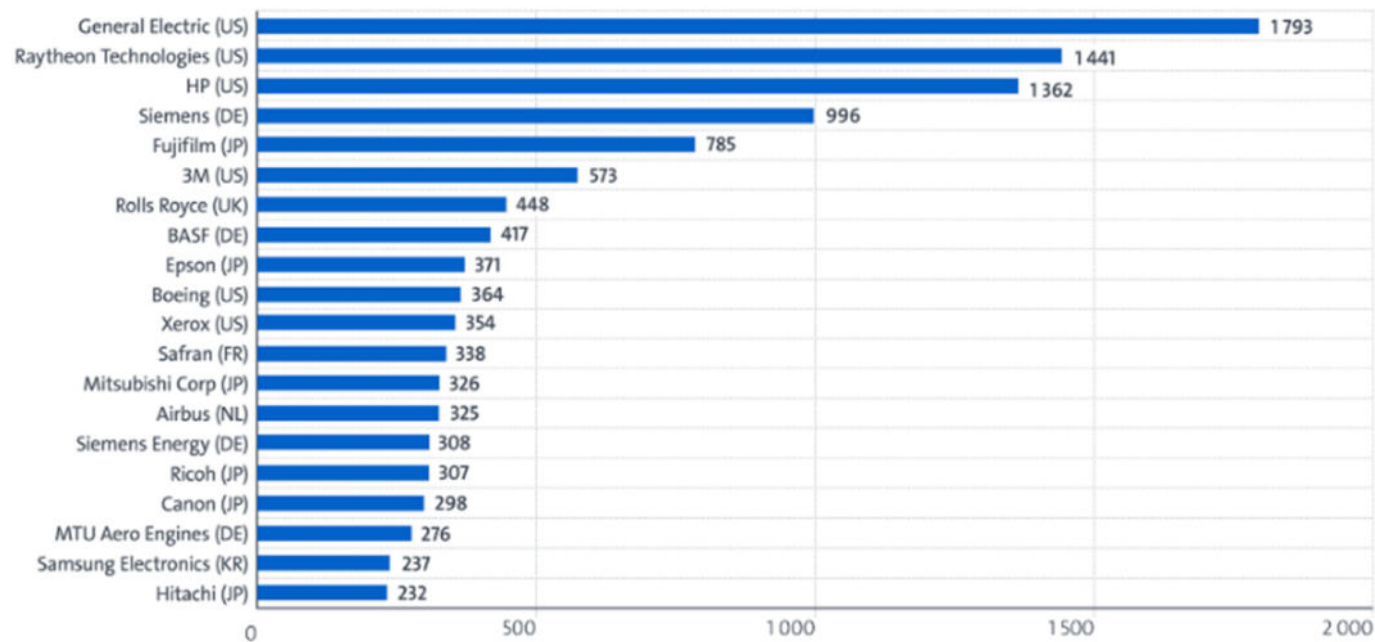
Source: European Patent Office

# B&Z Patent Landscape

## The Process – Analysis of the results

### Top owners

Top 20 patent applicants in 3D printing technologies, 2001-2020



Source: European Patent Office

# B&Z Patent Landscape

## The Process – Analysis of the results

### Technology

	Emerging Memories				Established Memories	
	FeRAM (or FRAM)	MRAM	ReRAM (or RRAM)	PCRAM (or PRAM, PCM)	DRAM	Flash NAND
Nonvolatile	YES	YES	YES	YES	NO	YES
Endurance	High (10 <sup>12</sup> )	High (10 <sup>15</sup> )	Medium (10 <sup>8</sup> )	Medium (10 <sup>8</sup> )	High (10 <sup>15</sup> )	Low (10 <sup>5</sup> )
2012 latest technological node produced (nm)	130 nm	130 nm	R&D	45 nm	30 nm	20 nm
Cell Size (cell size in F <sup>2</sup> )	Large (15-20)	Large/Medium (6-40)	Medium (6-12)	Medium (6-12)	Small (6-10)	Very small (4)
Write speed	Medium (100ns)	High (10 ns)	Medium (75 ns)	Medium (75 ns)	High (10ns)	Low (10 000 ns)
Power Consumption	Low	High/Low	Low	Low	Low	Very High
Cost (\$/Gb)	High (\$ 10 000/Gb)	High (\$ 1000 – 100 /Gb)	R&D	Medium (few \$/ Gb)	Low (\$1/Gb)	Very Low (\$ 0.1/Gb)

From Yole Développement « Emerging NVM » 2013 Report

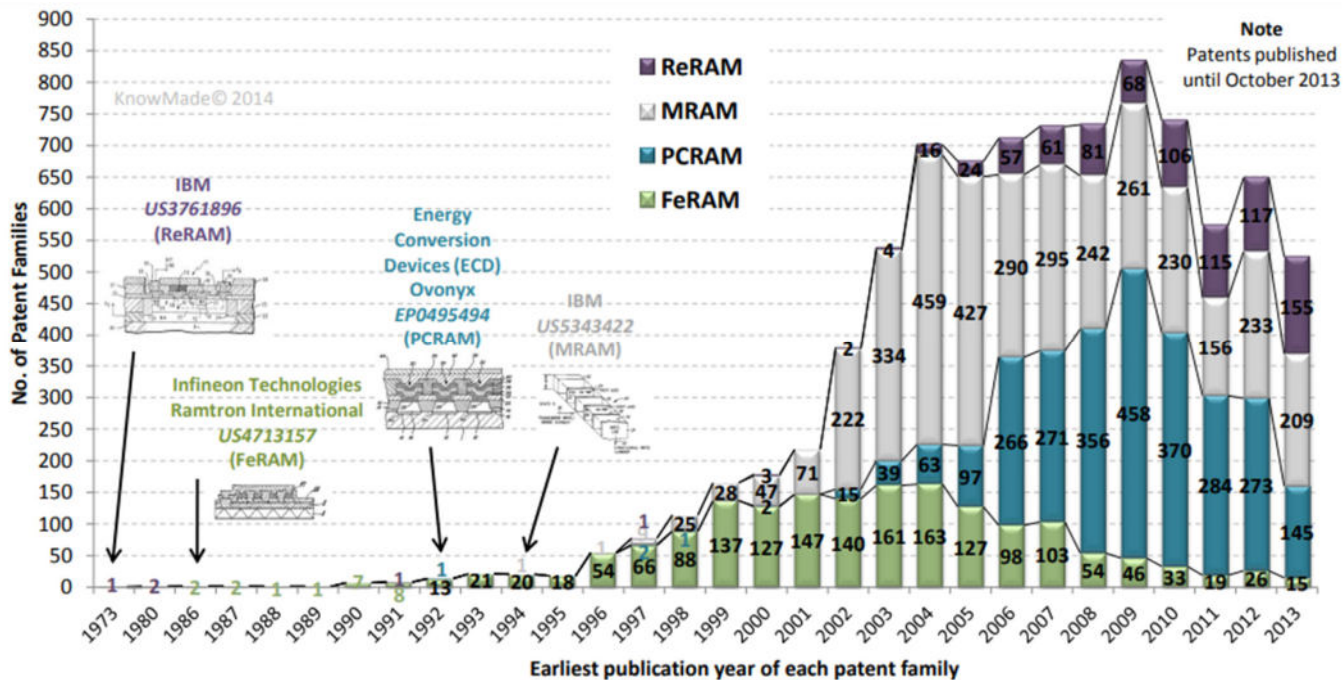
### Legenda

FERAM = Ferroelectric RAM  
 MRAM = Magnetoresistive RAM  
 RERAM = Resistive RAM  
 PCRAM = Phase-change RAM  
 DRAM = dynamic RAM  
 Flash NAND = Flash RAM

# B&Z Patent Landscape

## The Process – Analysis of the results

Technology trends

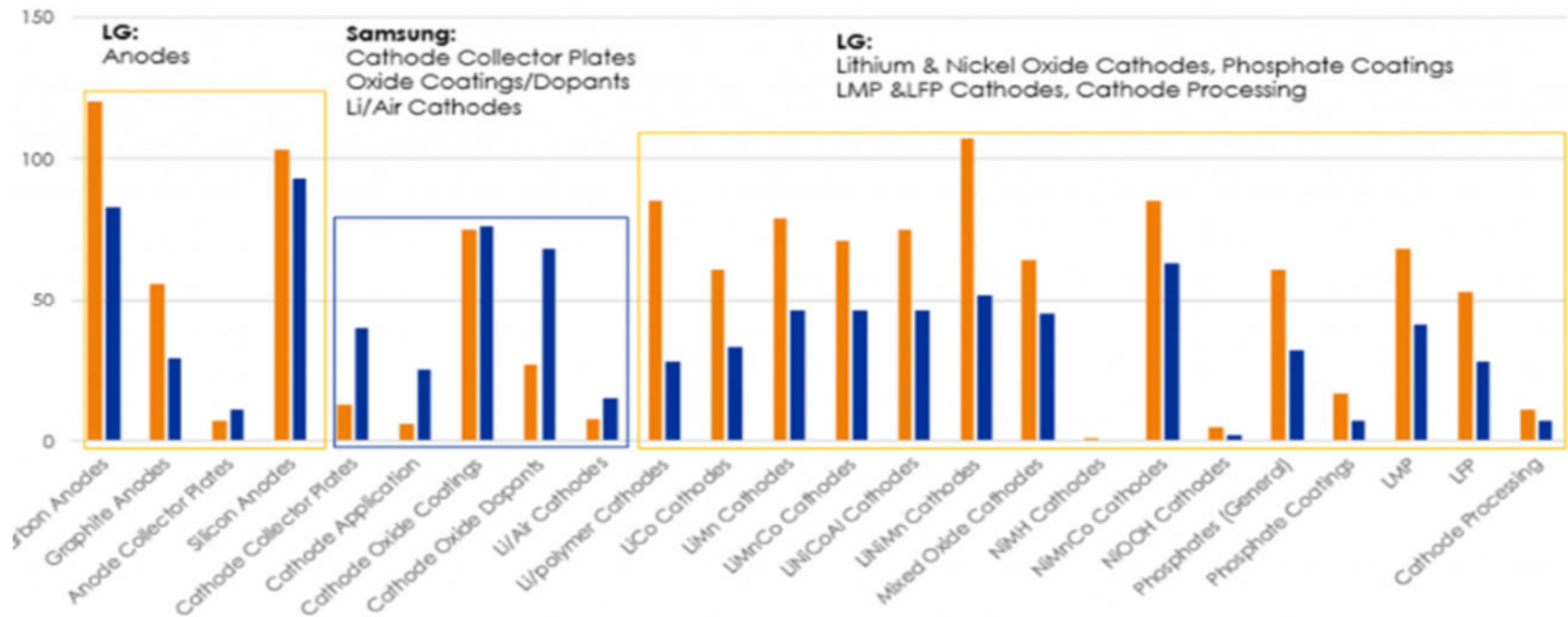


8,661 patent families were published from 1973 to 2013 in emerging NVM technology, and 38% of them were published these last 5 years. The publication number of **ReRAM** patents is still increasing with more than 100 patents published every year these last 4 years. With the first patent published by IBM in 1994, the number of **MRAM** patent publications were maximum between 2003 and 2007 with a relative steady number of publications since 2010. The number of **PCRAM** patent publications, with first patent (on electrically programming memory) published by ECD and Ovonyx in 1992, is higher than 250 every year since 2006, with the highest number in 2009 (458). Most of **FeRAM** patents were published between 1999 and 2007 with a number of patent publications decreasing since 2008.

# B&Z Patent Landscape

## The Process – Analysis of the results

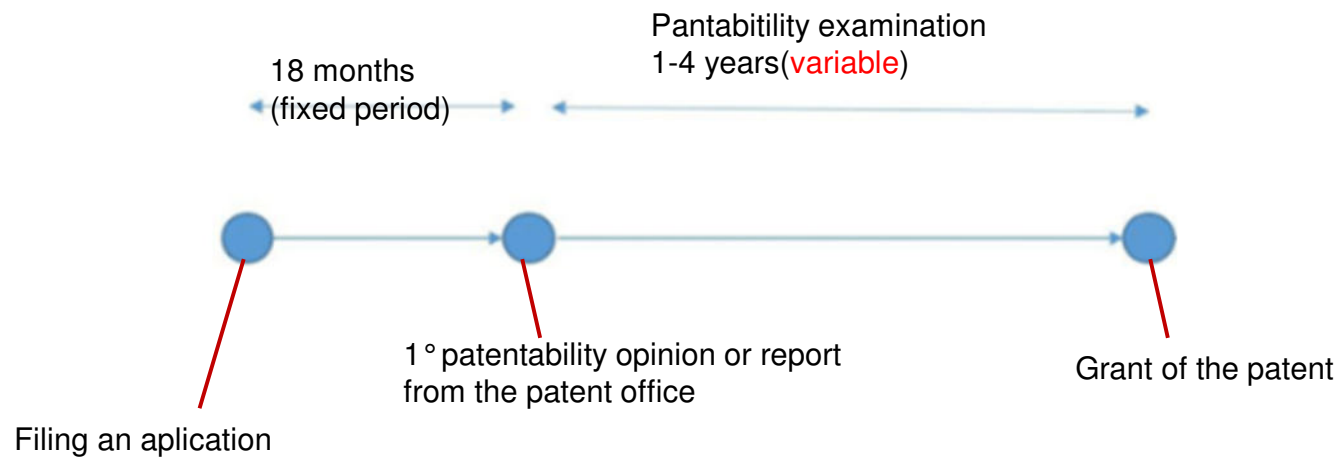
### Company vs. Product



# B&Z Patent Landscape

## The Process – Analysis of the results

Time from submission of application to examination or granting (example Europe)



# B&Z Patent Landscape

## European Patent Statistics 2022 – TOP filing countries.



PATENT INDEX 2022 – ITALY

epo.org

### TOP COUNTRIES FOR EUROPEAN PATENT APPLICATIONS<sup>1</sup>

#### TOP40

	2022	Change		2022	Change		2022	Change			
1	United States	48 088	2.9%	15	Finland	2 140	1.5%	29	Luxembourg	343	-20.8%
2	Germany	24 684	-4.7%	16	Canada	2 001	-3.8%	30	Hong Kong SAR (China)	331	49.8%
3	Japan	21 576	-0.4%	17	Spain	1 925	-1.0%	31	Portugal	312	7.6%
4	P.R. China	19 041	15.1%	18	Israel	1 741	1.2%	32	New Zealand	230	2.7%
5	France	10 900	1.9%	19	Chinese Taipei	1 474	-0.7%	33	Brazil	220	20.9%
6	R. Korea	10 367	10.0%	20	Ireland	1 140	12.3%	34	Czech Republic	219	9.0%
7	Switzerland	9 008	5.9%	21	Australia	1 003	-1.4%	35	Saudi Arabia	206	-45.6%
8	Netherlands	6 806	3.5%	22	Singapore	835	16.1%	36	Russian Federation	199	-26.8%
9	United Kingdom	5 697	1.9%	23	India	817	1.4%	37	Greece	185	-8.9%
10	Sweden	5 036	1.8%	24	Norway	660	4.9%	38	Cayman Islands	136	-54.2%
11	Italy	4 864	-1.1%	25	Poland	615	17.8%	39	Slovenia	123	6.0%
12	Denmark	2 662	0.6%	26	Türkiye	542	-26.3%	40	Hungary	102	-14.3%
13	Belgium	2 604	5.0%	27	Liechtenstein	456	-7.5%				
14	Austria	2 388	3.4%	28	Barbados	344	15.8%				

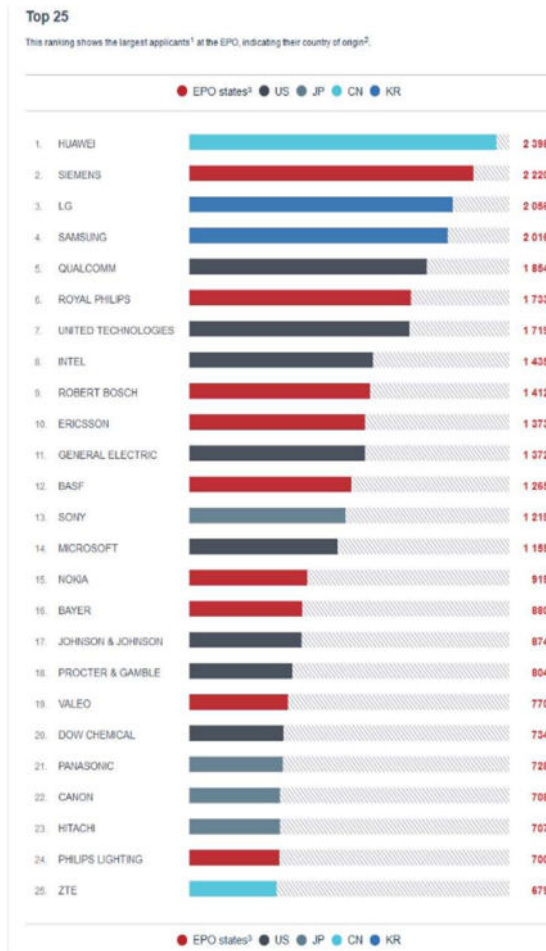
Source: EPO. Status: 30.01.2023.

<sup>1</sup> European patent applications include direct European applications and international (PCT) applications that entered the European phase during the reporting period. The geographic origin is based on the first-named applicant principle.

4

# B&Z Patent Landscape

## Patent Statistics European patent TOP owners 2021



# B&Z Patent Landscape

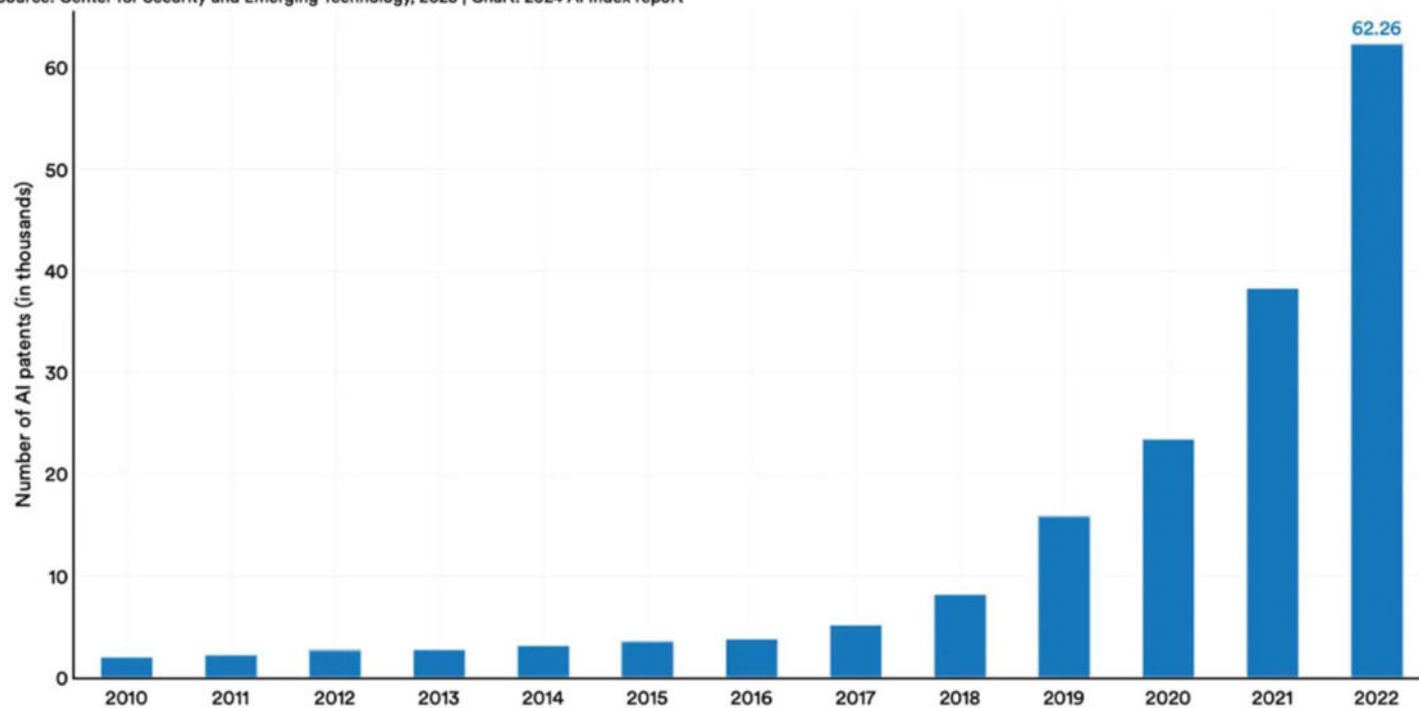
## European Patent Statistics

	n° domande brevetto 2022 (in giallo le top10 per Paese)					Var % 2022 su 2021				
	Germany	Spain	France	Italy	Total	Germany	Spain	France	Italy	Total
Electrical machinery, apparatus, energy	2.015	146	777	234	13.951	-3,5%	-12,0%	17,2%	5,4%	18,2%
Audio-visual technology	371	11	335	16	5.700	11,1%	-38,9%	22,3%	-46,7%	8,1%
Telecommunications	218	18	156	34	4.244	-13,5%	28,6%	0,6%	-2,9%	-2,3%
Digital communication	602	29	340	39	16.705	-17,3%	52,6%	-9,8%	-2,5%	11,2%
Basic communication processes	101	2	39	21	1.131	-11,4%	0,0%	-25,0%	75,0%	11,4%
Computer technology	1.237	81	711	105	15.193	3,3%	35,0%	0,9%	11,7%	1,8%
IT methods for management	253	15	75	33	2.374	-4,2%	-25,0%	-5,1%	-32,7%	-3,1%
Semiconductors	357	6	245	65	4.366	16,3%	0,0%	17,2%	32,7%	19,9%
Optics	338	24	217	43	4.185	-17,6%	-11,1%	-11,4%	-15,7%	0,7%
Measurement	1.501	79	587	206	9.185	-4,6%	31,7%	5,0%	-7,6%	1,0%
Analysis of biological materials	188	33	105	12	1.322	5,6%	-8,3%	-4,5%	-53,8%	7,9%
Control	705	13	154	79	3.469	0,4%	-51,9%	37,5%	9,7%	2,4%
Medical technology	1.391	161	733	315	15.683	-1,6%	11,0%	-1,1%	-7,1%	1,0%
Organic fine chemistry	956	75	403	119	5.955	-8,6%	-6,3%	-2,9%	0,8%	-0,4%
Biotechnology	770	153	462	107	8.168	1,6%	9,3%	-4,7%	-7,0%	11,0%
Pharmaceuticals	613	181	507	210	9.310	-4,5%	-4,2%	3,3%	12,3%	1,0%
Macromolecular chemistry, polymers	737	23	239	114	4.150	-3,4%	-14,8%	14,4%	11,8%	-2,6%
Food chemistry	156	31	106	51	1.985	-2,5%	-13,9%	-1,9%	-20,3%	-7,5%
Basic materials chemistry	720	52	275	69	4.269	-14,6%	-13,3%	25,0%	9,5%	-6,0%
Materials, metallurgy	639	37	268	56	3.911	-4,8%	-17,8%	-13,3%	-23,3%	-3,4%
Surface technology, coating	448	20	222	62	2.775	0,7%	-25,9%	2,3%	-30,3%	3,7%
Micro-structural and nano-technology	30	1	12	9	141	76,5%	0,0%	-14,3%	12,5%	11,9%
Chemical engineering	747	47	270	149	4.067	-5,2%	9,3%	-0,7%	3,5%	-4,2%
Environmental technology	331	51	127	93	1.850	6,4%	82,1%	0,8%	0,0%	-1,5%
Handling	904	83	221	394	4.750	-10,3%	20,3%	-5,6%	-2,5%	4,2%
Machine tools	816	33	134	223	3.487	-10,0%	-2,9%	42,6%	4,7%	-1,3%
Engines, pumps, turbines	626	70	376	131	4.025	-12,2%	-32,0%	-3,8%	6,5%	-7,3%
Textile and paper machines	306	21	54	121	2.220	-13,3%	-4,5%	8,0%	6,1%	-2,1%
Other special machines	1.251	76	494	355	6.382	1,9%	1,3%	0,4%	9,6%	-1,8%
Thermal processes and apparatus	513	41	182	133	2.736	5,8%	-2,4%	19,0%	10,8%	4,1%
Mechanical elements	954	38	325	181	3.665	-7,4%	11,8%	-1,5%	-4,2%	-4,1%
Transport	1.877	101	1.005	362	9.272	-6,3%	-13,7%	-1,6%	-8,8%	-2,6%
Furniture, games	537	41	130	210	3.160	-9,4%	-26,8%	-17,2%	0,5%	-5,5%
Other consumer goods	492	42	219	191	4.811	-5,0%	-2,3%	-18,3%	-7,7%	-6,7%
Civil engineering	948	66	350	280	4.355	-3,4%	1,5%	5,1%	-2,4%	-3,6%
	36	24	45	52	508	-45,5%	166,7%	95,7%	15,6%	87,5%
	<b>24.684</b>	<b>1.925</b>	<b>10.900</b>	<b>4.864</b>	<b>193.460</b>	<b>-4,7%</b>	<b>-1,0%</b>	<b>1,9%</b>	<b>-1,1%</b>	<b>2,5%</b>

## IA e brevetti

**Number of AI patents granted, 2010–22**

Source: Center for Security and Emerging Technology, 2023 | Chart: 2024 AI Index report



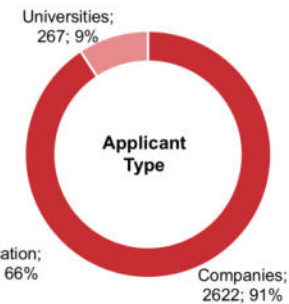
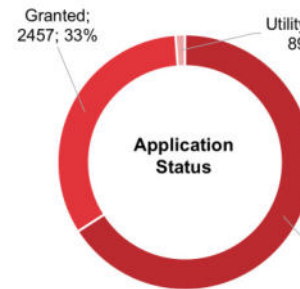
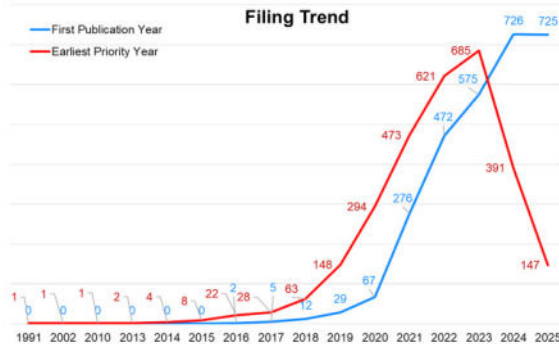
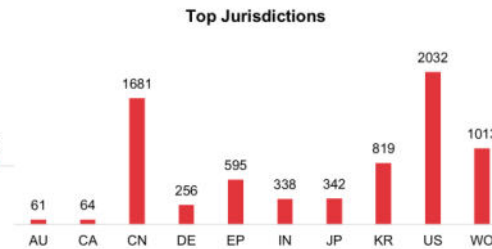
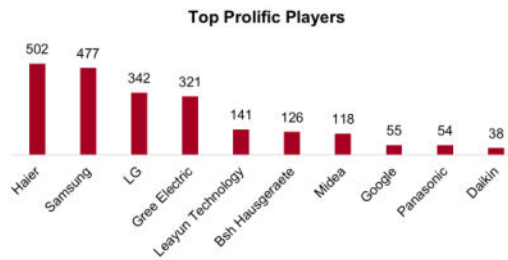
## IA e brevetti

### THE PATENT LANDSCAPE

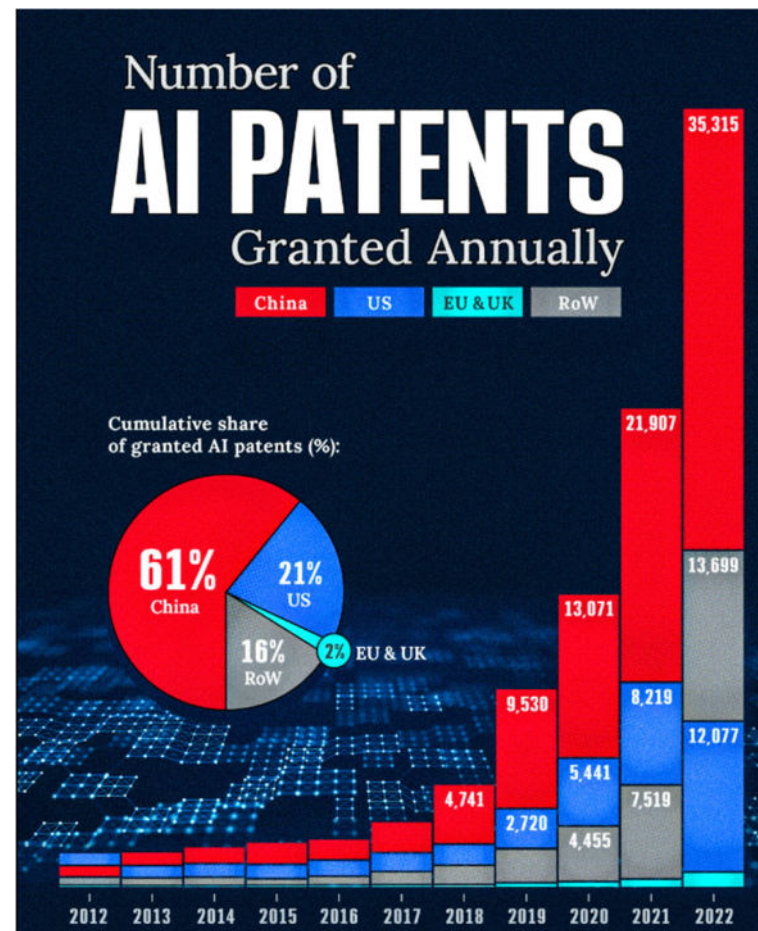
Artificial Intelligence in Home Appliances  
Reference period: 2021-2025



Major Players in this technology are Chinese and Korean Companies, and China & US Jurisdictions are leading in the filing trend

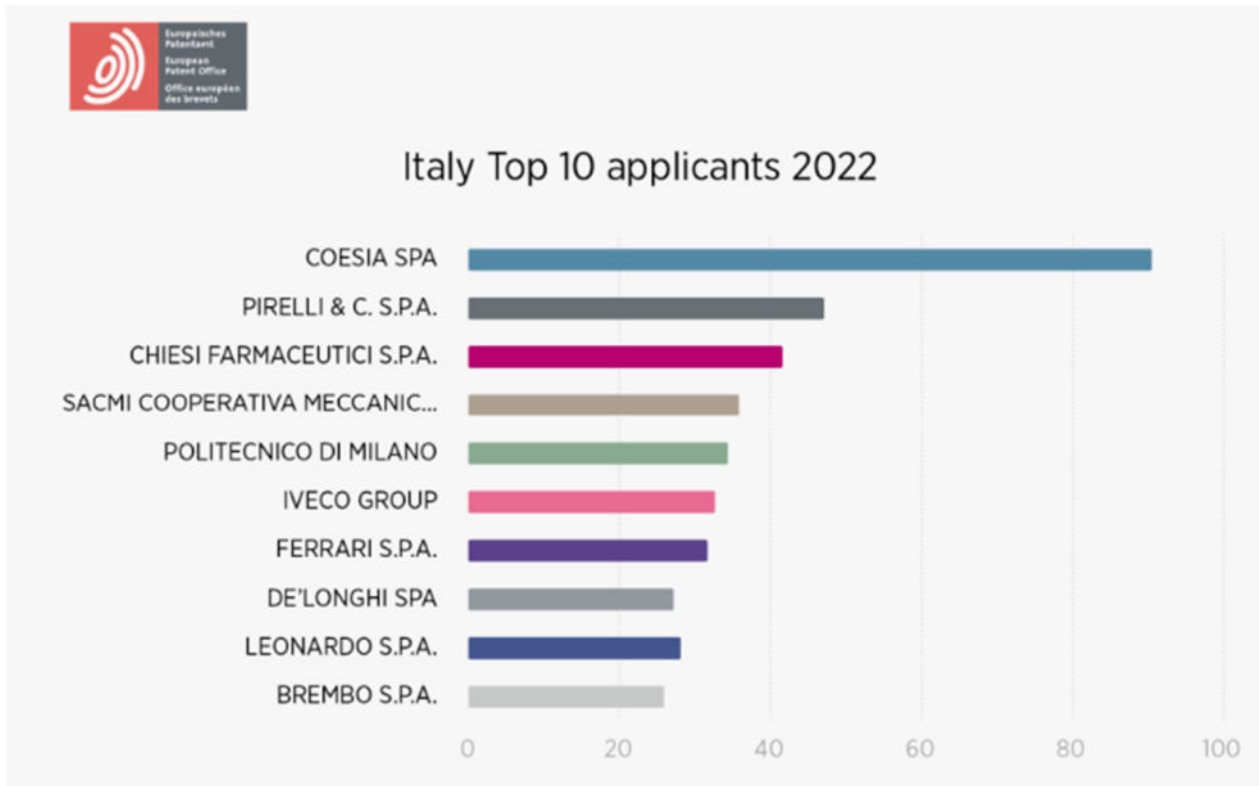


## IA e brevetti



# B&Z Patent Landscape

## Italian patent Statistics – Granted patents



# B&Z Patent Landscape

## Italian patent Statistics 2025

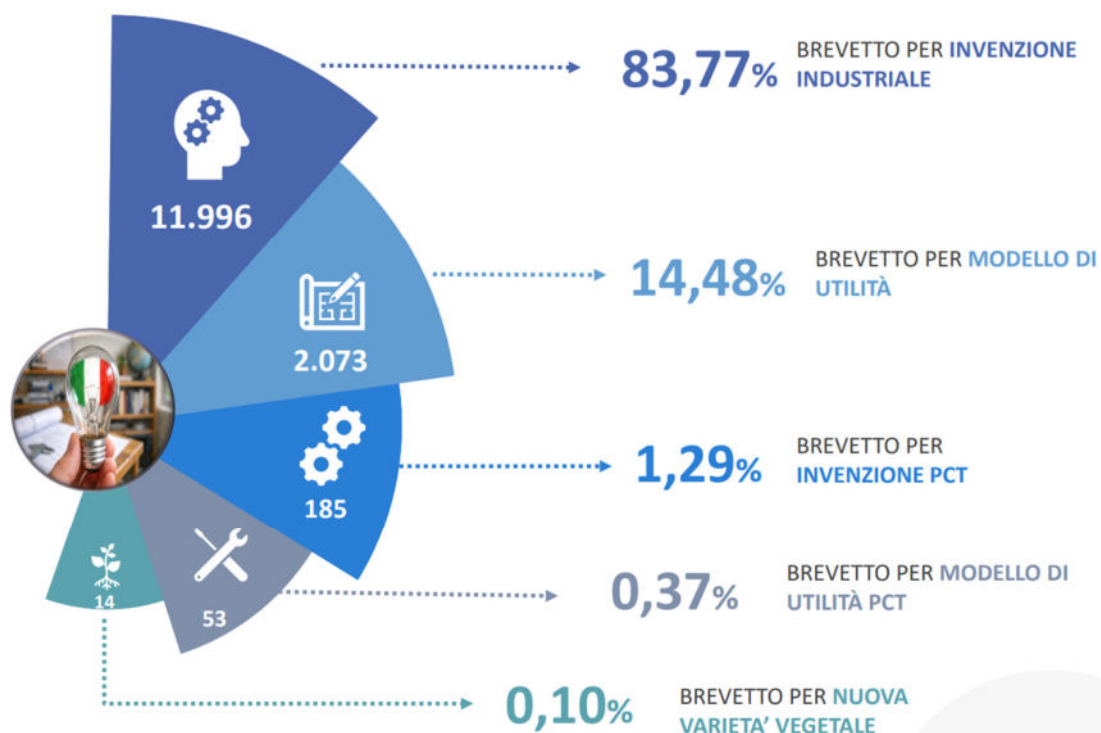
Nel **2025** si è registrato in Italia un considerevole incremento sia delle domande di **brevetto per invenzione industriale** (**11.996**) sia delle domande di **brevetto per modello di utilità** (**2.073**).

Stabili le richieste di apertura della **fase nazionale italiana da PCT** che hanno registrato la cifra di 238 depositi, suddivisi in **185 domande per invenzione industriale** e **53 domande per modello di utilità**.

Si aggiungono al totale **14** domande di **brevetto per nuova varietà vegetale**.

Per l'anno in oggetto, al pari del precedente, non è stata presentata alcuna richiesta di protezione per topografie di prodotti a semiconduttori.

Le **domande di brevetto per invenzione industriale**, tipologia principale di brevetto, risultano la categoria maggiormente rappresentata, con l'**84%** del totale delle nuove domande di brevetto presentate all'UIBM.

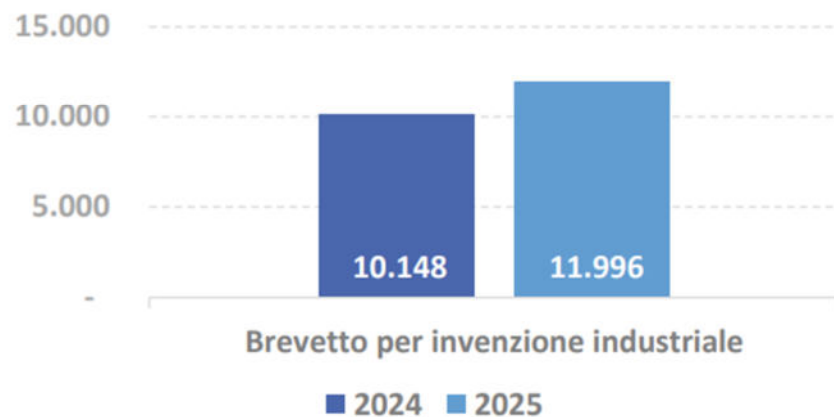


# B&Z Patent Landscape

## Italian patent Statistics 2025

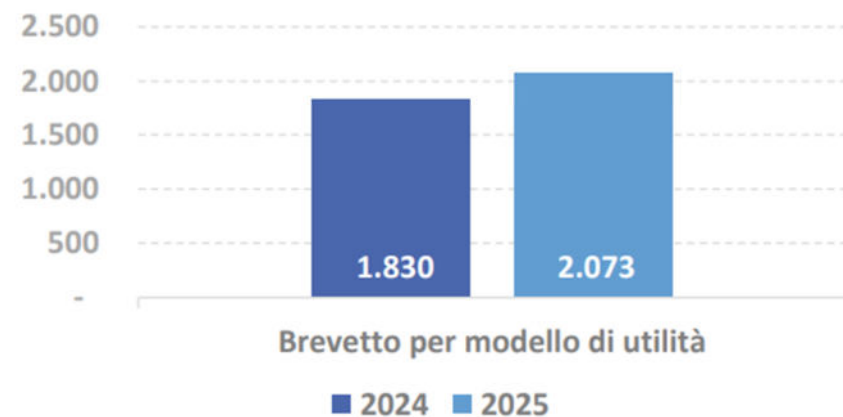
### BREVETTO PER INVENZIONE INDUSTRIALE

↑ **+18,2%** RISPETTO AL 2024



### BREVETTO PER MODELLO DI UTILITÀ

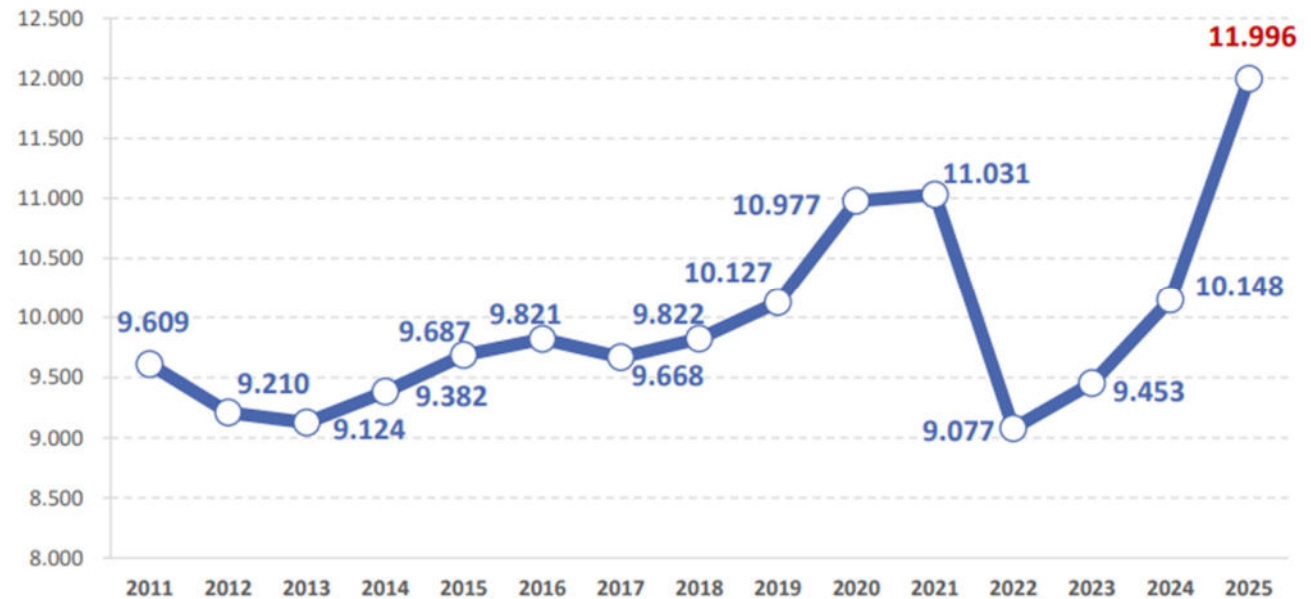
↑ **+13,2%** RISPETTO AL 2024



# B&Z Patent Landscape

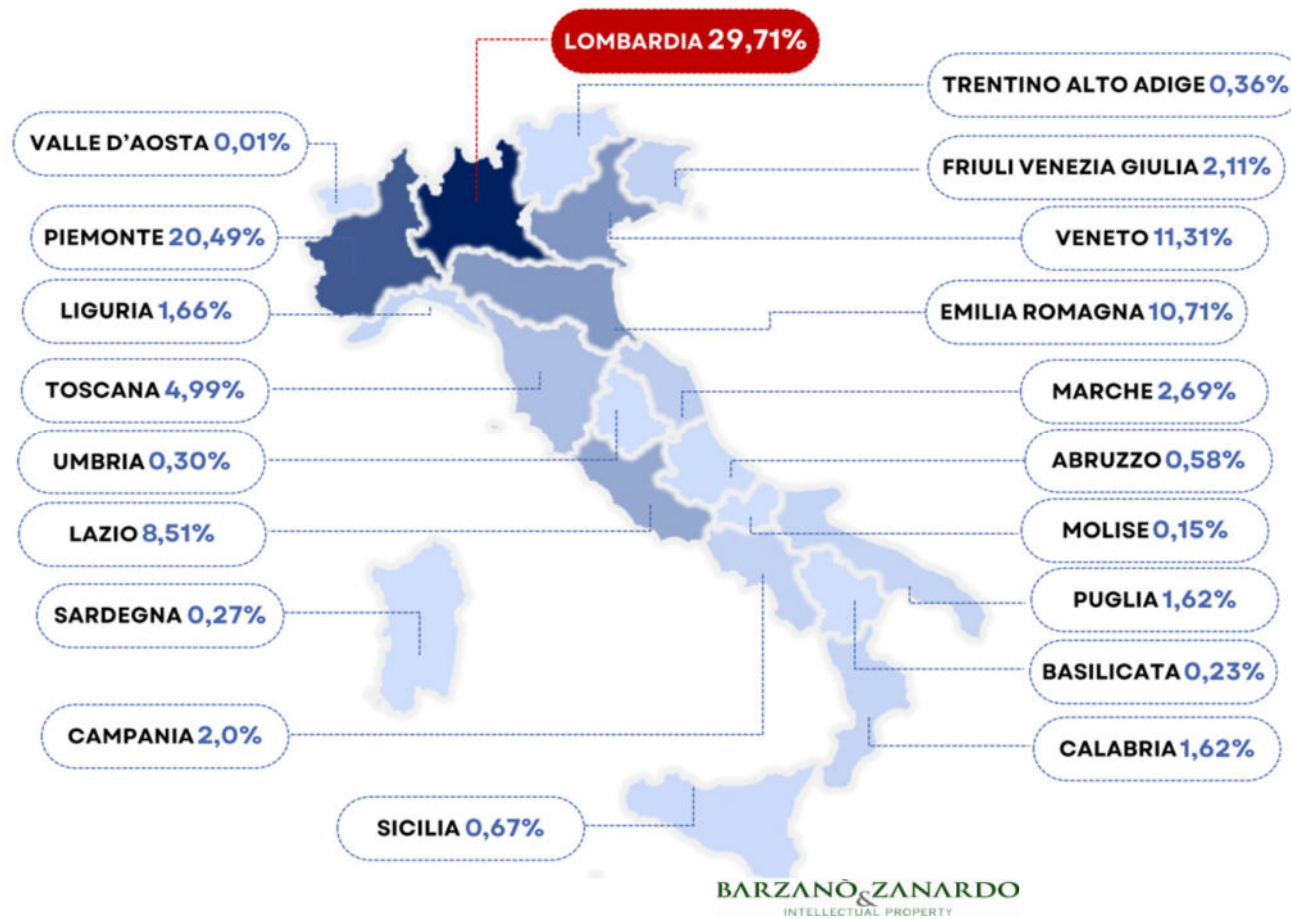
## Italian patent Statistics 2025

ULTIMI  
15 ANNI



# B&Z Patent Landscape

## Italian patent Statistics 2025



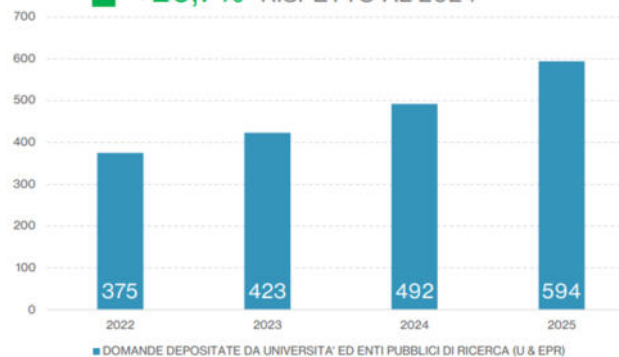
# B&Z Patent Landscape

## Italian patent Statistics 2025

594

DOMANDE DI BREVETTO PRESENTATE DA UNIVERSITÀ  
ED ENTI PUBBLICI DI RICERCA NEL 2025

↑ +20,7% RISPETTO AL 2024

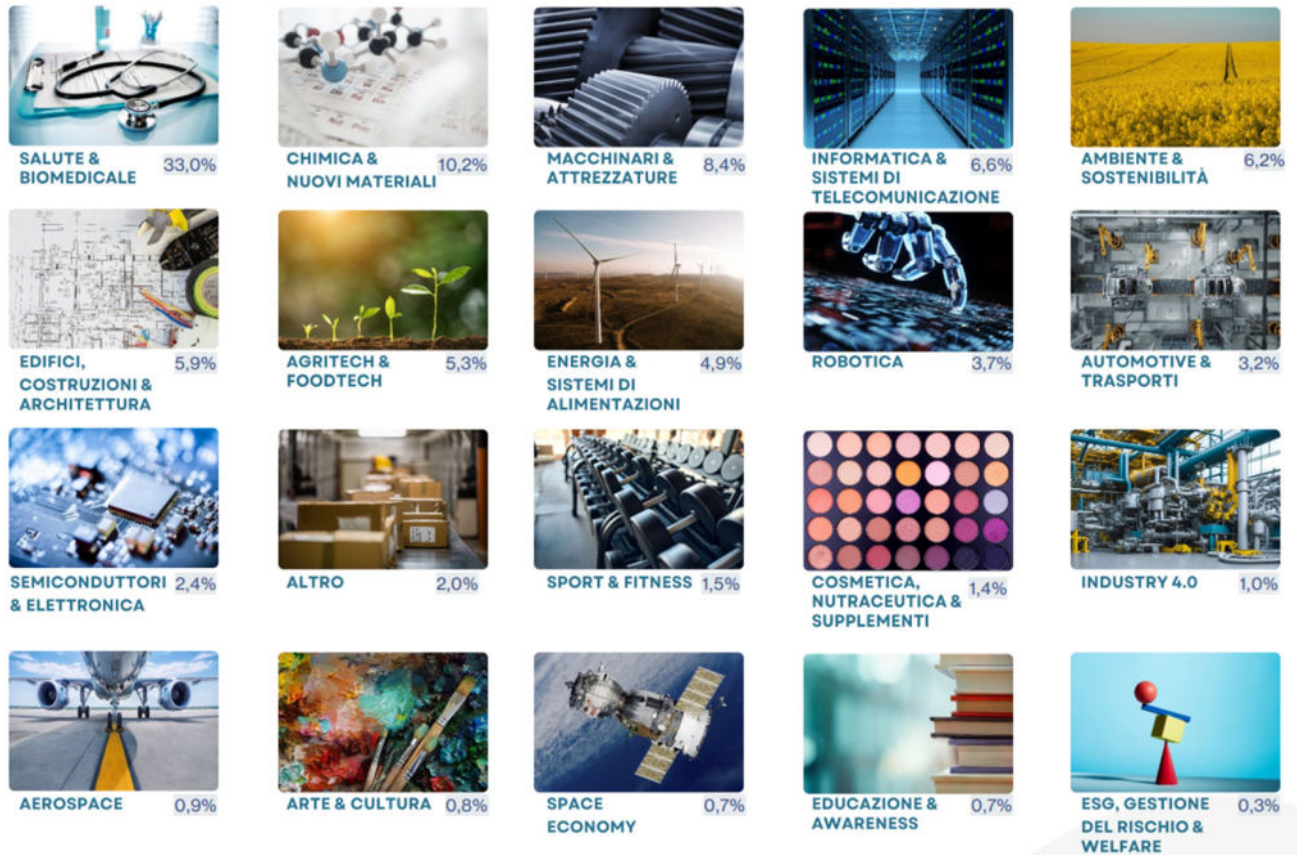


### Ranking 2025

1	Politecnico di MILANO
2	Fondazione Istituto Italiano di Tecnologia
3	Consiglio Nazionale delle Ricerche - CNR
4	Politecnico di TORINO
5	Università degli Studi di BOLOGNA
6	Università degli Studi di PADOVA
7	Università degli Studi di MILANO
8	Università degli Studi di TORINO
9	Università degli Studi di ROMA "La Sapienza"
10	Università degli Studi di GENOVA

# B&Z Patent Landscape

## Italian patent Statistics 2025 – Main Technological field





**GRAZIE PER L'ATTENZIONE!**

**BARZANÒ & ZANARDO**  
INTELLECTUAL PROPERTY

**Uffici a: Roma, Milano, Torino, Vicenza, Biella, Rimini, Pordenone**