



1.	Austria	5.13	76.6	73	57	6.1	95.1	5.2	83.7	4.8	68.4	5.8	75.4	4.6	65.7	4.9	62.9
2.	Canada	5.33	79.6	64.8	48.7	6.3	95.3	5.5	92	5	64.4	4.9	67.5	5.1	63.8	5.2	63.8
3.	Denmark	5.46	81.2	75.5	55.3	6.3	92.6	5.9	83.9	5.6	71.2	6	81	4.8	67.1	5.5	69.5
4.	France	5.13	78.8	62.1	51.9	6.2	99.2	5.3	75.7	4.9	62.8	3.5	54.1	4.4	62.1	3.9	58.3
5.	Germany	5.37	81.8	71.5	56.8	6	92.3	5.1	94.2	5.2	65.3	5	66.8	4.9	73.5	5.2	70
6.	Italy	4.31	71.5	53.5	52.2	6	99.6	4.4	67.7	3.1	43.6	3.5	49.4	5.4	74.9	3.4	45.6
7.	Netherlands	5.32	82.4	66.1	56.8	6.2	70.2	5.5	81.3	5.2	72.4	5.7	80.8	4.8	70.4	5.2	72.7
8.	Poland	4.33	68.9	64.4	50.2	5.9	83.8	4.8	82	4.1	49.7	4.1	55.1	2.9	46.8	3.3	36.8
9.	Portugal	4.4	70.4	48.2	52.6	5.9	94.2	4.6	61.3	3.8	50.9	4.3	58.8	3.7	54.6	4.1	50.6
10.	Russia	4.15	66.7	34.1	36.7	5.6	69.2	4.3	71.3	3.6	48.7	4.1	56.5	3	40.3	3.8	49.5
11.	Spain	4.59	75.3	57.8	50.6	5.8	100	4.7	65.5	3.9	48.1	4.2	57.2	4.1	55.3	3.7	43.9
12.	Switzerland	5.6	82.3	71.1	57.8	6.1	99.9	5.6	92.4	5.6	79	6.1	85.2	5.1	71.9	5.7	72.1
13.	United Kingdom	5.19	81.2	57.8	48.9	6.1	91.6	5.2	87.7	5.3	62.7	5	66.1	4.9	65.9	5.4	65.5
14.	USA	5.59	83.7	42.6	35.7	5.9	83	5.6	89.4	4.7	72.3	5	70.6	5.4	74.8	5.9	73.9

Notes:

1. Abbreviations:
  - Health and primary education- (HPE)
  - Health - life expectancy -(HLE)
  - Higher education And Training (HET)
  - Mean years of schooling -(MYS)
  - Extent of staff training -(EST)
  - Cooperation in labour-employer relations -(CLER)
  - State of cluster development - (SCD)
  - University-industry collaboration in R&D -(UIC- R&D)
  - Multistakeholder collaboration -(MC)
  - Global Competitiveness Index – (GCI)
  - Social Capital – (SC)

2. \*Data for 2012

Source: authors design based on GCI ranking The Global Competitiveness Report, World Economic Forum, 2009, The Global Competitiveness Report, World Economic Forum, 2019, [https://www3.weforum.org/docs/WEF\\_TheGlobalCompetitivenessReport2019.pdf](https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf); The 2009 Legatum Prosperity Index, [https://www.prosperity.com/download\\_file/view\\_inline/2829](https://www.prosperity.com/download_file/view_inline/2829)

**Table S2: Summary of BCG companies according to social/financial and technical innovation, period 2004-2022 (assessment at the time of 2022 based on Annual Report)**

MNC * maintaining the position/number in the BCG ranking	Employees 2022	Net income (billions USD 2022)	Trademarks, logos (2004-2022)	Annual granted patents, average approx.	The position of the company in financial implications for innovation	The cluster company is part of
<b>SUA</b>						
<b>1. Apple</b>	164,000	\$99.8	Apple Inc. has 1401 trademark applications. i.e.: iPhone, iPod, iPad	2000-2500	In 2018 has a deposit of 1 trillion USD market capitalization	3
<b>2. Microsoft</b>	221,000	\$72.7	Microsoft Corporation has 2783 trademark applications. The latest application filed is for "VIVA GLINT" Microsoft	3000-4000	The most important manufacturer of software	3
<b>3. Amazon</b>	Over 1 million full time employee and a number of part-time employees	\$-2.7	Amazon.com, Inc. has 109 trademark applications. The latest application filed is for "ZOOX"	3000-4500	The most important e-commerce company	1
<b>4. Alphabet</b>	190,234	\$59.9	Alphabet Inc. has 3 trademark applications. The latest application filed is for "ALPHABET" Google: The company's and the search engine platform's name.	3000-3500	Alphabet Inc. is Google's parent business,	1
<b>5. Tesla</b>	127,855	\$12.5	Tesla, Inc. has 93 trademark applications. The latest application filed is for "CYBERQUAD"	2000	The biggest manufacturer of EV	1
<b>7. Moderna</b>	3,900	\$8.4	Moderna, Inc. has 203 trademark applications. The latest application filed is for "MCOVFLU"	10-25	The company has financial innovation in the industry	2

<b>10. IBM</b>	345,000	\$1.6	International Business Machines has 5 trademark applications. The latest application filed is for "CHRP".	9000-9300	One of the most innovative in technical and social firms	1
<b>11.Meta</b>	86,482	\$23.2	Meta Platforms, Inc. has 125 trademark applications. The latest application filed is for "META GAMING"	900-1200	Meta Platforms - previously Facebook	1
<b>12. Nike</b>	79,100	\$6	Trademark applications and grants for Nike, Inc. Nike, Inc. has 833 trademark applications. The latest application is for ``INFINITYRN``	2000-3000	Top manufacturer in the sports articles	3
<b>13. Walmart*</b>	2,300,000	\$13.9	Walmart Stores, Inc. has 1746 trademark applications. The latest application filed is for "SAM'S CLUB HOME SERVICES INSTALLATION".	60-80	The biggest company of retail; 50% operates outside the country, provides social/financial innovations	2
<b>14. Dell</b>	133,000	\$5.55	Dell Inc. has 560 trademark applications. The latest application filed is for "YOURID" Dell.	2000-2500	One main manufacturer of PC	3
<b>15. Nvidia</b>	22,473	\$9.7	Trademark applications and grants for Nvidia Corporation. Nvidia Corporation has 310 trademark applications. The latest application filed is for `` SIONNA``	2500-3000	One of the important manufacturers of semiconductors, technical innovations	3
<b>17. Target*</b>	450,000	\$2.8	Target Corp has 4 trademark applications. The latest application filed is for "TOTAL AUTOMOTIVE PROTECTION" Target.	70-100	The company is making also technical and financial innovations	1
<b>18. Pfizer</b>	83,000	\$31,3	Pfizer Inc. has 3712 trademark applications. The latest application filed is for "EASABLE" Pfizer.	1000-1200	Important manufacturer in the pharmaceutical industry	2
<b>19. Oracle</b>	143,000	\$6,7	Oracle Corporation has 156 trademark applications. The latest applications filed is for `` WIRELESS PORTAL FOR YOUR MOBILE LIFE``	3000-3300	Important manufacturer in software industry, especially in technical innovation.	1

<b>23. HP</b>	58,000	\$3.2	Hewlett Packard Co has 519 trademark applications. The latest application filed is for "THINCLONE" HP	2000-2300	Important manufacturer in informatics equipment industry	1
<b>27. Johnson &amp; Johnson</b>	155,800	\$17.9	Johnson & Johnson has 6899 trademark applications. The latest application filed is for "LEADING WHERE MEDICINE IS GOING"	4000-4500	Important manufacturer in the pharmaceutical industry	3
<b>28. Cisco</b>	83,300	\$11.8	Cisco Systems, Inc. has 49 trademark applications. The latest application filed is for "IR ON DEMAND"	1300-1500	Innovative company in technical and social industry	1
<b>29. GE</b>	172,000	\$-0.1	Trademark applications and grants for General Electric Company. General Electric Company has 2384 trademark applications. The latest application filed is for "VERNOVA"	2000-2400	Major manufacturer in the industry of household appliances, electronics, etc.	3
<b>32. E-bay*</b>	11,600	\$-1.2	Ebay Inc. has 204 trademark applications. The latest application filed is for "EBAY".	250-300	Major provider in online sales; socially/financially innovative	3
<b>34. Procter &amp; Gamble</b>	106,000	\$14.4	The Procter & Gamble Company has 5425 trademark applications. The latest is filed for ``BODEWELL``	700-800	Important manufacturer in the chemical industry, cosmetics, etc.	2
<b>36. Coca Cola*</b>	82,500	\$9.8	The Coca-Cola Company has 2112 trademark applications. The latest application filed is for "TOPO CHICO SABORES".	50-55	Largest manufacturer in the soft drinks industry; social innovations.	2
<b>37. 3M</b>	92,000	\$5.7	3M Company has 1106 trademark applications. The latest application filed is for "EXPRESS ONE".	3300-3600	Major manufacturer in several high-tech industries.	3
<b>38. Pepsi &amp; Co</b>	315,000	\$8.9	Pepsi Co, Inc. has 2686 trademark applications. The latest application is filed for `` MTN DEW ZERO SUGAR SPARK``	300-400	Competitor for Coca-Cola; social innovations.	2
<b>42. GM</b>	167,000	\$8.9	General Motors has 1493 trademark applications. The latest application	700-900	Important manufacturer in the automotive industry	3

			filed is for "GM ENVOLVE" General Motors:			
<b>43. Ford</b>	173,000	\$-1.9	Ford Motor Company has 3797 trademark applications. The latest application filed is for `` BUILT FORD PROUD``	3200-3300	An important manufacturer in the automotive industry; it also operates in Romania, with a factory in Craiova.	3
<b>44. Intel</b>	131,900	\$8	Corporation has 632 trademark applications. The latest application filed is for `` G GRANULATE``	2500-3000	The most important manufacturer of last generation semiconductors.	3
<b>EUROPA</b>						
<b>20. Siemens</b>	311,000	\$4	Siemens Aktiengesellschaft has 1537 trademark applications. The latest application filed is for `` SIVISION``	2500-3000	Major manufacturer in several high-tech sectors; invested in the chip industry.	3
<b>25. Zalando*</b>	17,000	\$0.1	Zalando Se has 40 trademark applications. The latest application filed is for "ZALANDO"	10-15	Provider in the online sales industry; social innovations.	2
<b>26. Bosch</b>	421,000	\$0.1	Robert Bosch G M B H has 323 trademark applications. The latest application filed is for "BGUSS"	2800-3000	Major manufacturer in several medium-tech sectors.	1
<b>35. Adidas</b>	59,200	\$0.2	Adidas Ag has 299 trademark applications. The latest application filed is for "WONDERWAVE" Adidas	1000-1300	Technical and social innovator; competitor for Nike	3
<b>40. SAP</b>	112,000	\$2.4	SAP has 72 trademark applications. The latest application filed is for "SAP"	1000-1300	Provides technology and software solutions	1

47. Philips	77,200	\$-1.6	Philips N.v. has 756 trademark applications. The latest application filed is for "S2"	2200-2500	Major European manufacturer of PCs, laptops, etc.	3
49. Nestle	275,000	\$9.7	Société Des Products Nestlé S.a. has 3265 trademark applications. The latest application filed is for "OUTSHINE SMOOTHIES & SNACKS"	1900-2200	Leading manufacturer in the food industry	3
50. Unilever	138,000	\$8.7	Unilever Global Ip Limited has 22 trademark applications. The latest application filed is for "SUGAR DUST"	200-250	Major manufacturer in the cosmetics, food, etc. industry.	3
ASIA						
6. Samsung	267,937	\$86.8	Samsung Electronics Co., Ltd. has 3154 trademark applications. The latest application filed is for "OPEN ALWAYS WINS"	6000-7000	South Korea's largest company; has become a rival to Apple, Intel etc.	3
8. Huawei	207,000	\$5.2 Net income	Huawei Technologies Co L T D has 918 trademark applications. The latest application filed is for "HISILICON HISPARK"	3000-4500	Innovative Chinese company in 5G industry, mobile phones etc.	3
9. Sony	110,000 (2019)	\$36.3 (2022) <i>gross profit</i>	Sony Group Corporation has 37 trademark applications. The latest application filed is for "SENSOS"	3000-3500	Remains a leading Japanese manufacturer in the IT industry	1
16.LG	11,888 (33% in South Korea) <sup>1</sup>	\$1.4	LG Corp. has 359 trademark applications. The latest application filed is for "LG GRAM SUPERSLIM"	2800-3500	Major manufacturer in South Korea in the electronics, IT industry, competitor to Samsung.	3
21. Toyota	372,817	\$25.4	Toyota Motor Corp has 16 trademark applications. The latest application	3200-3300	Japan's largest automaker; remains extremely innovative;	1

<sup>1</sup> <https://www.lg.com/global/employees.page>

			filed is for "PLUS PERFORMANCE EVOLUTION"		develops EVs; changes EV patent strategy from 2015	
<b>22. Alibaba</b>	239,740 (2022)	\$49.5	Alibaba Group Holding L T D has 248 trademark applications. The latest application filed is for "a symbol or image mark"	1000-2500	China's largest online retailer; has become a direct competitor to Amazon.	3
<b>24. Lenovo</b>	75,000	\$12.1 <i>Gross profit</i>	Lenovo Group Limited has 2 trademark applications. The latest application filed is for "MAXBRIGHT"	2000-2500	Leading global PC manufacturer; Chinese company with internationalization strategy	1
<b>30. Jingdong*</b>	362,171	\$21.3 <i>Gross profit</i>	Beijing Jingdong Century Trading Co L T D has 7 trademark applications. The latest application filed is for "JAJoy"	30-50	Operates in the industry of online, AI etc.; innovative social	2
<b>31. Xiaomi</b>	32,543	\$9.6	Xiaomi Inc has 70 trademark applications. The latest application filed is for "JEWEL PARTY"	2600-3500	Chinese manufacturer recently entered the international telecommunications market; socially innovative	1
<b>33. Hyundai</b>	150,000	\$18.6 <i>Gross profit</i>	Hyundai Motor Company has 510 trademark applications. The latest application filed is for "GT90 GENESIS"	200-300	Major South Korean manufacturer in the automotive industry	2
<b>39. Hitachi</b>	397,732	\$22.7	Hitachi America, Ltd. has 42 trademark applications. The latest application filed is for "FALCON"	5700-6300	Remains one of the most innovative Japanese companies	1
<b>41. Tencent</b>	112,771	\$1	Tencent Holdings Limited has 325 trademark applications. The latest application filed is for "PUPU ALIENS"	4800-5500	Operates in the online and entertainment industry; socially innovative	3



<b>45. Byte-dance</b>	150,000	\$25	Byte-dance Ltd. has 135 trademark applications. The latest application filed is for "BYTEDANCE"	1500-2500	Owner for social network TikTok; social innovator	1
<b>46. Panasonic</b>	240,198 40% are based in Japan	\$18.5 <i>Gross profit</i>	Panasonic Corporation of North America has 835 trademark applications. The latest application filed is for "BRILLANCECX"	2800-3000	Japanese Important Company	3
<b>48. Mitsubishi</b>	80,728 (2021)	\$19.1 <i>Gross profit</i>	Mitsubishi Corporation has 24 trademark applications. The latest application filed is for "MITSUBISHI"	2100-2300	Japanese automotive manufacturer in an alliance with Nissan and Renault	1

\*Some companies do not disclose in their Annual Report the amount of funds allocated to R&D; by the nature of their business, they make fewer technical innovations per year but can be considered innovative by the degree of use of disruptive technologies.

Legend:

The inclusion of the company in a particular cluster was done by the authors;

The delineation per cluster is as follows:

1. - Company considered to have a large number of technical innovations (patents), so it is "predominantly technically innovative".
2. - - Company considered to have a large number of social innovations (mostly financial), so it is "predominantly socially innovative".
3. - Company considered to have a balanced number of technical innovations (patents) and social innovations, so it is "medium technically and socially innovative".

**Source:** Elaborated by the authors based on BCG, WIPO, Fortune, Forbes, European Commission reports, Annual Reports 2019, 2020, 2021